ABSTRACTS

BREAKOUT SESSION 1

MODELING STUDIES

M01 USING LORCASERIN FOR WEIGHT MANAGEMENT PRIOR TO BARIATRIC SURGERY: MODELING THE COST IMPLICATIONS FOR CALIFORNIA STATE MEDICAID
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OBJECTIVES: Many commercial health care plans and state Medicaid programs commonly provide coverage for bariatric surgery for patients with BMI ≥ 40 or BMI 35-39.9 with ≥1 obesity-related comorbidity. Coverage for anti-obesity medications and avoidance of bariatric surgery. This study modeled the pharmacy and medical cost implications of treating patients with lorcaserin, an FDA-approved anti-obesity medication, prior to bariatric surgery, in the California Medicaid (MediCal) population. METHODS: The model assumed that severely obese patients (BMI ≥ 40) whose weight was reduced to <35 following lorcaserin treatment would avoid bariatric surgery. Model inputs included the size of the adult (age 21-64) MediCal population (6.67 million), national rate of bariatric surgery (0.01%), and average cost of bariatric surgery in California ($21,852). Lorcaserin treatment was modeled on results from three Phase III clinical trials (BLOSSOM, BLOOM, BLOOM-DM) evaluating the efficacy and safety of lorcaserin for weight loss. Medication specific inputs included proportion of patients responding to lorcaserin treatment (achieving ≥5% weight loss from baseline at week 12), expected weight loss, and medication acquisition costs ($145/month). The model generated cost estimates over a 2-year timeline from the payer perspective. RESULTS: The number of patients predicted to undergo bariatric surgery was 6,140. Of those, 2,609 (42.5%) would respond to lorcaserin treatment with 459 (17.6%) obtaining a BMI <35 at one year. Medication costs for those using lorcaserin totaled $6.23 million. Bariatric surgery costs totaled $11.29 million. Predicted cost savings for patients who would avoid bariatric surgery were estimated at $2.82 million. CONCLUSIONS: For MediCal, using lorcaserin to treat obesity prior to bariatric surgery may lead to significant cost saving over a 2-year horizon. Real-world, long-term evidence is needed, however, to further evaluate the role of lorcaserin for weight management in patients considering bariatric surgery.

M02 DEVELOPMENT AND VALIDATION OF AN ALGORITHM TO IDENTIFY PATIENTS WITH HEMOPHILIA A IN AN ADMINISTRATIVE CLAIMS DATABASE
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OBJECTIVES: Develop and validate an algorithm to identify patients with hemophilia A in an administrative claims database. METHODS: We first created a screening algorithm using diagnosis and treatment codes to identify potential hemophilia A patients from administrative claims data in the US HealthCore Integrated Research Database between 01/01/06 and 04/30/15. Medical records for a randomly selected subset of patients were reviewed to confirm case status. In this validation sample, we used lasso logistic regression with cross-validation to develop a predictive model using covariates in claims data to estimate the probability of being a confirmed hemophilia A case. RESULTS: Using the screening algorithm, we identified an initial cohort of 2,525 patients with potential hemophilia A. Of 400 medical records reviewed, 248 (62%) patients were classified as hemophilia A cases, 131 (33%) were false positives, and 21 (5%) were of indeterminate status. The lasso regression model evaluated 36 potential covariates and identified several strong predictors of hemophilia A that were not included in the screening algorithm, including ≥1 inpatient, outpatient or emergency room visit for hemophilia A diagnosis after clotting factor level tests; diagnosis made by a hematologist and ≥1 hemophilia A diagnosis over 3 months. A probability threshold of ≥0.6 resulted in a PPV of 94.7% (95%CI: 92.0-97.5), sensitivity of 94.4% (95%CI: 91.5-97.2), and specificity of 90.1% (95%CI: 85.0-95.2) in the validation sample. We applied this model to the initial cohort to identify a refined cohort of 1,507 patients. The refined cohort was more likely to be male, be under the care of a hematologist, and have fewer comorbidities. CONCLUSIONS: We developed and validated an algorithm to identify hemophilia A cases in an administrative claims database with high PPV, sensitivity and specificity. This algorithm uses widely available variables that can be applied in other claims databases.

M03 MODELLING ALZHEIMER’S DISEASE PROGRESSION USING A MULTIVARIATE MODEL FOR THE ASSOCIATED OUTCOMES OF COGNITION, BEHAVIOR AND FUNCTIONING: DATA FROM THE ICTUS STUDY
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1Bristol, Sheffield, UK, 2The Swedish Institute for Health Economics (HIE), Lund, Sweden, 3Otsuka Pharmaceutical Europe Ltd, Wexham, UK

OBJECTIVES: The ICTUS study provides longitudinal data on markers of Alzheimer’s disease (AD); ADAS-cog, NPI, ADL and IADL questionnaires measuring cognitive, behavioural and functional decline, respectively. Available literature indicates that it is important that models predicting AD progression account for the joint evolution of decline. The objective of this project was to develop a model to understand AD progression using ICTUS study data. METHODS: AD progression was studied in the subset of European ICTUS patients (n=982/N=1375) treated with AChE inhibitors with biannual follow-up over 2 years. A multivariate linear growth model was fitted including fixed and random covariates for years since baseline for each marker, allowing the rate of change for each marker to vary for each patient. The multivariate model structure allowed quantification of the correlation between the rate of decline across markers. The model also included baseline and time-dependent covariates, including baseline age, MMSE and concurrent treatment. Exploratory modelling revealed implausible covariate estimates and unsatisfactory residual diagnostics for NPI. NPI was therefore removed as an outcome and included as a baseline covariate. RESULTS: The model showed a strong multivariate relationship between the rate of change in cognition and functioning. There was a strong positive correlation in the rate of decline of ADL and IADL (r=0.65) and a strong negative correlation between the rate of decline of ADAS-cog and ADL and ADAS-cog and IADL (rho = -0.70 and -0.55, respectively). ADAS-cog showed an annual increase of 4.55 [95%: 4.15, 4.94]; p < 0.001] and a decrease of -0.49 [-0.54, 0.44]; p < 0.001 and IADL a decrease of -0.87 [-0.95, -0.79]; p < 0.001. CONCLUSIONS: This study demonstrates the strength of correlation between cognition and function, providing an example of how to account for this within predictions. Whilst behaviour is also considered a conceptually important marker for AD progression, within this study it was not feasible to model all four markers simultaneously.
granular data from unstructured fields in this data source and machine learning to refine the accuracy of our models and the predictors of DMT initiation in the MS population.

PRINCING AND REIMBURSEMENT STUDIES

PR1

ONCOLOGY DRUG REIMBURSMENT IN CANADIAN PROVINCES: DOES A HIGHER ICER DELAY LISTING?
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OBJECTIVES: The Canadian Agency for Drugs and Technologies in Health (CADTH) pan-Canadian Oncology Drug Review (pCODR) provides recommendations for oncology drug’s funding to Canadian provinces (except Quebec) and territories, based on clinical, cost-effectiveness, and patient input. Funding decision-making by provinces following a pCODR recommendation is not well understood. Our objective was to investigate the relationship between incremental cost-effectiveness ratio (ICER) and the time-to-listing for each Canadian province.

METHODS: Data were extracted from the CADTH “Find a Review” database. We identified oncology drug submissions that received either a “recommend” or “recommend with (any) conditions” decision between the creation of the database (2011) and December 31, 2016. The provincial funding summary and the economic guidance document provided dates of provincial funding and the ICER, respectively. The analysis used the highest ICER proposed by the Economic Guidance Panel. Five provinces (excluding Turning points, “self”) were included in the analysis.

RESULTS: A total of 57 (of 72) submissions had “recommended” or “recommended with (any) conditions” decisions. Of these 57 positive decisions, 52 reported a non-negative positive ICER, and 39 had sufficient information to derive the time-to-list in at least one province. Ontario, British Columbia, Alberta, Saskatchewan and Newfoundland had positive non-linear regression models and Prince Edward Island had a positive linear regression model. Additional 274 days [95%CI: 74.474p-value=0.012] per 100,000CAD increase in ICER relationships between time to-list and ICER – higher ICER leads to longer time-to-list. However, there was insufficient power to determine the strength of the ICER-time relationship.

CONCLUSIONS: Positive pCODR recommendations are considered similarly by provinces, and higher ICERS may lead to longer provincial funding decision-making periods. Not considering other factors (e.g., budget impact, burden of disease, patient input) in decision-making and data scarcity were limitations of this analysis.

PR2

ASSESSMENT OF TECHNOLOGY APPRAISALS OF CHRONIC PAIN DRUGS IN FIVE SELECTED EUROPEAN COUNTRIES
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OBJECTIVES: Few studies have focused on Health Technology Assessment (HTA) and reimbursement of chronic pain drugs. With a number of products in pipeline for chronic pain, difficulty in characterization and treatments, coupled with the dynamic market landscape, there is a need to understand the varying requirements for chronic pain drugs.

METHODS: A review was carried out in the five selected EU countries (Germany, England, France, Italy and Spain) on HTA guidelines, technology appraisals of selected chronic pain drugs together with criteria and policies for reimbursement. Selected data was based on country-funded treatment pathway with focus on osteoarthritis and chronic low back pain.

RESULTS: Despite the similarities among countries’ HTA requirements, variations were observed, such as definition of standards of care as comparators. Italy and Spain are more comfortable about product replacement, whereas reimbursement was limited to pharmaceutical treatments while other countries include non-pharmaceutical treatments thereby affecting HTA outcomes. Findings also suggested that HTA and reimbursement requirements underestimate the clinical and economic value of chronic pain drugs. The subjectivity and complexity of chronic pain makes it difficult to demonstrate clinically relevant differences in outcomes which is not considered in the HTA of a chronic pain drug and in number of cases, the limited impact on clinical outcomes is nullified by side effects resulting in unfavourable judgments. Surprisingly, no technology appraisal was carried out in Germany on the selected drugs while the last full appraisal carried out in England was from 2000. Nevertheless, France’s assessment revealed that chronic pain drug assessed have changed over the years with more attention being focused on the risk benefit ratio of the treatment.

CONCLUSIONS: Complexity and subjectivity of chronic pain may hinder proof of superiority and innovativeness of a new treatment, hence, special consideration is required in term of outcome measures considered for the HTA requirements.

PR3

THE PRICING TRENDS OF ORAL PHARMACEUTICAL PRODUCTS ASSOCIATED WITH LOSS OF EXCLUSIVITY
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OBJECTIVES: Loss of exclusivity (LOE) of pharmaceuticals allow generic market penetration increasing patient access and decreasing the price of medications. The objective of this study is to evaluate the trend and magnitude of price change for oral medications that lost their exclusivity during the years of 2013/2014. Medications of interest are gathered from the FDA and AnalySource. The data of cost of medications was evaluated using WAC pricing after standardizing for dosage form, strength, package size and formulation. The analysis timeframe was from 2011, 3 years before and after LOE, and limited to oral pharmaceutical products with eight or more generic companies currently on the market.

RESULTS: The medications included in the analysis were rabeprazole and duloxetine (June 2013), and celecoxib and eszopiclone, respectively. After the first year of LOE, the prices of generic rabeprazole and eszopiclone decreased by 28% and 31%, respectively, of their branded price while the price of generic duloxetine and celecoxib decreased by 75-80% of their branded price within 2-3 years of reaching LOE.

CONCLUSIONS: As the number of generics entering the market increases, the relationship between the brand and generic increase. This case analysis might suggest that branded products with a higher number of generic companies entering the market lead to a steep drop in pricing. Although there are many complexities that contribute to product pricing trends, it is important for payers to consider the product lifecycle and LOE time as formulary decisions are made. Future research should focus on effects of the size of molecules (small vs large) on the LOE price change.

PR4

HOW DOES ACCESS AND REIMBURSEMENT INFLUENCE PHARMICIANS’ PRESCRIBING OF TYPE 2 DIABETES THERAPIES IN THE SECOND-LINE SETTING?
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OBJECTIVES: In patients with type 2 diabetes (T2D), metformin is the standard first-line therapy. Unfortunately, many patients are unable to control their HbA1c on metformin alone, and progress to second-line therapies. Second-line therapy selection in the second-line is typically based on patient characteristics and comorbidities. However, market access and reimbursement restrictions may limit patient access to second-line therapies particularly for premium-priced therapies. To better understand how various pricing and reimbursement policies impact access and prescribing we conducted a survey of U.S. endocrinologists.

METHODS: U.S.-based endocrinologists and primary care physicians (PCPs) were surveyed electronically between May 2 – 16, 2016 about their actual versus preferred prescribing practices for different drug therapies in various T2D subpopulations. 29 managed care organization pharmacy and medical directors were also surveyed during this time.

RESULTS: In the absence of payer controls, 58% of surveyed endocrinologists prefer a GLP-1 receptor agonist in their T2D patients with obesity. However, actual patient share for this class is only 18%, despite 60% of their patients being obese. Among T2D patients with renal insufficiency, 21% of endocrinologists selected the DPP-4 inhibitor saxagliptin as their preferred agent – surveyed patient share is 6%. In T2D patients with heart failure, 50% of endocrinologists expressed a preference for SGLT-2 inhibitors, yet only 16% of patients receive this class in the second-line. Surveyed PCPs (12.3%) are more likely to prescribe saxagliptin in T2D patients with obesity. Improved payer coverage and reimbursement of T2D therapies will impact prescribing and increase market uptake.

BREAKOUT SESSION 2

INFECTIONOUS AND RESPIRATORY DISEASE STUDIES

IN1

RESOURCE UTILIZATION AND COSTS OF HIGH VELOCITY NASAL INSUFFLATION COMPARED TO NON-INVASIVE POSITIVE PRESSURE VENTILATION FOR RESPIRATORY FAILURE
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OBJECTIVES: High velocity nasal insufflation (HVNI), a form of high flow nasal cannula, can provide respiratory support to many patients with respiratory failure more comfortably than non-invasive positive pressure ventilation (NIPPV).

METHODS: Treatment-specific resource utilization data were collected in a randomized multi-center trial of 204 patients conducted in the United States. Patients were reimbursed based on the current local reimbursement policy or their insurance policy. Hospital-specific resource costs were collected from participating sites and published literature.

RESULTS: HVNI was found to be associated with the same total length of stay (6.7 vs 6.0 days, p=0.51) and the same utilization of cost intensive ICU care (1.50 vs. 1.85 days, p=0.56), a trend towards reduced intubation rates (5.7% vs. 13.0%, 0.095), and a potentially clinically important, but not statistically
significant, reduction in ventilation hours for intubated patient (83.3 vs. 127.3 hrs, p<0.06). Resulting mean costs to payers ($10,633 vs. $11,848, p<0.01) and hospitals ($12,122 vs. $12,635) were similar. CONCLUSIONS: Our analysis suggests that HVNI, at outcomes clinically comparable to NIPPV, is associated with no additional cost or resource utilization. Potential decreased need for intubation and ventilation, and limited unknown sequelae, need to be further evaluated and confirmed in future studies.

IN2 ACUTE INFECTION FOLLOWING TRANSFUSION AMONG ELDERY MEDICARE BENEFICIARIES IN THE UNITED STATES, AS RECORDED BY LARGE ADMINISTRATIVE DATABASES DURING 2012-2015 Menis M1, Forshee RA1, Izurieta HS2, Kessler Z2, McKeans S3, Warnock R3, Verma S2, Kim R4, Worrall CM4, Kelman JA5, Anderson SA6

1VDA, CER, Silver Spring, MD, USA, 2Acumen LLC, Burlingame, CA, USA, 3CMS, Baltimore, MD, USA

OBJECTIVES: Acute infections following transfusion (AIFT) are serious transfusion-related complications which can result in fever, chills, sepsis, septic shock, and death. The study objective was to assess AIFT occurrence and potential risk factors among inpatient elderly Medicare beneficiaries, ages 65 and older, during 2012-2015. METHODS: This retrospective claims-based study utilized large Medicare databases for calendar years 2012-2015. Blood transfusions were identified by ICD-9-CM procedure codes and transfusion centers, whereas AIFT was ascertainment via diagnosis code. Our study evaluated AIFT rates (per 100,000 inpatient transfusion stays) among elderly, overall and by calendar year, age, sex, race, blood components and number of units transfused. Fisher’s exact tests were performed to compare AIFT rates, and Cochran-Armitage tests were used to ascertain AIFT occurrence trends by calendar year, age, and transfusion volume. RESULTS: Among 7,899,680 inpatient stays for elderly Medicare beneficiaries during 2012-2015, we had an AIFT diagnosis recorded, an overall rate of 2.4 per 100,000 stays. AIFT rates by number of units transfused: 1.6 for 1 unit, 2.1 for 2-4 units, 3.4 for 5-11 units, and 5.0 for >11 units (p<0.001). AIFT rates by blood component groups were: 2.0 for RBCs; 2.1 for FFP; 1.1 for PRBCs; 0.7 for platelets only; 3.1 for RBCs and plasma; 13.6 for RBCs and platelets, and 3.2 for RBCs, plasma and platelets. AIFT rates for age categories 65-69, 70-74, 75-79, 80-84, 85 and over were 2.8, 2.7, 2.5, 2.4, and 1.6, respectively (p<0.0173). Females and males had AIFT rates of 1.8 and 3.1, respectively (p<0.001). CONCLUSIONS: Our large population-based study shows significantly elevated AIFT risk with greater number of units transfused and suggests higher AIFT rates for platelet transfusions. The study also suggests potential effects of age and gender on AIFT occurrence, which need further investigations. Study limitations include possible underrecording or mis-recording of transfusion procedures, units, and diagnosis codes.

IN3 ANALYSIS OF MOBILE HEALTH APPLICATIONS FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE MANAGEMENT USING THE MOBILE APPLICATION RATING SCALE AND GOLD GUIDELINE RECOMMENDATIONS Choi ME1, Electricwala B2, Hur P2, Xiang P3

1Washington University in St. Louis, St. Louis, Missouri, USA, 2Acumen LLC, Burlingame, CA, USA

OBJECTIVES: To identify and assess the quality and functionality of mobile health applications for the management of Chronic Obstructive Pulmonary Disease (COPD). METHODS: The following search terms were used to identify mobile applications in the Android and Apple Appstore: “COPD”, “emphysema”, “bronchitis”, “chronic airway obstruction”, and “Chronic Obstructive Pulmonary Disease”. We included applications that were aimed to use, patient-feedback, and gender on AIFT occurrence, which need further investigations. Study limitations include possible underrecording or mis-recording of transfusion procedures, units, and diagnosis codes.

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MEDICARE STUDIES

ME1 TREATMENT PATTERNS AND PREDICTORS FOR OVERALL SURVIVAL IN PATIENTS WITH METASTATIC MERKEL CELL CARCINOMA IN THE UNITED STATES


The impact of preoperative comorbidities and patient presentation on post-operative outcomes is important in the management of COPD, especially in elderly patients. Fewer than half (46%) of the applications had acceptable MARS scores (>3.0) with a mean MARS score of 2.3. COPD Navigator and CareTRx Asthma & COPD Journal had the highest overall MARS mean scores (3.8 and 4.1, respectively). The application with greatest consistency with GOLD guidelines recommendations was CareTRx Asthma & COPD Journal. The median MARS score of 2.3. COPD Navigator and CareTRx Asthma & COPD Journal had the highest overall MARS mean scores (3.8 and 4.1, respectively). The application with greatest consistency with GOLD guidelines recommendations was CareTRx Asthma & COPD Journal.
for P_THR and 1.344, 95%CI: 1.262-1.430 for P_TKR). Osteoporosis had a small but statistically significant effect on the odds of infection for primary procedures. For revision procedures, only diabetes (OR: 1.496; 95%CI: 1.242-1.705 for P_THR) and obesity (OR: 1.324, 95%CI: 1.262-1.430 for P_TKR) increased the odds of infection. **CONCLUSIONS:** Diabetes and obesity are significantly associated with 90-day infection rates in patients undergoing primary or revision total hip or knee replacements.

**ME3**

**EFFECTS OF MEDICATION ADHERENCE AMONG MEDICARE CANCER SURVIVORS**

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**OBJECTIVES:** With the increasing availability of oral chemotherapy drugs, the use of oral chemotherapy continues to grow because it offers more advantages over intravenous chemotherapy, including convenience and less severe side effects. While adherence to oral chemotherapy plays a key role in achieving optimal cancer care, few published studies have investigated the impact of adherence to oral chemotherapy on clinical outcomes. The objective of this study was to access the effects of adherence to oral chemotherapy on the use and costs of medical services. **METHODS:** A retrospective cohort study was conducted using national representative sample obtained from Medicare Current Beneficiary Survey. Cancer patients who had at least one oral chemotherapy fill after diagnosis and follow-up visits were included in the analysis. Selected oral chemotherapy drugs were identified using pharmacy claims and self-reports. Measures of medication adherence included: Diabetes drug adherence and duration of days covered (PDC), Non-Biologic/targeted small molecules were used to estimate healthcare services use, and generalized linear models with gamma distribution and log-link were used for healthcare costs. **RESULTS:** Four hundred and fifty-nine elderly beneficiaries with cancer had at least one oral chemotherapy fill after diagnosis and follow-up visits. The likelihood of having hospitalizations and outpatient visits reduced by 7% (0.003 visits/year; p<0.001) and 3% (0.16 visits/year; p<0.003), respectively, after adjusting for socio-demographic and clinical characteristics. The adjusted costs for hospitalizations decreased by 15% ($590/year; p=0.002), while the prescription drug costs increased by 3% ($403/year; p<0.001). Similarly, a high level of PDC was associated with lower risk of hospitalization, reduced medical costs, and increased drug costs. **CONCLUSIONS:** Improved medication adherence to oral chemotherapy drugs was associated with better outcomes in terms of medical services use and costs. Higher costs for oral chemotherapy were more offset by medical cost reductions, leading to a net reduction in total healthcare costs.

**ME4**

**COST OF MALNUTRITION IN ELDERLY MEDICARE ENROLLEES WITH DIABETES**

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**ABSTRACT:** Nutrition, Columbus, OH, USA

**OBJECTIVES:** Diabetes is prevalent condition in elderly Medicare enrollees, and has been linked to costly comorbidities. The cost of malnutrition in this population, however, has not been quantified. Our primary objective was to estimate the cost of malnutrition in elderly Medicare enrollees diagnosed with diabetes. **METHODS:** We used claims data from 2000 to 2013 for a random sample of 15,000 Medicare enrollees with diabetes (diagnosed on or after discharge in Medicare, or enrolled in Medicare for 240 days or a subject year). Malnutrition was identified by ICD9 codes in the claims data. Cost data were reported for each subject year, and were categorized by service type (Part A, Part B and Part C) and payer (Medicare, Primary insurance or Beneficiary). The impact on national healthcare costs was estimated using two wave linked cohorts with effects panel regressions. Results are reported with and without controlling for comorbidities. **RESULTS:** Nearly 16 percent of enrollees received a malnutrition diagnosis during 12 month period (12.9%). Enrollees who had been diagnosed with malnutrition had medical costs that were $33,648 higher than other enrollees controlling for age and gender (p<0.01). When cardiopulmonary disease, kidney disease, cancer and dementia were included, the regression, multivariable raised total costs $23,698 per year (p<0.01). For comparison, a diagnosis of lung cancer (the next most costly condition) raised total cost $16,820 (p<0.01). The majority of malnutrition associated increased cost was borne by Medicare, which paid $21,605 more per malnourished patients after controlling for age, gender and comorbidities (p<0.01). Medicare Part A had the highest increase in malnutrition associated cost ($18,007; p<0.01) followed by Part B ($3017, p<0.01) and Part D ($281, p<0.01). **CONCLUSIONS:** Diabetes and obesity are significantly associated with 90-day infection rates in patients undergoing primary or revision total hip or knee replacements. U.S., and is designed to produce readmission rates at the national level. The study population consisted of hospitalized patients undergoing surgery for non-metastatic endometrial cancer. Surgeries considered were vaginal, laparoscopic or robotic assisted hysterectomy (minimally invasive) as well as open hysterectomy. Outcomes analyzed were 30-day, 60-day, and 90-day all-cause readmissions. For each outcome the study patients had been having an index hospitalization in 2013 while ensuring that the study patients also had enough time for the respective outcome. Multivariate logistic regression was performed to assess factors associated with hospital readmission rates. **RESULTS:** The 30-day, 60-day and 90-day cohorts included 5,056, 21,071 and 16,962 patients, respectively. Factors associated with hospital readmission rates were: type of surgery, patient age, comorbidity count, hospital teaching status, and hospital urban-rural designation. The following were common across the three readmission outcomes studied: 1) open surgery had approximately two times the odds of readmission compared to minimally invasive surgeries (Odds ratio or OR for 30 day outcome: 2.073; 95%CI: 1.738 -2.473); and 2) metropolitan non-teaching hospitals had approximately 26% less odds of readmission compared to metropolitan teaching hospitals (30-day OR: 0.741, 95%CI: 0.603-0.910). Furthermore, for 60-day and 90-day readmissions, small metropolitan hospitals had approximately 20% less odds of readmission compared to large metropolitan hospitals (e.g., 60-day OR: 0.789, 95%CI: 0.699-0.892). **CONCLUSIONS:** Impacts type of hospital teaching status, and hospital urban-rural designation were associated with differing all-cause readmission rates. More research is warranted to understand why and how these factors may be associated with readmission outcomes.
C4 PROGRESSION-FREE SURVIVAL WITH ENDOCRINE-BASED THERAPIES FOLLOWING PROGRESSION ON AN NON-STEROIDAL AROMATASE INHIBITOR AMONG POSTMENOPAUSAL WOMEN WITH HORMONE RECEPTOR POSITIVE, HUMAN EPIDERMAL GROWTH FACTOR RECEPTOR 2 NEGATIVE ADVANCED BREAST CANCER: A NETWORK META-ANALYSIS

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OBJECTIVES: This study aimed to quantify the comparative efficacy of currently available and emerging endocrine-based therapies (ETs) for postmenopausal women with HR+/HER2- ABC after NSAI progression. METHODS: Randomized clinical trials (RCTs) of ETs in first or later line for HR+/HER2- ABC were identified via a systematic literature review using Medline, Embase, Cochrane Library and key conference proceedings from 2013-2016 as search databases. RCTs with the following criteria were considered: 1) focused on women with HR+/HER2- ABC, 2) included/controlled for chemotherapy as first-line therapy, 3) included ET as monotherapy or in combination with targeted therapy as study interventions, 4) reported PFS outcome, and 5) were published in 2007 or later. ETs tested were palbociclib, fulvestrant, everolimus, and a combination of fulvestrant, everolimus, and palbociclib. Results: A total of 4 trials and 6 regimens (palbociclib+fulvestrant, everolimus+fulvestrant, everolimus+AI, fulvestrant+AI, fulvestrant, and AI) were eligible. Palbociclib+fulvestrant and everolimus+fulvestrant had significantly higher rates of progression or death vs fulvestrant (95% CI upper bound <1.5), respectively. Palbociclib+fulvestrant and everolimus+AI had 52% and 5% reduced risk of progression or death vs fulvestrant+AI (95% CI upper bound <1.5), respectively. No other significant differences in PFS between treatments were found. CONCLUSIONS: These results indicate that palbociclib+fulvestrant is more efficacious than fulvestrant alone as first-line therapy, while palbociclib+fulvestrant and everolimus+AI were more efficacious than fulvestrant+AI. Despite national efforts to reduce 30-day readmission, the rate for patients aged 44-63 years increased significantly higher in 2014 ($35,383) compared to that in 2009 ($31,758) after significantly higher inpatients ($3,027 v $1,495), outpatient ($6,466 v $3,973), emergency room (ER) ($737 v $423), drug ($5,637 v $3,273), and laboratory costs ($104 v $50) (all P<0.001). For the subset of patients with available data, patients with hypothyroidism, compared to controls, had significantly higher costs associated with absenteeism ($5,946 v $8,775, 95%CI $414 v $300), LTD ($36 v $19) (all P<0.001) but significantly lower W/C costs ($495 v $55, P<0.001). CONCLUSIONS: Findings of this large study demonstrate the substantial direct and indirect economic burden associated with hypothyroidism.

C3 HEALTH RESOURCE UTILIZATION AND COST IN PATIENTS WITH CLINICAL Atherosclerotic Cardiovascular Disease and Prior STATIN USE

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OBJECTIVES: To examine trends in hospital readmission rates and charges associated with chronic obstructive pulmonary disease (COPD) in Florida in 2009 to 2014 to identify patient-level risk factors associated with 30-day readmissions. METHODS: A retrospective analysis of adult COPD patients (18 or older) was conducted using Healthcare Cost and Utilization Project (HCU) Florida State Inpatient Database (SID) from 2009 to 2014. The study was based on a data set of hospitalizations with at least one subsequent hospital stay within 30 days of an index hospitalization by the total number of index hospitalizations for COPD. Weighted logistic regression was used to perform tests of trend. Multivariable logistic regression was employed to identify patient characteristics associated with readmission. RESULTS: Overall, 269,790 patients were identified as having COPD. The unadjusted rate for COPD-related 30-day readmissions in Florida did not change between 2009 and 2014 (8.16% v 7.96%, P=0.373). However, readmission rates for patients aged 64-84 years decreased significantly (8.07% to 7.21%, P=0.023), whereas readmission rates for patients aged 64-84 years increased significantly (9.34% to 10.50%, P=0.0001). Readmission rates for patients aged 64-84 years with obesity were significantly higher in 2014 ($35,383) compared to that in 2009 ($31,758) after adjusting for inflation rates (P<0.027). Factors associated with increased COPD-related readmission rates included male gender (OR [95% CI] 1.11 v 1.09, 95% CI 1.08 v 1.14), obesity (OR 1.085, 95% CI 1.032 v 1.14), diabetes (OR 1.196, 95% CI 1.102 v 1.24), and hospital type (OR 1.01 v 1.00, P=0.04). CONCLUSIONS: Despite national efforts to reduce the burden of COPD, the overall COPD readmission rate has not changed in Florida. In fact, financial burdens on the COPD readmission continued to increase.
tumor lobe anatomy in lobectomies is significantly associated with in-hospital economic outcomes, with upper lobe tumors having increased LOS, ORT and COSTS compared to lobectomies of the lower or middle lobe.

BREAKOUT SESSION 4
PERSONALIZED MEDICINE STUDIES

PM1
COST-EFFECTIVENESS ANALYSIS OF HL-A*5801 GENETIC TESTING PRIOR TO INITIATION OF ALLOPURINOL THOROUGH ALLOPURINOL-INDUCED STEVENS-JOHNSON SYNDROME/TOXIC EPIDERMAL NECROSIS IN MALAYSIAN POPULATION

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OBJECTIVES: Studies of strong association between HL-A*5801 and Stevens-Johnson Syndrome (SJS)/ Toxic Epidermal Necrosis (TEN) and HL-A*5801 allele. HL-A*5801 screening-guided therapy may mitigate the risk of allopurinol induced SJS/TEN. This study aims to evaluate the cost-effectiveness of HL-A*5801 screening prior to allopurinol therapy initiation compared with current practice of no screening for Malaysian patients with chronic gout whom hypouricemic agent is indicated.

METHODS: This cost-effectiveness analysis adopted societal perspective with a lifetime horizon. Tree model with Markov models developed to estimate the costs and outcomes, represented by quality-adjusted life years (QALYs) gained, of three treatment strategies: (a) current practice (allopurinol initiated without HL-A*5801 screening), (b) HL-A*5801 screening prior to allopurinol initiation and (c) alternative treatment (probenecid) without HL-A*5801 screening. The model was populated with data from literature review, meta-analysis, and published government documents. Cost values were adjusted to the year 2020 USD.

RESULTS: The model results indicated that for the worst outcome. The differences of effect were trivial among regimes. To be cost-effective, the strategy of offering probenecid should be further studied when modeling other outcomes.

CONCLUSIONS: The GA-CV algorithm should be considered when building models of count data and should be studied for its effectiveness when modeling other outcomes.

PM2
DEVELOPING A TAXONOMY OF NON-HEALTH VALUE FOR GENOMIC-BASED DIAGNOSTIC TESTS

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OBJECTIVES: Genomic-based diagnostic tests provide information with the potential to impact important non-health outcomes and in doing so can influence care and health outcomes. To date, no practical solutions to using cost-effectiveness analysis exist that take account of non-health benefits and recognise the existence of opportunity cost. This study aimed to identify all relevant non-health outcomes to determine the economic impact of potential additional value from genomic-based diagnostic tests.

METHODS: Meta-ethnography was used to synthesize published qualitative evidence in an interpretive manner. Systematic bibliographic searches identified studies using electronic searches and terms relevant to genomic testing and captured the value of genomic-based diagnostic tests.

RESULTS: This study identified a taxonomy of non-health value for genomic testing combined with synonyms for qualitative research in four databases (MEDLINE, Embase, PsychINFO and HAPI) from time of inception to April 2016. Two researchers identified studies for inclusion using pre-defined criteria. Data analysis and synthesis, using meta-ethnography, aimed to consolidate themes and concepts in existing qualitative studies to create a taxonomy of value grounded in empirical evidence.

CONCLUSIONS: This study developed a taxonomy of value for genomic-based diagnostic tests. This is a necessary first step to move towards understanding how to take account of health and non-health effects in cost-effectiveness analyses and also consider opportunity cost within a constrained healthcare budget. A potential next step is to use stated preference methods to quantify how people trade between health and non-health outcomes to capture the value of genomic-based diagnostic tests.

PM3
THE OPTIMAL TREATMENT REGIME TO DELAY THE ONSET OF MUCOID PSEUDOMONAS AERUGINOSA PULMONARY INFECTION ON PEDIATRIC CYSTIC FIBROSIS PATIENTS WITH PSEUDOMONAS AERUGINOSA PULMONARY INFECTION ON PEDIATRIC CYSTIC FIBROSIS PATIENTS

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BACKGROUND: Pseudomonas aeruginosa is the most common and significant bacterial pathogen for CF patients. The transition from non-mucoid mucoid PaPi indicates disease progression, after which the lung function deterioration would be exacerbated. To treat continuous deterioration of lung function, CF patients need to use lung maintenance therapies chronically for an average of 10–20 years. However, majority of evidence identifies only short-term follow-up. Moreover, no guideline suggests when a treatment change is needed, nor the order of prescribing those treatments.

OBJECTIVES: To investigate the comparative effectiveness of the different treatment regimes to delay the acquisition of mucoid PaPi.

METHODS: Using the Cystic Fibrosis Foundation Patient Registry, this retrospective cohort was applied to emulate an RCT under a causal inference framework. Pediatric patients n=4970 who were diagnosed with non-mucoid PaPi in 2006-2011 were included. This proposed treatment change score was created using machine-learning method including patients’ demographic characteristics, clinical signals and treatment histories. According to different thresholds of the score, which steered the decision of treatment change, 25 regimes were built. Each patient was hypothetically randomized to follow all regimes independently. A fixed parameterization of the dynamic logistic structural model with the constant-time hazard was applied to investigate the treatment effectiveness of the different treatment regimes. Using the effects of treatment changes followed a specific regime as the reference, patients whose treatment changes did not follow any regime acquired 17% greater hazard of the outcome, the differences of effect were trivial among regimes. To be cost-effective, the strategy of offering probenecid should be further studied when modeling other outcomes.

CONCLUSIONS: In this study, changing treatments irrationally, not followed any clinical signals, caused the worst outcome. The differences of effect were trivial among regimes. To be cost-effective, the strategy of offering probenecid should be further studied when modeling other outcomes.
post-index cDMARD adherence (3.02; 2.39-3.81), any outpatient IV medication use (2.84; 2.49-3.24), laboratory tests (1.76; 1.43-2.15), and glucocorticoid use (1.57; 1.38-1.78; 0.97; 0.60-2.08) and baseline Quan-Charlson comorbidity score (0.91; 0.86-0.97) were negatively associated with progression. CONCLUSIONS: A majority of patients (84%) in this real-world population were cDMARD-IR, but only 22% of them progressed to advanced therapy over 12 months, indicating barriers to such treatments. Factors associated with progression may help in identifying patients at high need for intensive treatment.

TP2 FIRST-LINE TREATMENT PATTERNS AMONG YOUNGER VERSUS OLDER PATIENTS NEWLY DIAGNOSED WITH MULTIPLE MYELOMA IN THE US

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OBJECTIVES: To describe first-line treatment (1LT) patterns among patients newly diagnosed with multiple myeloma (NDMM), stratified by age group. METHODS: Patients with NDMM who did not receive stem cell transplant were identified from the MarketScan Commercial and Medicare claims databases as of 7/1/2009-9/30/2015. Patients had continuous medical/insurance coverage 12 months before (baseline) and ≥12 months after the index date of MM treatment initiation. Demographics and clinical characteristics were evaluated during baseline and 1LT patterns were compared among patients aged < 65 and ≥65 years. Duration of 1LT and time to second-line treatment (2LT) were analyzed using Kaplan-Meier (KM) curves. RESULTS: Among the overall population with NDMM (n=1,238), 1,315 were <65 years old (mean ±65.7 years), and 1,925 were ≥65 years old (mean ±76.4 years). The average time from MM diagnosis until 1LT initiation was similar between age groups [2.8 vs. 3.0 months, p=0.52]. Proportions treated with triplet-, double-, and single-therapy regimens in 1LT were 17.8%, 32.1%, 45.3%, 34.3%, and 26.9%, respectively, among younger patients versus 31.8%, 53.4%, and 10.9%, among older patients (p <0.001). Among younger patients, 22.7% were treated with immunomodulatory drugs (IMiD) or proteasome inhibitor (PI) based regimens with IMiD+PI combinations; among older patients, proportions were 32.1%, 35.1%, and 21.9%, respectively. Based on KM analysis, among younger patients median duration of 1LT was 8.8 months and time to 2LT was 33.3 months; among older patients, median duration of 1LT was 10.1 months and time to 2LT was 36.2 months. MM severity was not adjusted for due to limitations of the database. CONCLUSIONS: Treatment initiation occurred almost 3 months after initial MM diagnosis. Older patients were less likely to receive triplet or IMiD+PI regimens compared to younger patients. Average 1LT duration was 9-10 months. Future studies should investigate the influence of patient and physician preferences on time to treatment initiation and the implications on outcomes.

TP3 BREAST CONSERVING SURGERY OR MASTECTOMY: A TRENDS ANALYSIS USING NATIONWIDE INPATIENT SAMPLE

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OBJECTIVES: Breast cancer is the most common type of cancer found in women. Most breast cancer patients receive either breast cancer conserving surgery (BCS) or mastectomy as a surgical treatment. Considering the high prevalence of breast cancer in the US and the increased understanding of the surgery and the decision factors for the surgery selection, this study aims to examine the trend and characteristics of two major surgical procedures among women with breast cancer from 1998 to 2011. METHODS: Older patients were less likely to receive triplet or IMiD+PI regimens compared to younger patients. Average 1LT duration was 9-10 months. Future studies should investigate the influence of patient and physician preferences on time to treatment initiation and the implications on outcomes.

TP4 GEOGRAPHIC VARIATION OF INAPPROPRIATE PRESCRIPTION OPIOID USE AMONG DISABLED MEDICARE BENEFICIARIES

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1University of Arizona, Tucson, AZ, USA, 2Center for Health Equity Research and Promotion, VA Pittsburgh Healthcare System, Pittsburgh, PA, USA, 3University of Pittsburgh, Pittsburgh, PA, USA, 4Robert Wood Johnson Foundation, Princeton, NJ, USA, 5Pharmacy Quality Alliance, Springfield, VA, USA, 6EHE Inc., Bloomfield, CO, USA

OBJECTIVES: To address the opioid epidemic in the US, the Pharmacy Quality Alliance (PQA) recently developed quality measures of inappropriate prescription opioid use among Medicare beneficiaries. OBJECTIVES: To address the opioid epidemic in the US, the Pharmacy Quality Alliance (PQA) recently developed quality measures of inappropriate prescription opioid use among Medicare beneficiaries. METHODS: This cross-sectional study analyzed the 2014 Household Component and Prescribed Medicines Files of the Medical Examination Panel Survey (MEPS). Use of newer class pharmacological treatment was defined as any record of prescription fill for type 2 sodium glucose co-transporter (SGLT2) inhibitors, dipeptidyl peptidase 4

DB1 DIABETES STUDIES

DB2 RACIAL DISPARITY IN ACCESS TO NEWER CLASS ANTI-DIABETICS AMONG ADULT PATIENTS WITH DIABETES IN THE US

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OBJECTIVES: Poorer diabetes care and outcomes are common in racial and ethnic minority populations, which may partially be attributed to more barriers to medications among minority populations than whites. This study aimed to examine racial disparities in the use of newer class pharmacological treatments in the US, using data from the 2014 Household Component and Prescribed Medicines Files of the Medical Examination Panel Survey (MEPS). Use of newer class pharmacological treatment was defined as any record of prescription fill for type 2 sodium glucose co-transporter (SGLT2) inhibitors, dipeptidyl peptidase 4
RESULTS: As the global prevalence of diabetes continues to rise, the emergence of newer mechanisms of action, like sodium-glucose cotransporter-2 (SGLT-2) inhibitors, glucagon-like peptide-1 (GLP-1) receptor agonists, and dipeptidyl peptidase-4 (DPP-4) inhibitors, has increased the number of treatments available to patients. By looking at clinical benefits, cost, health technology assessment (HTA) decisions aim to prudentely manage access to diabetes therapies. The objective of this analysis was to evaluate recent HTA decisions and their rationales for the decision. Decisions were categorized as favorable, unfavorable, mixed (both favorable and unfavorable), and neutral (neither favorable nor unfavorable). RESULTS: 109 diabetes HTAs were published in the study timeframe. Across the studied HTAs, the drug classes were divided as follows: DPP-4, 42% (46/109); SGLT-2, 41% (46/109); and GLP-1, 37% (41/109). Canada had the highest number of favorable decisions (26/39; 67%), followed by Canada (6/9; 67%), France (15/26; 58%), the UK (26/46, 53%), and Germany (8/29, 28%). Favorability among selected product classes were as follows: DPP-4, 46% (23/50); SGLT-2, 41% (13/32); and GLP-1, 37% (9/25). Mixed decisions, which were more common in the UK and France (67% and 31%, respectively), primarily depended upon whether there was a cost-effectiveness comparison between two therapies, or on the absence of a specific clinical indication. Newer antidiabetes were used in combination. Nearly all of the HTA submissions in markets that evaluate cost-effectiveness used cost-minimization analyses, and those favorable decisions that did provide an incremental cost-effectiveness ratio (ICER) were within the typical range. CONCLUSIONS: As the SGLT-2, GLP-1, and DFP-4 classes become more dominant, quality pharmacoeconomic evidence highlighting cost offsets becomes increasingly important.

MEDICAL DEVICE AND DIAGNOSTICS STUDIES

MD1 COST EFFECTIVENESS OF THE LEFT ATRIAL APPENDAGE CLOSURE DEVICE COMPARED WITH ORAL ANTICOAGULANTS IN PATIENTS WITH NONVALVULAR ATRIAL FIBRILLATION

Falowski SM1, Provenzano DA2, Xia Y3, Doth AH4, Tirschwell D1, Marks D2, Macdonald L3, Smalling R4, Carroll JD5, Gu NY6, Koullick M7, Saver JF8, Fox A9

OBJECTIVES: To determine the cost-effectiveness of the left atrial appendage closure (LAAC) device compared with warfarin or novel oral anticoagulants (apixaban, dabigatran, rivaroxaban) in patients with nonvalvular atrial fibrillation (NVAF) from the Canadian perspective. METHODS: A decision analytic model was adapted to assess the cost-effectiveness of the LAAC device compared with apixaban, dabigatran, rivaroxaban, and warfarin over a lifetime horizon. Patients’ baseline characteristics were obtained from an Ontario new onset atrial fibrillation cohort (n=35,143). The analysis incorporated CHA2DS2-VASc and HAS-BLED risk scores to determine baseline risks of thromboembolic and hemorrhagic events. Treatment effects and adverse events for the LAAC device were obtained from the PROTECT AF and PREVAIL trials. Clinical event costs were primarily obtained from Ontario costing studies and adjusted to 2016 Canadian dollars. Monte Carlo simulation was performed using 1,000 inner loops and 10,000 outer loops to determine the average base case incremental cost, incremental QALYs, and incremental cost-effectiveness ratio of the LAAC device relative to the oral anticoagulant alternatives. Deterministic, probabilistic, and scenario-based sensitivity analyses were performed to examine uncertainty in the results. RESULTS: Over a lifetime horizon, the LAAC device was cost-effective compared to warfarin and apixaban, with a median incremental cost of $21,876 and $24,213, respectively, per QALY gained. The average change in predicted rates of stroke, percutaneous PFO closure therapy is cost-effective in the long term compared to a presumed paradoxical embolism. The objective of this study was to evaluate the cost-effectiveness of this therapy compared with medical therapy in the United States. A Markov cohort model consisting of 4 health states (asymptomatic, post mild and moderate acute recurrent stroke state, and death) was developed to simulate the projected clinical and economic outcomes based on US payer perspective. Event rates were extracted from a randomized clinical trial (RESEARCH) with a median of 5.7 years follow-up. Health utilities and direct medical costs were obtained from the published sources. One-way, probabilistic sensitivity and scenario analyses were performed to assess the robustness of the model. Monte Carlo simulations were used to estimate the 95% confidence intervals (CI) of the modeled outcomes. The model took a lifetime horizon, discounted at 3% and reported in 2016 dollars. RESULTS: Compared with medical therapy alone and using the commonly accepted willingness-to-pay (WTP) threshold of $50,000; FPO closure reached the cost-effectiveness in less than 3 years (year 2.684). The cost-effectiveness ratios (ICERs) at year 3, 6 (the median trial followup) and 10 were: $4,343 (95%CI: $35,295-$54,803), $20,996 (95%CI: $16,139-$26,487) and $12,110 (95% CI: $8,824-$15,737), respectively, per each quality-adjusted life-year (QALY) gained. Cost-effectiveness acceptability curve indicated 85.3% probability that the ICERs would be lower than the WTP threshold at year 3 and 100% after year 3. Sensitivity analyses showed that the model was robust. CONCLUSIONS: In carefully selected young to middle-aged patients with FPO and history of a cryptogenic ischemic stroke, percutaneous FPO closure therapy is cost-effective in the long term compared to medical therapy alone in the context of US healthcare system.

MD2 COST EFFECTIVENESS OF PERCUTANEOUS CLOSURE OF A PATIENT FORAMEN OVALE TO REDUCE THE RISK OF RECURRENT ISCHEMIC STROKE IN PATIENTS WHO HAVE HAD A CRYPTOGENIC STROKE DUE TO A PRESUMED PARADOXICAL EMBOLISM IN THE UNITED STATES

Tirschwell D1, Marks D2, Macdonald L3, Smalling R4, Carroll JD5, Gu NY6, Koullick M7, Saver JF8, Fox A9

OBJECTIVES: FDA has recently approved a first percutaneous patent foramen ovale (PFO) occluder indicated for transcatheter closure of a PFO to reduce the risk of recurrent ischemic stroke in patients who have had a cryptogenic stroke due to a presumed paradoxical embolism. The objective of this study was to evaluate the cost-effectiveness of this therapy compared with medical therapy in the United States. A Markov cohort model consisting of 4 health states (asymptomatic, post mild and moderate acute recurrent stroke state, and death) was developed to simulate the projected clinical and economic outcomes based on US payer perspective. Event rates were extracted from a randomized clinical trial (RESEARCH) with a median of 5.7 years follow-up. Health utilities and direct medical costs were obtained from the published sources. One-way, probabilistic sensitivity and scenario analyses were performed to assess the robustness of the model. Monte Carlo simulations were used to estimate the 95% confidence intervals (CI) of the modeled outcomes. The model took a lifetime horizon, discounted at 3% and reported in 2016 dollars. RESULTS: Compared with medical therapy alone and using the commonly accepted willingness-to-pay (WTP) threshold of $50,000; FPO closure reached the cost-effectiveness in less than 3 years (year 2.684). The cost-effectiveness ratios (ICERs) at year 3, 6 (the median trial followup) and 10 were: $4,343 (95%CI: $35,295-$54,803), $20,996 (95%CI: $16,139-$26,487) and $12,110 (95% CI: $8,824-$15,737), respectively, per each quality-adjusted life-year (QALY) gained. Cost-effectiveness acceptability curve indicated 85.3% probability that the ICERs would be lower than the WTP threshold at year 3 and 100% after year 3. Sensitivity analyses showed that the model was robust. CONCLUSIONS: In carefully selected young to middle-aged patients with PFO and history of a cryptogenic ischemic stroke, percutaneous FPO closure therapy is cost-effective in the long term compared to medical therapy alone in the context of US healthcare system.
COMPARISON OF ECONOMIC AND CLINICAL OUTCOMES BETWEEN THE DERMABOND®: PRINEO® SKIN CLOSURE SYSTEM AND SKIN STAPLES IN PATIENTS UNDERGOING KNEE REPLACEMENT IN REAL WORLD CLINICAL PRACTICE

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1Johnson & Johnson Co., New Brunswick, NJ, USA, 2Ethicon Inc., Somerville, NJ, USA

OBJECTIVES: To compare economic and clinical outcomes between patients undergoing knee replacement treated with the DERMABOND®: PRINEO® Skin Closure System vs. skin staples. METHODS: Retrospective, observational study using the Premier Hospital Database. Patients (aged <18 years) selected for study had an elective hospital admission, with discharge occurring between 1/2012-9/2015. Patients were classified into two mutually-exclusive groups based on billing records during the index admission: those with billing record(s) for use of PRINEO® (PRINEO group), those with billing record(s) for skin staples (staple group). Primary outcomes were index admission’s length of stay (LOS), total hospital costs, and discharge status (skilled nursing facility [SNF]/other vs. home/home health care), exploratory outcomes included hospital readmission rate, length of readmission stay, and hospital length of stay (LOS) on patient, hospital, and provider characteristics. Multivariable regressions accounting for hospital-level clustering were used to compare outcomes between study groups. RESULTS: Each group comprised 971 patients (1,942 total patients; mean age=65.3; 47% females=63.5%). The groups were generally well-balanced on matching covariates: mean standardized difference calculated across 49 covariates=0.049. Compared to the staple group, the PRINEO group had statistically significant shorter LOS (2.8d vs. 3.2d, P=0.002), lower probability of discharge to SNF/other vs. home/home health care (92.3% vs. 86.8%; P=0.011), and lower probability of 30, 60, and 90-day readmissions. The PRINEO and staple groups were propensity score matched (1:1/nearest neighbor/caliper=0.10) on patient, hospital, and provider characteristics. Breakthrough session 6

COST-EFFECTIVENESS STUDIES

CE2 LOCAL ANAESTHETIC WOUND INFILTRATION IN ADDITION TO STANDARD ANALGESIA AS AN ANAESTHETIC REGIMEN IN TOTAL HIP AND KNEE REPLACEMENT: LONG-TERM COST-EFFECTIVENESS ANALYSES ALONGSIDE THE APEX RANDOMISED CONTROLLED TRIALS

Marques EM, Blom AW, Lenguerand E, Wyldie V, Noble S, Johnston SS, Sutton N

1Thames Valley Partnership Bristol, Bristol, UK

OBJECTIVES: The Arthroplasty Pain Experience (APEX) studies are two randomised controlled trials in primary total hip (THR) and total knee replacement (TKR) at a large UK orthopaedics centre (ISRCTN96956852, 29/04/2010). APEX investigated the local anaesthetic wound infiltration (LAI), administered in two different ways, on the effects of pain, satisfaction, and costs on pain management. RESULTS: However, point to LAI being cheaper than standard analgesia, which includes a femoral nerve block.

CONCLUSIONS: This analysis demonstrates that aspirin adherence is a cost-effective intervention. Adherence to antiplatelet medications for secondary prevention of cardiovascular (CV) events remains suboptimal. The aim of this study is to determine the clinical and economic implications of aspirin non-adherence in patients undergoing coronary artery bypass surgery (CABS) and aortic valve replacement (AVR). METHODS: A decision analytic model was used to estimate the cost-effectiveness of aspirin adherence from a payer perspective over five-year time horizon. The costs and rates of non-fatal events including adverse events, peripheral arterial disease-related amputation, myocardial infarction, and death were gathered from published literature. We applied the model separately to a low risk population with no comorbidities (low-risk model) and a high risk population with type II diabetes (high-risk model). The outcome was incremental cost-effectiveness ratio (ICER) measured as cost ($)/quality adjusted life year (QALY). A one-way sensitivity analysis was done to determine the stability of our results, and a tornado diagram was used to determine parameters that would highly affect our results. RESULTS: Adherent patients lived 0.25 and 0.36 QALY longer than non-adherent patients in the low-risk model and high-risk model, respectively. Compliance with the high-risk model was estimated at 44.1% (95% CI: 41.2%–47.0%) and the probability of being cost-effective was over 98%. In the low-risk model, the ICER was $264 (95%CI: -$710 to $1,338), with only 62% probability of being cost-effective. Considering an NHS perspective, the ICER was $1,125 (95% CI: $183 to $2,067) and the probability of being cost-effective was over 98%. In TKR, the ICER was $264 (95%CI: -$710 to $1,338), with only 62% probability of being cost-effective. CONCLUSIONS: The results of this study have an important implication that a WTP threshold of at least $44,167.06 needs to be adopted for the combination of radiotherapy and hormonal therapy to be cost-effective in the US.
individualized risk assessment, and has the potential to optimize care. Here, we assessed the economic impact of genomic testing by assessing the influence of a 17-gene panel (Oncotype DX: Genomic Prostate Score®; GPS) on treatment selection and healthcare costs in patients with NCCN Very Low, Low, and Intermediate risk PCa. METHODS: We conducted a chart based analysis for 1087 men with NCCN Very Low, Low, and Intermediate risk PCa managed in four large urology practices (LUP). Shared treatment decisions, with GPS testing, were captured through electronic health records from May 2014 through July 2016. Active Surveillance (AS) was defined as documented AS or lack of treatment documentation within six months of prostate cancer diagnosis. We estimated economic outcomes using peer-reviewed and published cost numbers from baseline (untested) and tested patients from a economic outcomes using peer-reviewed and published cost numbers from included 32% of men following AS, 37% receiving Radical Prostatectomy (RP) and 29% Radiation Therapy (IMRT). In the 5 LUPs with GPS testing, AS, RP and RT were utilized by 59%, 20% and 5% of patients, respectively. In these practices, utilization of GPS was calculated to result in a total savings of $5.75M ($5,128 per patient) over the first 180 days post-diagnosis, including GPS list price. We estimate that 2.0 member commercial payer that tests all appropriate localized PCa patients with GPS will result in approximately $4.5M in savings. CONCLUSIONS: In this economic assessment, using real-world cost data and GPS guided treatment selection, we project that GPS utilization would decrease direct healthcare spend through appropriate treatment selection for clinically low-risk PCa patients.

CARDIOVASCULAR STUDIES

CV1 BIOLOGICAL AND PSYCHOSOCIAL RISK FACTORS OF STROKE IN AFRICAN AMERICANS ENROLLED IN THE JACKSON HEART STUDY
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OBJECTIVES: To examine the impact of biological, psychosocial and other socioeconomic risk factors on incident stroke and to estimate the percentage attributable risk (PAR) of factors associated with stroke in African Americans enrolled in the Jackson Heart Study (JHS). METHODS: This is a nested case-control study of a cohort of African Americans enrolled in the JHS. Cases were patients with incident stroke (in the first 15 years of follow-up). Controls were matched for sex and age and were selected from a larger pool using incidence density sampling and matched with cases on person-years spent in the cohort. Odds ratios (OR) and PARs were calculated to understand the impact of different risk factors on incident stroke. RESULTS: From a cohort of 5,302 patients, 129 cases of incident stroke and 590 controls were identified. Hypertension and diabetes were found to be the two strongest risk factors of stroke, with an OR of 1.8 (95% CI 1.1 - 3.1) for hypertension and 1.7 (95% CI 1.1 - 2.7) for diabetes, followed by the Framingham stroke risk score, where the risk of stroke increased by 4% for every 1% increase in the Framingham stroke risk score (OR 1.04, 95% CI 1.01 - 1.08). Psychosocial risk factors including depression (OR 0.7, 95% CI 0.4-1.2), stress (OR 1.9, 95% CI 0.9-3.9), and major life events (OR 1.0, 95% CI 0.9-1.1), were not significantly associated with incident stroke in this population. The overall PAR for biological and psychosocial risk factors combined accounted for 77.5% of incident stroke. CONCLUSIONS: African Americans with hypertension and diabetes had the highest risk of stroke. However, findings on the association between depression and stroke were somewhat inconsistent with previous JHS studies due to the way depression was measured.

CV2 ECONOMIC EVALUATION OF ALTERNATIVE ANTICOAGULANT DRUGS FOR THE PREVENTION OF STROKE AMONG 65-YEAR OLD ATRIAL FIBRILLATION PATIENTS IN TAIWAN
Liao C, Lee M

OBJECTIVES: Atrial fibrillation (AFib) patients have a higher risk of ischemic stroke and anticoagulants are widely used in stroke prevention. Recently, three new oral anticoagulant drugs (NOACs) have been made available in Taiwan (Apixaban, Dabigatran, and Rivaroxaban). This study aims to calculate the cost-effectiveness of them, comparing to Warfarin, in 65-year old patients with AFib from a perspective of Taiwan national healthcare insurance (NHI). METHODS: A Markov model, Monte Carlo simulation, and sensitivity analyses were used to assess the costs and quality-adjusted life years (QALYs) of the three NOACs and Warfarin in a Taiwanese setting. All parameters were obtained from the literature review and the NHI database. The threshold of the willingness to pay (WTP) at 1 and 3 times GDP per capita ($22,888 and $66,864) were used to assess the cost-effectiveness. RESULTS: In a base-case analysis, Rivaroxaban produced the most QALYs for NCCN Very Low, Low, and Intermediate risk patients (N = 25,220) in the first six months of therapy for a minimum of 6 months were included. RESULTS: A total of 34,052 AC naïve patients were included. The proportion of patients switched from dabigatran to warfarin (N=2,320, 3.51%) was followed by Dabigatran (N=2,250, 3.77%). The median time to switch to another DOAC was 309.5 days vs. 128.0 days (p < 0.001) to switch to warfarin. CONCLUSIONS: In AC naïve patients newly initiated on DOAC therapy, one in five patients switch to an alternate anticoagulant and one every 20 patients switch to another DOAC within the first six months of therapy. Switching from an initial DOAC prescription to traditional anticoagulants occurs as frequently as switching to an alternate DOAC. Further investigation is warranted to assess the potential causes of switching.

CV3 A HIGH PERCENTAGE OF NEWLY INITIATED DIRECT ORAL ANTICOAGULANT USERS SWITCH BACK TO TRADITIONAL THERAPY
Hazen R1, Grigoryan R2, Galanter WL2, Wulf WM3, Nutescu EA4

OBJECTIVES: The objective of this study was to evaluate patterns of prescription switching among atrial fibrillation (AF) patients initiated on a direct oral anticoagulant (DOAC) and previously naïve to anticoagulation (AC) therapy. METHODS: Data was obtained from Truven Health MarketScan® Commercial and Medicare Supplemental Databases from January 1, 2009 to December 31, 2013. AC naïve (those without prior anticoagulant use) AF patients initiated on a DOAC, with 6 months of continuous health plan enrollment before and after index date and maintained on therapy for a minimum of 6 months were included. RESULTS: A total of 34,052 AC naïve patients were included. The proportion of patients switched from dabigatran to warfarin (N=2,320, 3.51%) was followed by Dabigatran (N=2,250, 3.77%). The median time to switch to another DOAC was 309.5 days vs. 128.0 days (p < 0.001) to switch to warfarin. CONCLUSIONS: In AC naïve patients newly initiated on DOAC therapy, one in five patients switch to an alternate anticoagulant and one every 20 patients switch to another DOAC within the first six months of therapy. Switching from an initial DOAC prescription to traditional anticoagulants occurs as frequently as switching to an alternate DOAC. Further investigation is warranted to assess the potential causes of switching.

CV4 WHY HAVE WE BEEN DYING LESS FROM CORONARY HEART DISEASE IN THE UNITED STATES?
Gao H1, Cutter D2, Gaziano T3, Weinstein M4, Fandasy A4

OBJECTIVES: To replicate a widely cited Ford et al. study (NEJM 2007) that concluded that the decline in CHD mortality in the U.S. between 1980-2000 could be equally attributed to: (1) medical therapies; and (2) changes in CHD risk factors outside of medical therapies. METHODS: We adjusted for changing treatment rates by adding back systolic blood pressure (18.8 mmHg) and LDL cholesterol (1.09 mmol/L) to some (for blood pressure) or all (for cholesterol) treated individuals in 2000.RESULTS: In AF patients naïve to anticoagulation therapies, and one every 20 patients switch to another DOAC within the first six months of therapy. Switching from an initial DOAC prescription to traditional anticoagulants occurs as frequently as switching to an alternate DOAC. Further investigation is warranted to assess the potential causes of switching.

BREAKUP SESSION 7

MEDICATION ADHERENCE STUDIES

AD1 EXPLORING LENGTH OF THERAPY AND FACTORS ASSOCIATED WITH HIV PRE-EXPOSURE PROPHYLAXIS MEDICATION ADHERENCE USING PHARMACY CLAIMS DATA
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Walgreen Co. Member of Walgreens Boots Alliance, Deerfield, IL, USA

OBJECTIVES: To evaluate adherence to oral tenofovir disoproxil fumarate for HIV pre-exposure prophylaxis (PrEP) by examining length of therapy, gaps in therapy, and adherence using real-world pharmacy claims data. To examine adherence associated with changes in insurance coverage, inpatient hospitalization, and the use of Walgreens HIV specialist pharmacies (HIV-spl), which support adherence through personalized medication adherence counseling. METHODS: We
AD2 FREE MEDICATIONS: A SYSTEMATIC REVIEW OF THE EFFECT OF ZERO COST SHARING ON ADHERENCE TO THERAPY

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OBJECTIVES: Behavioral economic studies have suggested that people may place lower value on free goods, an argument used to justify copayments or coinsurance. The purpose of this study was to examine the effect of cost sharing on adherence and persistence. METHODS: A systematic literature review was performed using Medline, EMBASE, Cochrane, and clinicaltrials.gov. Included original articles were English language comparative studies with cost as the main exposure. Each article was assessed by two independent reviewers; disagreements were resolved by consensus. Data on study design, population, intervention, adherence/persistence outcomes, and study quality were abstracted. RESULTS: The search identified 1941 unique records meeting preliminary inclusion, 19 articles met full inclusion criteria representing 16 independent studies. Two studies were randomized controlled trials (RCTs) with superior methodological quality. Most studies were conducted in the United States and involved a payer-based program or intervention. Among studies using self-reported measures, zero cost sharing significantly decreased cost-related non-dosing, while a small negative effect on overall non-dosing was observed in observational studies. In observational studies, zero cost sharing was associated with sustained or small increases in adherence. Among the RCTs, zero cost sharing had a positive effect on adherence in one study with an insurance policy change, and no effect in one study with an incentive-based program. Overall, few studies evaluated the effect of zero cost sharing on adherence with high methodological quality. Increases in adherence were small and may be related to the program design and population demographics. CONCLUSIONS: No important differential zero price effect could be identified in this literature. Insurers should carefully consider that cost sharing may have a small negative impact on medication adherence, potentially impacting those with cost-related non-adherence most.

AD3 IMPACT OF MEDICATION ADHERENCE ON TOTAL MEDICAL COSTS

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BACKGROUND: Existing literature suggests that medication adherence leads to lower health care utilization and reduced medical costs despite increased drug spending. While the impact of adherence on total medical costs is more pronounced in some conditions than in others, the consensus is that optimal adherence will reduce health care costs as well as improve health outcomes. OBJECTIVES: To estimate the impact of medication adherence on the total annual medical costs for chronic conditions in commercial health plan benefici- aries. METHODS: We examined the pharmacy and medical claims for beneficiaries who were continuously eligible in 2015 and with at least two prescriptions for at least one of the following conditions: – Diabetes, Hypertension, Depression and Hypolipidemia. Adherence was calculated using the interval-based Proportion of Days Covered (PDC) method. Generalized linear model with gamma distribution was utilized to examine the association between adherence and total medical costs while controlling for factors such as comorbid conditions, demographics, and socioeconomic characteristics. RESULTS: The study sample consisted of approximately 121,781 antiadibiotic beneficiaries, 378,511 antihypertensive beneficiaries, 35%, 46% and 35% of nephropathy and antihypertensives and antidiabetics respectively included after applying inclusion/exclusion criteria. On average, non-adherent beneficiaries have their average FDC in the 52%-55% range, while adherent beneficiaries have their average FDC around 92%-94%. For antidiabetics, antihy- pertensives and antidiabetics classes, the average FDC was significantly higher than those in the adherent group (p < 0.001) after controlling for demographic variables and comorbid conditions. On average there is a $100 - $150 PMPY TMC saving as adherence increases in antipressurants antidiabetics hypertensive drug classes. CONCLUSIONS: Improvement in adherence leads to cost savings in some therapeutic classes, and the savings vary depending on the demographic characteristics and comorbid conditions. Increasing adherence in cases where the medication costs are higher than the resulting visit rate at a hospital or emergency room may not save costs.

AD4 ADHERENCE TO DRUG THERAPY IN THE PATIENTS WITH CHRONIC KIDNEY DISEASE: A SYSTEMATIC REVIEW AND META-ANALYSIS OF OBSERVATIONAL STUDIES

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OBJECTIVES: Medication non-adherence can lead to treatment failure, increased hospitalization, morbidity, and cost of care, and decrease patients’ quality of life. The evidence on the medication adherence in the patients with chronic kidney disease (CKD) is lacking. The aim of the present systematic review is to evaluate the medication adherence in the patients with CKD. METHODS: Published literature was searched via PubMed, Scopus, Medline, Web of Knowledge, and Clinicaltrials.gov. Included original articles were English language compara- tive studies with cost as the main exposure. Each article was assessed by two independent reviewers; disagreements were resolved by consensus. A funnel plot was used to assess the publication bias. Heterogeneity was assessed by using Cochran’s Q and I2 statistics. Random effect model was used. RESULTS: A total of fifteen studies (prospective-5, retrospective-1, and cross-sectional-9) were included. Pill count (PC) was the most common used method followed by Morisky medication adherence scale (MAS), self-reported questionnaire (SRQ), and others (5, 4, 3, and 3, respectively). Others include serum phosphate level, interdialytic weight gain, and simplified medication adherence questionnaire. The pooled prevalence of medication adherence was found to be 51.9% (95% Confidence interval 41.6-55.9). Adherence in patients on ‘medications’ and medication with dialysis’ was found to be 49.8% (95% CI 9.3-61.8) and 52.9% (95% CI 0.95-6.05), respectively. Medication adherence reported using PC was 47.7% (95% CI 0.79-8.81); MAS was 33.4% (95% CI 0.64-5.9); SRQ was 67.4% (95% CI 4.9-2.61). Women was 59.4% (95% CI 2.8-94.5). CONCLUSIONS: This systematic review demonstrated a poor medication adherence in the patients with CKD on medications’ and ‘medications with dialysis’. The ‘pill count’ was found to be most commonly utilized method. Steps to improve the medication adherence could be helpful in decreasing hospitalization, morbidity, and cost of care, and improving patients’ quality of life.

PATIENT PREFERENCE STUDIES

PP1 COMPARISON OF PATIENT, ONCOLOGIST, AND ONCOLOGY NURSE PREFERENCES FOR ATTRIBUTES OF DRUG THERAPY IN ADVANCED MELANOMA

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OBJECTIVES: New treatments options are available for patients with advanced melanoma, which can vary in their efficacy, safety and dosing schedules. The objective of this study was to compare different stakeholder perspectives (patients, oncologists, and oncology nurses) on the importance of drug treatment attributes in advanced melanoma. METHODS: Online panels were used to conduct a series of discrete choice experiments (DCEs) in US patients, physicians and oncology nurses. In a series of studies, respondents were asked to choose between two hypothetical treatments, each with 7 attributes: mode of administration, duration of schedule, duration of treatment (3, 6, and 12 months), objective response rate (ORR) (15%, 33% and 65% chance of response), progression free survival (PFS) (5, 5, and 11.5 months), overall survival (OS) (45, 55, and 75% survival to 12 months), and grade 3/4 toxicities/adverse events (AEs) (10%, 32%, and 69% each without a cumulative limit). Each panelist had 3 levels of importance (1 to 3) for each of 7 attributes (8 levels). Bayesian logistic regression models were used to estimate preference weights. RESULTS: Participants included 200 patients with advanced melanoma, 226 practicing oncologists, and 150 oncology nurses. The relative importance estimates of attributes by oncologists, patients and nurses were, respectively, as follows: OS (34%, 33%, 28%), AEs (49%, 39%, 26%), ORR (12%, 25%, 7%), PFS (3%, 12%, 15%), dosing schedule (3%, 3%, 3%), median duration of therapy (0%, 0%, 0%), and most (0%, 0%, 0%). Oncologists significantly differ from nurses and patients in the weights assigned to ORR, PFS and AEs (p-values < 0.001). CONCLUSIONS: Patients and nurses have similar views on the relative importance of treatment attributes for advanced melanoma, while oncologists assigned greater importance to AEs, and less importance to ORR and PFS. Future research could seek to qualify how these differences impact treatment selection.

PP2 CARER SOCIAL CARE-RELATED QUALITY OF LIFE OUTCOMES: ESTABLISHING PREFERENCE WEIGHTS FOR THE ADULT SOCIAL CARE OUTCOMES TOOLKIT FOR CARERS

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OBJECTIVES: There is an increasing interest in how well informal carers are supporting their relative in their caring role. When assessing support, it is important to consider informal carer’s quality of life. The Adult Social Care Outcomes Toolkit for Carers (ASCOT-C) was developed and validated to capture the effect of social care on the quality of life (QoL) of informal carers. One objective when developing the ASCOT was that it could be preference weighted for use in economic evaluation. Currently there is no set of preference weights established for the
VALIDATION OF A QUESTIONNAIRE TO ASSESS PATIENT PERCEPTIONS OF INJECTION DEVICES FOR TYPE 2 DIABETES

Matza LS1, Stewart KD2, Paczkowski R3, Currie RM4, Yu R5, Coyne KS1, Roey KS1

OBJECTIVES: Characteristics of injection devices used for administering medication for type 2 diabetes (T2D) could impact patient preference. Previous research has examined patient perceptions of insulin injection devices. However, a range of different scales have been used to measure patient preferences. This study aimed to describe the experiences with injection devices, including those used for newer treatments such as GLP-1 receptor agonists.

METHODS: Patients with T2D treated with non-insulin injectable medication were recruited via advertisements and via advertisement in clinical practice. The T2D patient was the primary interviewee. Exit surveys were collected and the draft 20-item Diabetes Injection Device - Experience Questionnaire (DID-EQ), including a device characteristics subscale, was pilot tested. The questionnaire was administered in two groups of 10 patients. The pilot sample consisted of 1729 adults with a mean age was 43.7 yrs. Majority of patients were non-Hispanic white (77%) and were female (67%). Patients had average 23 days of hospital inpatient stay, 1597 medical provider visits, 83 outpatient visits and 15 emergency room visits per year. The total annual healthcare cost, prescription drug cost, emergency room visit and outpatient cost among US adults with BD. METHODS: The Medical Expenditure Panel Survey (MEPS) data of 2008-2012 was used to identify patients with BD using International Classification of Diseases (ICD9-CM) codes. Adults aged 21 years or older were included in the analysis. Data were analyzed using STATA14 for descriptive statistics and differences using the Student t-test and Chi-square test.

RESULTS: Compared with natural history, a DMT for ARAD that reduces the rate of progression by 20-50% decreases the lifetime likelihood of AD dementia (29.38% vs. 43%) and AD-related institutionalization (11-17% vs. 21%). A DMT that halts progression for 5 years reduces the lifetime likelihood of AD dementia to 27% (12% institutionalization), with a further reduction to 17-23% (6-9% institutionalization). The same benefit to AD criteria and for the generation of cost-effective treatments in current clinical practice.

CONCLUSIONS: A natural history microsimulation model of AD was developed to estimate treatment trajectories prior to AD dementia onset, after which published AD dementia trajectories were used. The natural history model was validated against published cost studies and used to estimate the potential impact of DMTs for ARAD patients on clinical outcomes that drive costs in AD. RESULTS: Compared with natural history, a DMT for ARAD that reduces the rate of progression by 20-50% decreases the lifetime likelihood of AD dementia (29.38% vs. 43%) and AD-related institutionalization (11-17% vs. 21%). A DMT that halts progression for 5 years reduces the lifetime likelihood of AD dementia to 27% (12% institutionalization), with a further reduction to 17-23% (6-9% institutionalization). The same benefit to AD criteria and for the generation of cost-effective treatments in current clinical practice.

BREAKOUT SESSION 8

MENTAL HEALTH STUDIES

MH1

THE POTENTIAL ECONOMIC VALUE OF DISEASE-MODIFYING TREATMENTS IN ALZHEIMER’S DISEASE: PATIENT-LEVEL SIMULATION OF PREDEMENTIA SYMPTOM TRAJECTORIES

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OBJECTIVES: To develop a patient-level simulation model of AD and to determine the potential economic value of DMTs for ARAD patients on clinical outcomes that drive costs in AD.

RESULTS: Compared with natural history, a DMT for ARAD that reduces the rate of progression by 20-50% decreases the lifetime likelihood of AD dementia (29.38% vs. 43%) and AD-related institutionalization (11-17% vs. 21%). A DMT that halts progression for 5 years reduces the lifetime likelihood of AD dementia to 27% (12% institutionalization), with a further reduction to 17-23% (6-9% institutionalization). The same benefit to AD criteria and for the generation of cost-effective treatments in current clinical practice. The objective of this study was to estimate the healthcare utilization and total healthcare expenditures including inpatient, outpatient, and prescription drug cost. The analysis was conducted to estimate projections prior to AD dementia onset. The final sample consisted of 1729 adults with a mean age at baseline of 4.5 yrs. Majority of patients were non-Hispanic white (77%) and were female (67%). Patients had average 23 days of hospital inpatient stay, 1597 medical provider visits, 83 outpatient visits and 15 emergency room visits per year. The total annual healthcare expenditure was estimated to be $45 billion in 1991. Increasing availability of novel and more expensive therapies for BD suggests a need for assessing healthcare utilization and costs in current clinical practice.

CONCLUSIONS: A natural history microsimulation model of AD was developed to estimate treatment trajectories prior to AD dementia onset, after which published AD dementia trajectories were used. The natural history model was validated against published cost studies and used to estimate the potential impact of DMTs for ARAD patients on clinical outcomes that drive costs in AD. RESULTS: Compared with natural history, a DMT for ARAD that reduces the rate of progression by 20-50% decreases the lifetime likelihood of AD dementia (29.38% vs. 43%) and AD-related institutionalization (11-17% vs. 21%). A DMT that halts progression for 5 years reduces the lifetime likelihood of AD dementia to 27% (12% institutionalization), with a further reduction to 17-23% (6-9% institutionalization). The same benefit to AD criteria and for the generation of cost-effective treatments in current clinical practice. The objective of this study was to estimate the healthcare utilization and total healthcare expenditures including inpatient, outpatient, and prescription drug cost. The analysis was conducted to estimate projections prior to AD dementia onset. The final sample consisted of 1729 adults with a mean age at baseline of 4.5 yrs. Majority of patients were non-Hispanic white (77%) and were female (67%). Patients had average 23 days of hospital inpatient stay, 1597 medical provider visits, 83 outpatient visits and 15 emergency room visits per year. The total annual healthcare expenditure was estimated to be $45 billion in 1991. Increasing availability of novel and more expensive therapies for BD suggests a need for assessing healthcare utilization and costs in current clinical practice.
METHODS: Data from two populations were used: 495 adults post-discharge from general internal medicine ward (EQ-5D-3L) and 311 adults post-discharge from general internal medicine ward (EQ-5D-5L). Anolinx LLC, Salt Lake City, UT, USA, Intermountain Healthcare, Murray, UT, USA.

OBJECTIVES: Objectives of this study were to examine national patterns and predictors of depression screening among older adults without a diagnosis of depression. Visits were excluded if the answer to the question "Do you know of any depression in the patient?" was "yes". Depression screening was identified by the variable "DEPRESS", which represented depression screening exam, from the NAMCS data. The data support the use of the Chinese HeartQoL by researchers and clinicians to assess health-related quality of life in Chinese patients with IHD. The English version HeartQoL questionnaire was translated into Chinese using the forward-backward translation approach. A cross-sectional study was then conducted in patients with angina, MI and HF using C-HeartQol, SF-12, and HADS. Internal consistency reliability was evaluated. Concurrent validity was assessed with Pearson correlations. Discriminant validity was determined using age, gender, SF-12 general health status, HADS anxiety and depression, and functional status as predictor variables. RESULTS: In total, 406 IHD patients (angina=111, MI=156, and HF=139) were enrolled in China. Patients with MI (2.04 = 0.72) had higher HeartQol scores than patients with angina (1.99 = 0.75) or heart failure (1.72 = 0.83). Correlation between internal consistency reliability was 0.96 for scores between the physical subscales and the emotional subscales in C-HeartQol, and SF-12 were strong ranged from 0.52 to 0.82. Higher HeartQol scores were reported by younger than older patients and by men than female patients. Higher HeartQol scores were observed consistently in patients reporting 'Excellent/very good' health status than by those reporting 'Good/fair' or 'Poor' status and by patients reporting 'Good/ fair' health status than by patients with 'Poor' status and by patients without anxiety or depression diagnosis. Depression was found to be the strongest predictor for both SF-12 and C-HeartQol. The C-HeartQol demonstrates good internal measurement reliability and construct validity in patients with IHD and in each diagnostic subgroup. The data support the use of the Chinese HeartQol by researchers and clinicians to assess health-related quality of life in Chinese patients with IHD.

ELECTRONIC HEALTH RECORDS VALIDITY OF COMPARATIVE EFFECTIVENESS AND SAFETY RESEARCH USING ELECTRONIC HEALTH RECORDS

RESEARCH ON METHODS STUDIES

RM1 LESSONS LEARNED IN IDENTIFYING RELAPSING-REMITTING MULTIPLE SCLEROSIS IN US INTEGRATED DELIVERY NETWORK HEALTH CARE CLAIMS AND ELECTRONIC HEALTH RECORD DATA

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OBJECTIVES: To develop and validate operational EHR- and claims-based algorithms for RRMS patient identification in a US Integrated Delivery Network (IDN) healthcare system. METHODS: IDN data (2010-2014) were queried for the inclusion study criteria: MS diagnosis, age ≥ 18 years, ≥ 1 year baseline history, and no other demyelinating diseases. The EHR-based algorithm used natural language processing (NLP). The claims-based algorithms were developed using (1) combinations of ICD-9 codes diagnosing a neurologic disorder and (2) modifying modifiers in identification of neurologic disorders (DMD, brain/spinal MRI), and (3) using a progressive MS (P-MS) through: (option A) medications for MS; (option B) MS severity/progression from adapted Kurtzke Functional Systems Scores; and (option C) P-MS defined by Gilley et al. Random samples of NLP-based and chart reviews were the "gold standard" for algorithm validation and positive predictive value (PPV) calculations. RESULTS: Of 3,111 MS patients identified, 2,960 (95%) were by claims-based, 909 (31%) were by NLP (87%)). Of 990 RRMS patients, 909 RRMS patients, RRMS was identified in 857 (85%). An average 19.3 documents per patient were included for NLP-based chart review. The combined claims- and EHR-based algorithms had a PPV (95% CI) of 93% (82%-98%). The claims-based algorithms to identify RRMS had PPV (95% CI) of 88% (79%-94%), 89% (76%-95%), and 89% (79%-95%) for options A, B, and C, respectively. CONCLUSIONS: Both the combined claims- and NLP-based algorithms and the claims-based algorithms had excellent PPV for identifying RRMS among patients with documented MS subtypes. Traditional medical chart reviews will continue to be particularly useful in multiplayer clinical notes of MS subtypes. The claims- and EHR-based algorithms to identify RRMS and NLP-based chart reviews are promising methods for future research.

RM2 THE PSYCHOMETRIC EVALUATION OF THE CHINESE VERSION HEARTQOL QUESTIONNAIRE AMONG PATIENTS WITH ISCHEMIC HEART DISEASE IN CHINA

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OBJECTIVES: This study evaluated the psychometric properties of the Chinese Mandarin HeartQol Questionnaire (C-HeartQol), an ischemic heart disease (IHD) specific health-related quality of life instrument, among Mainland Chinese patients with angina, myocardial infarction (MI) and heart failure (HF). METHODS: The English version HeartQol questionnaire was translated into Chinese using the forward-backward translation approach. A cross-sectional study was then conducted in patients with angina, MI and HF using C-HeartQol, SF-12, and HADS. Internal consistency reliability was evaluated. Convergent validity was assessed with Pearson correlations. Discriminant validity was determined using age, gender, SF-12 general health status, HADS anxiety and depression, and functional status as predictor variables. RESULTS: In total, 406 IHD patients (angina=111, MI=156, and HF=139) were enrolled in China. Patients with MI (2.04 = 0.72) had higher HeartQol scores than patients with angina (1.99 = 0.75) or heart failure (1.72 = 0.83). Correlation between internal consistency reliability was 0.96 for scores between the physical subscales and the emotional subscales in C-HeartQol, and SF-12 were strong ranged from 0.52 to 0.82. Higher HeartQol scores were reported by younger than older patients and by men than female patients. Higher HeartQol scores were observed consistently in patients reporting ‘Excellent/very good’ health status than by those reporting ‘Good/ fair’ or ‘Poor’ status and by patients reporting ‘Good/ fair’ health status than by patients with ‘Poor’ status and by patients without anxiety or depression diagnosis. Depression was found to be the strongest predictor for both SF-12 and C-HeartQol. The C-HeartQol demonstrates good internal measurement reliability and construct validity in patients with IHD and in each diagnostic subgroup. The data support the use of the Chinese HeartQol by researchers and clinicians to assess health-related quality of life in Chinese patients with IHD.
EHR system) was associated with substantial information bias when using EHR as the sole data source. We aimed to develop and validate a prediction score for having high care continuity to reduce such bias. We comprised all patients ≥ 65 yr from two large US provider networks linked with Medicare insurance claims data from 2007/1/1 to 2014/12/31. Based on the linked EHR+claims data, we measured care-continuity by the Mean Proportion of Encounters Captured (MEFC) by the EHR system. With predictors available in EHR, we built a prediction model for MEFC by Lasso regression, using the two EHR systems as training and validation set, respectively. Within deciles of predicted continuity, we quantified misclassification by the Mean Standardized Difference (between the proportions of 40 key variables based on EHR alone vs. linked claims+ EHR data) and the proportion of patients receiving OOP over the CDC threshold. As expected, POs are significantly ineffectual. Despite the small sample size, there is no evidence of positive or negative elasticity. OOP is unlikely to have an effect on demand for MME/day. This study shows that while there is progress in reducing the average MME/day, using OOP and LPTM may not be effective as methods to decrease the proportion of patients receiving POs over the CDC threshold. [https://www.cdc.gov/drugoverdose/pdf/calculating_total_daily_dose-a.pdf]

**PHPI**

**OVER-THE-COUNTER MEDICATION USE AND DECISION-MAKING AMONG RESIDENTS OF SENIOR LIVING COMMUNITIES: A QUALITATIVE STUDY**

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**OBJECTIVES:** Older adults are regular consumers of over-the-counter (OTC) medications. OTC medications are generally considered safe, and convenient to use without requiring a prescription. However, the safety of an OTC medication and the final health outcome depends in part upon consumers’ perceptions and beliefs, and how they make decisions about OTC use. The primary objective of this study was to explore the knowledge, attitudes, beliefs and experiences about OTC medications among older adult residents of senior living communities. The secondary objective was to elicit the OTC decision-making process in this population. **METHODS:** Focus groups (N=10) were conducted at two senior living facilities in Richmond, Virginia. Overall, 80 people participated (7-8/group) in the 90-minute group discussion. A set of open-ended questions were asked to facilitate a rich discussion about OTC medication use and decision-making. All focus groups were recorded, transcribed verbatim, and analyzed qualitatively using NVivo software. **RESULTS:** Most participants considered OTC medications safe and effective to use, if following the drug-label instructions appropriately. Age and chronic health conditions were considered two important factors that might influence the safety and efficacy of OTC medications. Two major patterns of decision making about OTC purchase and use were identified: (1) Consumers actively look for different OTC options, compare them, and buy them to self-treat, or (2) Consumers, either based on their previous experience or the physician’s suggestion, buy the same OTC medications and use them consistently. Participants also reported using OTCs inappropriately and experiencing side effects. Self-medication is a patient characteristic that the older adults should be encouraged to aid in safe and responsible decision-making for self-medication with OTCs.

**PHP3**

**ASSESSMENT OF SELF MEDICATION PRACTICES AMONG URBAN SRI LANKAN ADULTS**

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**OBJECTIVES:** To access the self-medication practices among urban Sri Lankan adults and their perception regarding self-medication. **METHODS:** A descriptive cross sectional study was done on 227 Sri Lankan Urban adults, who are over 20 years of age using convenient sampling using an online data collection form based on a self-medication questionnaire. **RESULTS:** A self-medication was observed in 69% of the surveyed respondents (n=227). Analgesics was reported as the most commonly used OTC medication among urban Sri Lankan adults (80.8%). Significantly greater perception towards VBHC in orthopaedics globally. Medication use may reduce musculoskeletal pain.

**PHP4**

**TRENDS IN PRESCRIPTION OPIOID MEDICATIONS: EMPIRICAL ANALYSIS OF MILLIGRAM MORPHINE EQUIVALENT PER DAY**

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**OBJECTIVES:** Prescription opioids (POs) are often prescribed to those suffering pain. The United States is facing an epidemic, with an increasing number of overdoses. This study looked at recent trends in POs. **METHODS:** Data from in the Medical Expenditure Panel Survey (MEPS) was analyzed to examine recent trends in POs. This study looks at the prevalence of POs, the number of available days, and the average daily dose. **RESULTS:** The prevalence of POs has increased in recent years. In 2010, only 26.8% of respondents ever took a medication containing an opioid. By 2014, this number had increased to 32.2%. The average daily dose has also increased, from 16.48 mg in 2010 to 18.65 mg in 2014. These trends are concerning because they may contribute to the opioid epidemic. **CONCLUSIONS:** The increase in the prevalence and average daily dose of POs is a cause for concern. Further research is needed to understand the reasons behind this increase and to develop strategies to address the opioid epidemic.

**PHP5**

**ATTITUDE TOWARDS BLOOD DONATION IN HUNGARY**

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**OBJECTIVES:** The willingness to donate blood in Hungary decreased gradually in the last decades. The aim of the study is to assess the practice, knowledge and attitude of donors’ towards blood donation. **METHODS:** A cross-sectional, quantitative study with non-probability, convenience sampling was performed in Kecskemét between 2016. 07. 01 – 2016. 09. 31. All responders were between 18-65 years, and had a residence in Bács-Kiskun county (N=200). Responders who filled out less than 70% of the questionnaire were excluded. The questionnaire

**CONCLUSIONS:** The willingness to donate blood in Hungary decreased gradually in the last decades. The aim of the study is to assess the practice, knowledge and attitude of donors’ towards blood donation. **METHODS:** A cross-sectional, quantitative study with non-probability, convenience sampling was performed in Kecskemét between 2016. 07. 01 – 2016. 09. 31. All responders were between 18-65 years, and had a residence in Bács-Kiskun county (N=200). Responders who filled out less than 70% of the questionnaire were excluded. The questionnaire
used in the study had questions about socio-demographic data; health status; locations, amount, frequency of blood donations; knowledge and attitude towards blood donations. For analysis we used SPSS 22.0. Descriptive statistics (mean, median, mode, standard deviation, frequency) we calculated Spearman correlation, Kruskal-Wallis test, Mann-Whitney U test, linear regression, χ²-test and ANOVA (H1: p<0.05). SPSS 22.0 was used for calculation. RESULTS: Sixty-one donors was 41.43 years (SD=11.27, min=18, max=65 years). Mean score of the knowledge test was 14.44 ± 1.58 points (min=11, max=19). Socio-demographic data do not have an affect on knowledge, nor regularity of blood donations. For analysis we used SPSS 22.0. Descriptive statistics (mean, median, mode, standard deviation, frequency) we calculated Spearman correlation, Kruskal-Wallis test, Mann-Whitney U test, linear regression, χ²-test and ANOVA (H1: p<0.05). Results showed a negative correlation with the number of donations. Low haemoglobin level is the most frequent reason to be excluded from donation. There is no connection between knowledge level and attitude towards donation (p<0.05). There were no significant difference in knowledge between the universities (F<0.05). The result concluded the following: good cooperation with the donars are important; interests of young people must be increased; opportunity of donation on week-ends and afternoons (after morning shift schedules) must be given; maintain people’s motivation and expand knowledge about blood donation is necessary.

**PHP6**

**NAVIGATING ACCOUNTABLE CARE AND OTHER PAYER-PROVIDER ORGANIZATIONS: AN ASSESSMENT OF EMERGING INSTITUTIONAL STAKEHOLDERS BEHIND VALUE-BASED HEALTHCARE TRANSFORMATION**

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**OBJECTIVES:** Payers are increasingly tying payment for healthcare to quality and value. Many stakeholders are busy creating and implementing solutions to become value-based organizations. This transformation is driving changes in the leadership and organizational structures of hospitals and health systems. This research examines emerging institutional stakeholders behind value-based healthcare transformation, the scope of their responsibilities, and the implications for manufacturers seeking to engage accountable care and other payer-provider organizations to drive market access. METHODS: A survey of 64 administrative leaders of integrated systems (23%) and hospitals (73%) was conducted. Represented systems included on average 29 acute care hospitals and 83% were Accountable Care Organizations. Respondents included C-Suite/President (17%), Vice President (28%) and Director (55%) titles. The survey assessed institutional priorities related to value-based healthcare transformation, and leadership and organizational structure related to these priorities. RESULTS: Many domains of value-based healthcare transformation were considered, and each was widely reported to be a priority for represented institutions today. Furthermore, dedicated roles have been or will be established with focus primarily or exclusively on each: 68% of organizations have an executive function focused on Payment Transformation, 74% on Population Health Care Coordination and/or Clinical Integration, 75% on Quality, and 76% on Customer Experience. These functions operate at the enterprise (system) level in nearly half of organizations and at the affiliate level in others. CONCLUSIONS: As institutions have taken on a greater role in defining and assessing value and in operationalizing value-based decision making in healthcare, there has been a proliferation of relevant stakeholders involved in carrying out these responsibilities. Manufacturers seeking to demonstrate the value of their product within these settings must be prepared to target these emerging customers; including a tailored value proposition which considers the specific scope of their responsibilities.

**PHP7**

**LANDSCAPE OF PATIENT-ENGAGEMENT ACTIVITIES ACROSS THIRTEEN VALUE-ASSESSMENT BODIES**

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**OBJECTIVES:** Understanding the current landscape of patient-engagement activities among value-assessment bodies (VABs) is an important step toward establishing “best practices” in patient-centric value assessments. The objective of this study was to identify and compare patient-engagement practices across VABs. METHODS: A sample of North American and European organizations involved in developing clinical and/or economic value assessment was chosen for representativeness. The sample included national health technology assessment bodies (HTA’s), contract research organizations (CRO’s), and collaborations/independent organizations (CO’s). Information was gathered between September-October 2016 through a targeted web search and soliciting information from the organizations directly. Data collected included: (1) terms and definitions used to describe patient engagement; (2) types of patient-engagement opportunities offered; (3) evidence that opportunities offered are employed and impact decision-making. RESULTS: Tremendous variation exists in terms, processes, and impact of patient engagement across sampled organizations. Seventeen different terms were identified for describing patient engagement activities (e.g., patient input, patient-group submitted information). Opportunities vary widely and include: patient questionnaires (HTA-3), comment periods (HTA-1, CRO-1); participatory processes (HTA-3, PO-1); public involvement (HTA-3); PCORI partnerships (HTA-1); general stakeholder forum (CO-1). While many organizations describe engagement opportunities in their documents, only two organizations had clear evidence of engagement impacting decision-making or being consistently incorporated. There is also wide variation in the types of individuals or groups allowed to contribute the patient voice. CONCLUSIONS: There is substantial heterogeneity in what is considered patient engagement across VABs. While some seek out patients directly by advertising patient-specific opportunities via social media, others refer to comment periods open to any stakeholder as patient engagement. Completed value assessments also depict wide variation in impact of the approaches, from descriptions of how patient engagement was directly incorporated into decision-making to no mention of any patient participation.

**PHP8**

**INFLUENCING FACTORS OF YOUNG ADULT ROMANTIC RELATIONSHIPS**

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**OBJECTIVES:** This study was designed to examine young adult romantic relationships and to explore what factors affect them. METHODS: The participants were full-time BSc students at Hungarian universities (University of Pécs, Semmelweis University, Pázmány Péter Catholic University) and their age ranged between 18 and 26 years (N=362). They were chosen for the quantitative, cross-sectional, descriptive research by convenience sampling. The anonymous, self-completion questionnaire was delivered to participants via internet. For data analysis SPSS v 13 was used. Besides descriptive statistics (average, variability, frequency), mathematical statistics (t2 test, Fisher’s Exact Test, Pearson’s correlation, Kruskall-Wallis test, Mann-Whitney U test, linear regression, χ² test, ANOVA, H0/11006 = 0.05). Fear of needle, pain and infection shows a negative correlation with the success rates of these trials over time and anticipated market launch in the upcoming years.

**HEALTH CARE USE & POLICY STUDIES – Diagnosis Related Group**

**PHP9**

**DRG BASED EVALUATION OF TERTIARY LEVEL INPATIENT CARE IN HUNGARY**

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**OBJECTIVES:** Our objective is to determine the tendencies of the capacity for active inpatient care (the number of beds) and determining the DRG based performance volume limit (TVK) based on nationwide data on the one side and regarding the active inpatient care at tertiary level University Medical Center on the other part. METHODS: The data derive from the DRG based financial database of the National Health Insurance Fund Administration, the only health care financing agency in Hungary. We examined the output volume capacity data of active inpatient care expressed in numbers (DRG cost-weight) and the data of capacity expressed in the number of beds for the period of 2013 and 2017. The financial ceiling of hospitals resulted from the performance volume limit/number of beds indicator has been developed. RESULTS: The number of active beds, the number of beds at Universities (in the period under review fell by -3.4%,-224 beds) and the others hospitals in the country (fell by -2.2%,-721 beds) continue to decline in respect to the current capacity. The performance volume limit -determined by the National Health Insurance Fund Administration- shows different trends. Universities experienced -4.4% decline in their financial budget. The others hospitals in Hungary realized an increase (1.9%), but in the last year the volume decline to the 2013 level (-0.2% decrease). The performance volume limit calculated to one hospital bed decreased by 1.1% at University Medical Centers, from 644 to 637. CONCLUSIONS: Determining the performance volume limit is partly independent of the current capacities and the demand, since there are different trends in the data and getting the appropriate therapy often takes a lot of time because of the long wait lists. Supervising the performance volume limit based on needs and adjusting the capacities are required.

**HEALTH CARE USE & POLICY STUDIES – Disease Management**

**PHP10**

**GENE THERAPIES DEVELOPMENT: SLOW PROGRESS AND PROMISING PROSPECT**

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**OBJECTIVES:** In 1989, the first approved human gene therapy trial of Rosenberg et al. Gene therapies are considered as promising therapies applicable to a broad range of diseases. The objective of this study was to review the descriptive data on gene therapy clinical trials conducted worldwide between 1989 and 2015, and to discuss potential success rates of these trials over time and anticipated market launch in the upcoming years. METHODS: A publicly available database, ‘Gene Therapy Clinical Trials Worldwide’, was used to extract descriptive data on gene therapy clinical trials: (1) number of trials per year between 1989 and 2015; (2) countries; (3)
diseases targeted by gene therapies; (4) vectors used for gene delivery; (5) trials status; (6) phases of development. RESULTS: Between 1989 and 2015, 2,335 gene therapies were developed or under development. Half of the clinical trials had not started worldwide. The number of clinical trials did not increase steadily over time; it reached its highest peak in 2015 (163 trials). Almost 95% of the trials were in early phases of development and 72% were ongoing. The United States undertook 67% of gene therapy clinical trials. The majority of gene therapies clinical trials identified targeted cancer diseases. CONCLUSIONS: The first gene therapy was approved in the European Union in 2012, after two decades of dashed expectations. This approval boosted the investment in developing gene therapies. Regulators are creating a specific path for rapid access of these new therapies, providing hope for manufacturers, healthcare professionals, and patients. However, even if we are currently at the very beginning of the process, the potential therapeutic options for many patients.

PHP1
HOW THE PURCHASE AND USE OF A FDA PRIORITY REVIEW VOUCHER AFFECT PRODUCT UPTAKE AND VALUE CONVERSION
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OBJECTIVES: To understand the commercial, evidence generation, and health technology assessment implications of using a FDA Priority Review Voucher (PRV) to shorten the pre-market authorisation timeline METHODS: The study examines patients dies in hospice care and home care. We found a significant positive correlation between the chance of dying in hospice care, deterioration in general status of the patient is significant (p = 0.002). The team behind the post-market research and development expenditures and recent approved drugs from the Food Drug Administration (FDA). This data is inputted into a quasi-Markov model of a drug’s pre-approval life cycle and calculates the cost per FDA approved drug. A cost of capital is estimated for both approaches using an amortization model. Trends in the cost of capital were either the weighted average cost of capital rate or the rate as suggested by the Congressional Budget Office. RESULTS: The micro approach yields a direct cost of $1.65 billion, and the cost of major approach was $3.7 billion using a 3% cost of capital rate, the indirect cost is another $3.1 billion and $2.6 billion for the micro and macro approach respectively. Using the industry weighted average cost of capital rate, 7.72%, increases the indirect cost to $5.7 billion using the micro approach. CONCLUSIONS: Our results were similar to previously reported cost estimates for developing a new drug with one caveat–we had much lower cost of capital as critical for policymakers who attempt to balance innovation with price regulation.

PHP2
CHALLENGES OF INTEGRATED Palliative CARE IN THE HEALTH CARE SYSTEM
Lukács M1, Oláh A1, Szabó L1, Donzé F1, Szunomár S1, Fusz K1, Maté O1, Endrei D1, Paku A1
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OBJECTIVES: The aim of our study was to estimate the relationship of the chances of dying in hospice care unit (OR = 0.625), however, are less likely to die in hospice care than home care (p = 0.002). The team behind the post-market research and development expenditures and recent approved drugs from the Food Drug Administration (FDA). This data is inputted into a quasi-Markov model of a drug’s pre-approval life cycle and calculates the cost per FDA approved drug. A cost of capital is estimated for both approaches using an amortization model. Trends in the cost of capital were either the weighted average cost of capital rate or the rate as suggested by the Congressional Budget Office. RESULTS: The micro approach yields a direct cost of $1.65 billion, and the cost of major approach was $3.7 billion using a 3% cost of capital rate, the indirect cost is another $3.1 billion and $2.6 billion for the micro and macro approach respectively. Using the industry weighted average cost of capital rate, 7.72%, increases the indirect cost to $5.7 billion using the micro approach. CONCLUSIONS: Our results were similar to previously reported cost estimates for developing a new drug with one caveat–we had much lower cost of capital as critical for policymakers who attempt to balance innovation with price regulation.

PHP14
Turkistanli F1, Seoane-Vazquez E2, Rodriguez-Mongioi K1, Rin Sawad A1
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OBJECTIVES: The objective of this study was to describe trends in approvals and discontinuations of new molecular entities (NME) and therapeutic biologic license applications (BLA) during the pre-market authorisation timeline. RESULTS: Our results were similar to previously reported cost estimates for developing a new drug with one caveat–we had much lower cost of capital as critical for policymakers who attempt to balance innovation with price regulation.

PHP15
PAYERS’ ACCEPTANCE OF SURROGATE AND PATIENT-RELEVANT END POINTS IN OUTCOMES-BASED MARKET ACCESS AGREEMENTS
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OBJECTIVES: Costly drugs are often not reimbursed by health care players via the regular pathway but can be subject specific arrangements called Market Access Agreements (MAAs). MAAs are financial [Commercial Agreements] or outcomes-based (Payment-for-Performance Agreements or Coverage-with-Evidence-Development Agreements). Outcomes in outcomes-based MAAs are assessed through changes in surrogate end point (ESP) or patient-relevant ESPs. METHODS: We reviewed published and grey literature on MAAs between manufacturers and payers from all geographic areas in May 2015. We classified the schemes by MAA type. Outcomes-based MAAs were further categorized by the ESP used. RESULTS: We identified 143 MAAs. 56 (39.2%) were pure Commercial Agreements, 53 (37.1%) were Coverage-with-Evidence-Development Agreements and 43 (28.8%) were Payment-for-Performance Agreements. Among Coverage-with-Evidence-Development Agreements, 49 were patient-relevant ESP Coverage-with-Evidence-Development Agreements and four were outcomes-based Coverage-with-Evidence-Development Agreements. Among Payment-for-Performance Agreements, there were 29 surrogate ESP Payment-for-Performance Agreements for 30 drugs and five patient-relevant ESP Payment-for-Performance Agreements for at least six drugs. Among 87 outcomes-based MAAs (Coverage-with-Evidence-Development Agreements + Payment-for-Performance Agreements), patient-relevant ESP Coverage-with-Evidence-Development Agreements were the most common (56%), followed by surrogate ESP Payment-for-Performance Agreements (39%). DISCUSSIONS: Payment-for-Performance Agreements are preeminently accepted for use in Coverage-with-Evidence-Development Agreements. Therefore, Payment-for-Performance Agreements are not used by payers to reduce uncertainty about real-life effectiveness. They can constitute an outcome guarantee for payers if they are based on patient-relevant ESPs or validated surrogate ESPs. In contrast, Coverage-with-Evidence-Development Agreements employ patient-relevant ESPs and can be used by payers to reduce uncertainty about a drug’s clinical outcomes or real-life use. They can enable payers to align a product’s price with its value.
PHP16
CHANGES OF YOUNG ADULTS’ DISABILITY DAYS AFTER THE AFFORDABLE CARE ACT: IMPACT OF COVERAGE CHANGES
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OBJECTIVES: This study aimed to evaluate changes in disability days among young adults, in the context of implementation of the extended dependent coverage under the Affordable Care Act (ACA) in September 2010. METHODS: A retrospective study was conducted by using the 2008-2012 Medical Expenditure Panel Survey. Rate of disability days increased from January 2008 to December 2012 were analyzed using interrupted time series Poisson regression models. Adjustment for over-dispersion and seasonality were also used in the analysis. Young adults were identified as respondents aged 19 to 25 years old. The dependent variable was the number of days the person lost at least a half of day from work or school and the additional days the person spent in bed because of a health problem. RESULTS: A total of 56,291 disability days occurred in young adults during the study period. The preliminary model showed a reduction in disability days following the policy, with a decrease of 33% [relative risk 0.713; 95% confidence interval (CI) 0.689-0.737, P< 0.01]. Adjusted model for seasonality and over-dispersion showed a 25% reduction in disability days following the policy [relative risk 0.776; 95% confidence interval (CI) 0.610-0.988, P< 0.04]. CONCLUSIONS: The extended dependent coverage under the Affordable Care Act was associated with a reduction in the number of disability days in young adults. These findings suggest an improvement in health outcomes for young adults after the implementation of the policy.

PHP17
ROLE OF INFORMATION ANXIETY AND LOAD ON THE PROCESSING OF PRESCRIPTION DRUG INFORMATION LEAFLETS
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OBJECTIVES: In this study we evaluate the role of information anxiety and information load on intention to read from information from prescription drug information leaflets (PILs). These PILs were developed based on principals of persuasion theory and user information processing theory. METHODS: This was an experimental prospective repeated measures study where University students were recruited. PILs included a single page information material developed for three drugs namely, Celebrex (celecoxib), Ventolin HFA’s (albuterol) and Prezista (Darunavir). Information anxiety was measured as anxiety experienced by the individual when encountering information using a 5-point likert scale. To operate correctly in load, adults (≥18 years) in a university setting answered the survey questionnaire after reading a scenario followed by viewing three product information sources categorized as existing current practice, pre-existing one-page text only leaflets, and one-page PILs. The outcome variable considered was intention to read which was determined by the likelihood that the patient will read the information. Objectives were analyzed by performing a repeated measures MANOVA using SAS version 9.3. RESULTS: A total of 360 consumers participated with a 62% response rate. The mean age was 23.5±0.4 years and 72.50% were taking a prescription medication. Compared to pre-existing and text only leaflets, PILs had significantly lower scores on information anxiety (p<0.001) and information load (p<0.001). The intentions to read scores were highest in PILs and significantly different (p<0.001) for PILs as compared to existing current practice or text only leaflets. Information anxiety and load significantly impacted intention to read (p<0.001). CONCLUSIONS: There is a need to balance the amount of prescription information provided to patients in order for them to process it appropriately. Newly developed PILs increased patient’s intention to read by decreasing information anxiety and information overload. Several implications of the study are important for researchers of consumer information programs and the US FDA.

PHP18
PHARMACEUTICAL PRICES IN THE UNITED STATES VERSUS EUROPE: HOW DO DIFFERENT TYPES OF US PRICES COMPARE?
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OBJECTIVES: Against the background of recent pharmaceutical pricing controversies in the United States, this analysis seeks to provide a more comprehensive and nuanced comparison of prices in the US with those in Europe, including how they evolve over time and how list prices compare to negotiated prices. METHODS: Two samples were used. 30 innovative pharmaceuticals approved between 2012 and 2016 were used for US list prices and costs in each of the EU Top 5 countries. Indices derived from manufacturer prices per pack and unit of strength in January 2017 were compared. Price changes from time of launch to January 2017 were analyzed. 20 samples were used: 30 innovative pharmaceuticals approved between 2012 and 2016 in the United States over Europe was higher in the second sample (of older pharmaceuticals) than in the first sample, although prices tend to increase over time in the US (and decrease in Europe). CONCLUSIONS: Price comparisons between the US and Europe often paint a skewed picture in the absence of non-estimated data on net and discounted prices. Pharmaceutical prices across the full spectrum of available prices in the US are still higher than in Europe and continue to increase over time. The trend in Europe is opposite: prices are lower and tend to decrease. The difference is less pronounced among pharmaceutical prices that are negotiated in the United States.

PHP19
IRP IS DEAD, LONG LIVE IRP: AN ANALYSIS OF RECENT IRP REFORMS AROUND THE WORLD
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1IHS Markit Santa Clara, CA, USA, 2IHS Markit, London, UK, 3IHS Markit, Paris, France

OBJECTIVES: International reference pricing (IRP) has been used extensively to regulate pharmaceutical prices. It has been debated whether this policy allows the seeds of the pricing war to be sown by incentivizing industry and payers to negotiate concessionary prices, prompting scholars to ask whether we will soon face the “end” of IRP. Within this context, the present study updates a 2014 analysis examining IRP policy changes around the world in order to ascertain whether there is any evidence that IRP is a dying breed. METHODOLOGY: The study draws upon the same set of 38 countries in which in-depth qualitative interviews were completed with 50 stakeholders (37 payers/policy makers and 13 industry representatives) in 2014. It also expands that list to include 14 additional countries. A qualitative and semi-quantitative analysis of policy changes made throughout 2015 and 2016 was undertaken to identify trends in how IRP policy frameworks have evolved in recent years. RESULTS: A total of 12 discrete policy changes were observed across eight of the countries having introduced IRP before the end of 2014 (16%). Of these eight, six belong to the 22 countries (75%) making one or more such changes from time of IRP introduction through end of 2014. The most frequent changes involving modifications to the composition of the reference basket were followed by the redesign of the basket. With which reference basket is being performed (43%). Changes to basket composition did not appear motivated by availability of net prices but rather of lower list prices. Three countries were found to have implemented IRP in 2014. CONCLUSIONS: Despite recent debates over the end of IRP, it continues to represent a powerful tool for regulation of drug prices, and there is currently no evidence of a declining influence - quite the opposite. Policymakers continue to adapt regulations to cope with some of the challenges engendered by this very policy framework.
health insurance resources and cannot constitute a generalizable model; they proposed discounts according to the turnover. Other authors proposed constraint optimization models for GT, while others consider the non-invasive application of GT to US patients change health plan regularly thus disconnection initial investment and future revenue. CONCLUSIONS: Current pricing models based on unit price for one-dimensional case and future needs of GT successful arrival to the market. Performance driven managed entry agreements are unlikely to address the short course treatment and long-term value. Many proposed models may be inadequate; they may be too costly on long term or lead to inappropriate return on investment. While GT started reaching the market, no clear research enlightens payers on optimal funding models.

**PHP5**

IMPACT OF HEALTH INSURANCE BENEFIT DESIGN ON GENERIC DRUG USE IN THE UNITED STATES: A SYSTEMATIC REVIEW

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OBJECTIVES: Use of generic drugs can reduce the growing spending on prescription drugs. In 2014 $227 billion was saved because of generic drugs in the United States. Appropriate policies are imperative to promote the use of generics. This study aimed to identify the influence of health insurance benefit design (copayments, coinsurance, and deductibles) on generic drug use. METHODS: We systematically searched the literature between January 2006 and September 2016 using PubMed and Business Source Premier for potentially relevant studies. The search was limited to articles written in English with human subjects, and patients with the United States. The PRISMA guideline was used for reporting of evidence. RESULTS: 125 articles were identified and 11 articles were included in the qualitative analysis. Over a major intensity of studies showed lower cost sharing improved the use of generics and reduced non-adherence to treatment. Adherence improves by 2.7-3.4% when copays for generics are eliminated and copays for brands are reduced, corresponding to an estimated annual $5.7 million reduction in total healthcare expenditures. Charging a copay decreases the probability of using a generic by about 13% while with lower or no copays, there is an 11% increase in generic dispensing rates. Tiered copays systems increase generic filing by 20%, and a copay reduction from single to 3-tier is associated with a 5%-15% decrease in drug spending. While evidence supports the role of copayment design and copayment amount on generic use, other drug benefit design approaches such as co-insurance, and higher cost-sharing are also important. CONCLUSIONS: Use of generics can be improved through health insurance policies such as low cost-sharing. Eliminating or having very low generic cost-sharing can reduce total healthcare spending and non-adherence to treatment. However, further study is needed to identify the optimal design structure to maximize generic use.
OBJECTIVES: To assess the level of competition between the first monoclonal antibodies (mAbs) biosimilars, i.e. infliximab biosimilars (BIOSIM-INFIX) and their originator (Remicade/infliximab, J&J/Merck) (ORIGIN-INFIX) by analyzing the key global infliximab markets and the drivers of the BIOSIM-INFIX uptake. MATERIALS: Data on medicine volumes, values and manufacturer prices for BIOSIM-INFIX and ORIGIN-INFIX in the EU, in South Korea and in Japan from January 2016 to June 2016 were provided by IMS Health. Volumes were calculated in DDD (Defined Daily Doses) and Weighted Average Price (WAP) in Euros/DDD. RESULTS: In the first half of 2016, the highest BIOSIM-INFIX uptake was found in Denmark (96.4%), while the lowest was reported in Japan (1.7%). In EU countries where BIOSIM-INFIX were marketed in 2015, their uptakes are between 10% (in France, Germany, Italy, Belgium and Switzerland) and 25% (in Portugal and the Netherlands), in the same way as for countries where BIOSIM-INFIX have been marketed since 2013 (e.g., Czech Republic; 33.2%), and 4.1% in Japan, the BIOSIM-INFIX uptake was 1.7% where this difference amounts to -33.5%. CONCLUSIONS: Biosimilars market share in this region have proven to be highly country-specific. Today, the competition between BIOSIM-INFIX and ORIGIN-INFIX does not seem to be mainly based on prices, but on local decision-making and purchasing process.

METHODS: Analyzing the key global infliximab markets and the drivers of the BIOSIM-INFIX uptake. RESULTS: In the first half of 2016, the highest BIOSIM-INFIX uptake was found in Denmark (96.4%), while the lowest was reported in Japan (1.7%). In EU countries where BIOSIM-INFIX were marketed in 2015, their uptakes are between 10% (in France, Germany, Italy, Belgium and Switzerland) and 25% (in Portugal and the Netherlands), in the same way as for countries where BIOSIM-INFIX have been marketed since 2013 (e.g., Czech Republic; 33.2%), and 4.1% in Japan, the BIOSIM-INFIX uptake was 1.7% where this difference amounts to -33.5%. CONCLUSIONS: Biosimilars market share in this region have proven to be highly country-specific. Today, the competition between BIOSIM-INFIX and ORIGIN-INFIX does not seem to be mainly based on prices, but on local decision-making and purchasing process.

OBJECTIVES: To estimate the inaccuracy of medicine utilization among the elderly hospitalized patients in Punjab, Pakistan. METHODS: A descriptive, non-experimental, cross-sectional study was carried out during December 2015 to March 2016 in six tertiary-care hospitals of the Punjab province of Pakistan. The population under study was patients aged ≥60 years and being hospitalized in the selected tertiary-care hospitals. In this study, data was collected from 600 elderly patients (100 patients from each hospital). The data were analyzed by using STATA 13.0 and significance of difference was noted on a pre-designed perform and were evaluated according to the 2015 American Geriatrics Society Beers Criteria. Statistical Package for Social Sciences (SPSS) version 22 was used to analyze the data. RESULTS: In 600 hospitalized in-patient (male 52.7% and female 47.3%) charts, 3,179 medicines were prescribed. The most commonly prescribed drug classes were: antihypertensives 80%, diuretics 63%, anti-infectives 62% and cardiovascular 48.3%. The most commonly prescribed inappropriate medications were: omeprazole 51.3%, methotrexate 14.3%, aspirin 9%, piperaclamidine 7.7%, ibuprofen 4%, furosemide 3.3% and chlorpheniramine 1.8%. CONCLUSIONS: The rational use of medicines is of utmost importance, most particularly in the elderly population. It is highly recommended that more consideration should be given to the elderly patients.

OBJECTIVES: Marketing authorization is the first step in making new medicines available in national health systems. Most new substances are approved in the European Union via the centralised procedure (coordinated by the European Medicines Agency), which was designed to facilitate access to new and efficacious therapeutic and many health care systems in Europe evaluate the new medicines according to their effectiveness and cost-effectiveness. We compared the outcomes of HTA evaluations for centrally authorised products (CAPs) in Great Britain and Hong Kong. METHODS: The Medicine Tracker is a proprietary database of approved products, which includes detailed and structured information on CAPs, e.g. indications (initial and extensions), regulatory and HTA outcomes and dates of decisions. We analysed and compared the outcomes of evaluations conducted by the National Institute for Health and Care Excellence (NICE), the All Wales Medicines Strategy Group (AWMSG) and the Scottish Medicines Consortium (SMC) for all the CAPs which received an authorisation (initial or extension) between 01/01/2011 and 31/12/2015. RESULTS: 416 authorisations (excluding generics, hybrids, biosimilars) were granted between 2011 and 2015 (including 67 orphan medicinal products). 171 (30%) are for anti-cancer medicines. 50% of the 416 CAPs were referred to NICE including 60% (103) of the anti-cancer medicines. 75% of NICE appraised CAPs received a positive recommendation and only 21 products (13%) were rejected. Anti-cancer medicines were disproportionally affected by NICE negative recommendations (OR of receiving a negative recommendation compared with other products was 2.36, 95% CI 1.10, 5.07). The odds of receiving a positive recommendation from the SMC was significantly lower for orphans compared with non- orphan medicinal products; OR 0.42 (0.21, 0.83) 25 products were appraised in all 3 countries, there was low agreement in terms of recommendations, Kappa 0.479, p = 0.001. CONCLUSIONS: Despite more centralisations taking place, the availability of new medicines, this does not systematically translate into wider access in Great Britain.

OBJECTIVES: To examine the extent of substandard and falsified medicines in low and middle income countries (LMICs) and assess evidence of their economic impact. METHODS: Five databases were searched for articles containing data on prevalence and/or economic impact of substandard and falsified medicines in LMICs. PubMed, Etronlit, Global Health, EMBASE, and SCOPUS. The search used variations of two keywords: “substandard and falsified medicines” and “low- and middle-income country.” Additional gray literature sources were incorporated through reference mining. Studies that did not seek to quantify either prevalence or economic impact of substandard and falsified medicines, or that pertained only to high income countries, were excluded. Two reviewers independently assessed articles for inclusion. Data describing the setting, medicine, disease target, prevalence, and economic impact were extracted from selected articles. RESULTS: While the final article count is still underway, we identified more than one hundred articles describing the prevalence of substandard and falsified medicines in LMICs. Results from various studies suggest a large variation across regions, specific medicines and facilities (hospitals vs. pharmacies), as well as in the source of the evidence (active vs. passive surveillance). In comparison, very few articles described the economic impact of substandard and falsified medicines in LMICs. The economic impact represented only a small percentage of the methodology, or used a limited scope focusing on immediate impacts. The
final counts and full results of the review will be presented at the ISPOR conference. CONCLUSIONS: This review documents current evidence showing the potential for delay in the medical and financial approval of LMICs. It further highlights key gaps in the available literature at estimating the economic impact of substandard and falsified medicines, what further studies are needed to evaluate the broader economic impact of poor medicines in LMICs, and makes a case for investing in evidence-based solutions to address this problem.

PHP33 THE BEST WAY TO HTA? QUEBEC VERSUS THE REST OF CANADA
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OBJECTIVES: The Canadian Agency for Drugs and Technologies in Health (CADTH) makes recommendations on provincial public drug plans to help guide drug funding decisions. The exception is Quebec, where the Institut National d’Excellence en Santé et en Services Sociaux (INESSS) conducts separate assessments. This research compares drug recommendations between CADTH and INESSS. METHODS: Publically available CADTH (including both Common Drug Review [CDR] and pan-Canadian Oncology Drug Review [pCDOR] processes) and INESSS reports on drug assessments were identified between 03/31/2015 and 11/30/2016, and 105 for CADTH and INESSS were extracted and compared. RESULTS: 144 appraisals were conducted by CADTH (104 under CDR and 40 pCDOR) compared with 337 by INESSS. 83% CADTH appraisals resulted in positive decisions (defined as a full [4%] or restricted recommendation [76%]) with 17% not recommended. Recommendation rates were similar under CDR versus pCDOR processes. 48% INESSS appraisals resulted in positive decisions (including restrictions and those from re-assessments) with 37% not recommended and 14% other. 44% INESSS oncology drug appraisals resulted in positive decisions. 96 drug han been assessed by both CADTH and INESSS in the same indication. Only 55% were concordant (kappa=0.17); however, this is a higher rate than expected by chance (24%). CONCLUSIONS: This study compared many of the CADTH and INESSS appraisals. The majority of drugs appraised solely on the basis of non-comparative studies were similar to overall outcome rates (encompassing recommended/restricted/approved). The majority of drugs appraised solely on the basis of non-comparative studies were similar to overall outcome rates (encompassing recommended/restricted/approved). The majority of drugs appraised solely on the basis of non-comparative studies were similar to overall outcome rates (encompassing recommended/restricted/approved). The majority of drugs appraised solely on the basis of non-comparative studies were similar to overall outcome rates (encompassing recommended/restricted/approved). The majority of drugs appraised solely on the basis of non-comparative studies were similar to overall outcome rates (encompassing recommended/restricted/approved).

PHP34 UNDERMINING THE GOLD STANDARD? THE ROLE OF NON-COMPARATIVE EVIDENCE IN HEALTH TECHNOLOGY ASSESSMENT
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OBJECTIVES: Many health technology assessment (HTA) agencies express a preference for randomized controlled trial (RCT) evidence against a relevant comparator when appraising new health technologies; however, it is not always feasible to design and conduct a clinical trial that meets these criteria. The objective of this study was to assess the current role of non-comparative evidence in health technology assessments. METHODS: The websites of three HTA agencies: NICE (UK), CADTH (Canada), and IQWiG (Germany) were searched for a total of 150 randomised trials, 125 non-randomised trials, 152 drug reimbursement. However, these positive recommendations are typically conditional on demonstrating acceptable cost-effectiveness, and unlike INESSS, CADTH conducts horizon scanning, potentially filtering technologies unlikely to be recommended.

PHP35 ASSOCIATION BETWEEN EXTERNAL REFERENCE PRICING AND PER CAPITA SPENDING ON PHARMACEUTICALS IN EUROPE
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OBJECTIVES: External reference pricing (ERP) is a cost-containment tool employed by many European countries to manage pharmaceutical prices. The study objective was to estimate the association of ERP adoption with per capita pharmaceutical spending in 28 European countries. METHODS: The outcome variable was annual per capita spending on prescription and over-the-counter (OTC) pharmaceuticals. Potentially explanatory variables included the number of countries contained in each “basket” of countries referenced when establishing price; number of times each country was referenced in other countries’ baskets; price type referenced (manufacturer or purchasing power parity), frequency of re-referencing, Eurozone membership, country population and life expectancy, and gross domestic product (GDP) per capita. All analyses were conducted with SAS v9.3. Exploratory variables were assessed for correlation with the outcome variable, normality, and multi-collinearity. Linear regression with backwards elimination was performed to delineate the association of the greatest impact on per capita pharmaceutical spending. Results suggest in general are willing to wait for larger, delayed rebates over smaller, immediate discounts when engaging in contracting opportunities.

PHP36 GENERIC COMPETITION IN THE US (1980-2016)
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OBJECTIVES: This study assessed trends in generic drugs approved by the US FDA in the period 1980-2016. METHODS: Study data were derived from the FDA webpage. We assessed the first generic entry for new entities (NMEs) and new therapeutic biologic license applications (BLAs) approved during the study period. We estimated the time from BLA/ NME approval to biosimilar/generic approval. Descriptive analysis, t-test and Chi-Square where used in the analysis. RESULTS: The FDA approved 1033 new drugs in the period 1980-2016 including 366 NMEs and 199 BLAs. Nineteen NMEs and 139 BLAs got delayed due to biosimilars. As of December 31, 2015, there were 4 BLAs that experienced biosimilar competition. As signiﬁcant associations were observed between the number of countries referenced when establishing price and per capita pharmaceutical spending in other countries. Logically, life expectancy is positively correlated with per capita pharmaceutical spending – the longer a person lives, the more he or she will spend on pharmaceuticals in a given year.

PHP37 IMMEDIATE DISCOUNTS VERSUS DELAYED REBATES: A SURVEY OF U.S. PAYERS
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OBJECTIVES: Delay discounting describes the tendency to prefer an immediate reward, even when a delayed reward is greater. This phenomenon has been consistently demonstrated in several studies across a variety of populations. This study aimed to assess whether the delay discounting model is applicable among U.S. healthcare payers. METHODS: An online survey was conducted with U.S. health plan and pharmacy benefit management (PBM) organizations (MoCOS) and served as active members of pharmacy and therapeutics committees. Participants were given 27 different scenarios based on the Monetary Choice Questionnaire (MCQ) with two options from a fictional drug manufacturer wishing to contract with an MCO. Participants chose between a smaller immediate discount off invoice and a larger delayed rebate. The cost savings and length of delay varied in each of the scenarios. A published scoring tool was used to calculate ‘basket’ individual and aggregate values at which the subject’s delay discount decreased over time (k). A delay discounting curve plotted the relative subjective value of the delayed reward versus the length of delay. CONCLUSIONS: The overall mean k value across all 54 participants was 0.00524, yielding a shallow hyperbolic delay discounting curve. Group analyses revealed equivalent median overall k values between pharmacy and medical directors. Overall, 54% of all decisions were in favor of a delayed rebate. A positive delay discount was observed with IMRs ranging from small to large coincided with increased favorability towards delayed rebates (50% to 59%, respectively). CONCLUSIONS: While payers in this study displayed an expected preference for smaller, immediate rebates over larger, delayed rebates, there is no evidence of delay discounting to be measured compared to previously published discounting rates of non-payer populations. Results suggest payers in general are willing to wait for larger, delayed rebates over smaller, immediate discounts when engaging in contracting opportunities.
PHP38
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OBJECTIVES: At the end of 2006, there was an important reform in the Hungarian pharmaceutical budget, implemented to protect the health insurance budget of medicines. In 2008, the world economic crisis significantly affected the public expenditures in many countries. The aim of our study is to analyze the changes in the Hungarian health insurance pharmaceutical budget between 2006-2015.
METHODS: Data were derived from the nationwide administrative dataset of the National Health Insurance Fund Administration (OHIF), the only health care financing agency in Hungary. We analyzed the changes of the pharmaceutical budget and coverage policies issued by private payers for the included new drugs. Results are given in Hungarian Forint (HUF). The annual average currency exchange rates were applied according to the data of the Central Bank of Hungary.
RESULTS: In the first year, the Hungarian pharmaceutical budget was 388.7 billion HUF (523.6 billion HUF of 2007) by 65.1 billion HUF (16.7 %). This decrease was a bit lower in USD (0.1 billion USD, 4.7 %) due to the stronger Hungarian currency. For 2011, the pharmaceutical budget slightly increased compared to 2003 up to 379.9 billion HUF (1.88 billion USD). The increase was moderate in USD due to the weakening Hungarian currency. Between 2012-2015, the pharmaceutical budget remained in the range of 296-326 billion HUF (1.17-1.3 billion USD).
CONCLUSIONS: Due to the reform of the whole Hungarian pharmaceutical market and as the effect of economic crisis, the Hungarian health insurance pharmaceutical budget significantly decreased between 2006-2015. Between 2006-2009 this decline became higher than the Hungarian currency weakened compared USD during the world economic crisis. Between 2012-2015, the pharmaceutical budget has been stabilized.

PHP39
THE EXCHANGE OF HEALTHCARE ECONOMIC INFORMATION IN THE US: PAYER AND MANUFACTURER EXPERIENCES WITH FDA 114 AND FUTURE DIRECTIONS
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OBJECTIVES: To identify US payer and manufacturer experiences with Sections 114 of the Food and Drug Administration (FDA) Modernization Act of 1997 (FDAMA) 114 and how this experience could influence implementation of new legal provisions and FDA guidance on healthcare economic information (HEI). METHODS: Payers and manufacturers completed surveys assessing the importance of HEI and application of FDA 114 prior to changes resulting from implementation of these changes.
RESULTS: Fifty percent of payers and 51% of manufacturers found it important to include HEI. Thirty-three percent (33%) of payers and 34% of manufacturers identified FDA 114 as an important tool to enhance implementation of these changes.
CONCLUSIONS: Fifty percent of payers and 51% of manufacturers found it important to include HEI. Thirty-three percent (33%) of payers and 34% of manufacturers identified FDA 114 as an important tool to enhance implementation of these changes.

PHP40
PAYING FOR INNOVATION: PRIVATE PAYER COVERAGE OF BREAKTHROUGH THERAPIES
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OBJECTIVES: The Breakthrough Therapy Designation provides an expedited Food and Drug Administration (FDA) review pathway for novel pharmaceuticals that treat serious or life-threatening disease and show preliminary clinical evidence of substantial improvement over existing therapies. The aim of this research is to determine whether that clinical data is sufficient for US payer coverage and reimbursement. METHODS: We compared characteristics of all novel pharmaceuticals that received FDA approval and did not receive breakthrough therapy designation without a Breakthrough Therapy Designation to those received FDA approval. RESULTS: Between 11/1/2013 and 12/31/2015, FDA CDER approved 90 novel pharmaceuticals; 22 new molecular entities/new biological products that received Breakthrough Therapy Designation and 68 novel pharmaceuticals that did not receive breakthrough therapy designation were then approved. Breakthrough therapies were universally covered by all payers. Private payer coverage of breakthrough therapies was equivalent to the corresponding FDA label in 79.17% of cases, more restrictive in 8.33%, less restrictive in 10.19%, and varied in 2.31%. All ‘less restrictive’ or ‘varied’ breakthrough therapies were cancer drugs. Breakthrough therapies were significantly more likely to be equivalent to corresponding FDA approval than other novel pharmaceuticals (79.17% vs. 56.4%). Novel pharmaceuticals that did not receive breakthrough therapy designation were significantly more likely to have additional restrictions applied. CONCLUSIONS: Although the Breakthrough Therapy Designation leads to faster regulatory approval, payer coverage remains a significant hurdle for drug manufacturers as they bring novel pharmaceuticals to market. For payers, coverage inconsistencies can mean variable access to breakthrough therapies.

PHP41
DYNAMIC REIMBURSEMENT WORKING IN PRACTICE? CANCER DRUGS FUND REFORMS IN THE UK
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OBJECTIVES: Exploited regulatory pathways increasingly grant marketing authorization for treatments at earlier stages of clinical development. In contrast, payers in Europe, Canada, and Australia are increasingly demanding more robust data to justify reimbursement. Dynamic reimbursement, defined as varying the price as further evidence emerges, provides one route for reimbursement where consider- able uncertainty exists. However, in practice, attempts to remove coverage/reduce the price of already reimbursed treatments have been challenging (e.g. Conditional Reimbursement of the Netherlands). Reforms to the Cancer Drugs Fund (CDF) in England have effectively created a dynamic reimbursement process. Drugs reimbursed under the CDF (originally set up in 2011 with free-pricing for qualifying drugs) will only maintain reimbursement if they achieve positive NICE guidance. This research aims to evaluate how how CDF-reimbursed drug coverage and pricing. METHODS: Drugs covered under the CDF (as of 07/20/2016) were identified from the NHS England website. Corresponding subsequent NICE appraisal guidance was screened up to 01/13/2017. RESULTS: Thirty-three drugs reimbursed under the CDF were identified. Thirty-three all subsequently received final NICE guidance (100% positive); all recommendations were associated with a PAF (all simple discount schemes). 7 drug-indication pairings were approved through full NICE submissions. 18 submissions are undergoing NICE appraisals, of which 7 have draft guidance (2 positive, 4 negative, and 1 recommended for inclusion in the revised CDF). 3 drug-indication pairings were deferred to the CDF ‘off-label’ process; 1 was withdrawn by industry. CONCLUSIONS: Under the recent CDF reforms, the NHS has arguably successfully implemented a form of dynamic reimbursement whereby manufacturers have had the opportunity to change the price of previously reimbursed drugs but a one-off set of changes that were a consequence of broader oncology reimbursement reforms.

PHP42
DO PAYERS COVER CANCER AND NON-CANCER DRUGS DIFFERENTLY?
Page E1, Wilkinson C2, Chambers F2
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OBJECTIVES: To compare the restrictiveness of payer coverage decisions for cancer and non-cancer drugs. METHODS: We identified coverage decisions for cancer and non-cancer drugs from US private payers from the Omnibus Employer Group Plans. We compared each payer’s coverage decision for each drug against the drug’s corresponding FDA label. We categorized each coverage decision as: (a) more restrictive than the FDA label (the payer placed conditions on coverage beyond the FDA label), (b) consistent with the FDA label, (c) less restrictive than the FDA label (the payer covered the drug for a broader patient population than the FDA label), or (d) mixed (the payer’s coverage decision was more restrictive than the FDA approval in one way but was less restrictive in another). We compared the restrictiveness of coverage of cancer and non-cancer drugs using a chi-squared test. RESULTS: The database contains 2,507 coverage decisions for non-cancer drugs, and 925 coverage decisions for cancer drugs. For non-cancer drugs, coverage was more restrictive on 35% (n=877) occasions, consistent on 53% (n=1,324) occasions, less restrictive on 4% (n=109) occasions, and mixed on 2% (n=51) occasions. For cancer drugs, coverage was more restrictive on 5.3% (n=49) occasions, consistent on 70.7% (n=650) occasions, less restrictive on 21.9% (n=201) occasions, and mixed on 1.2% (n=11) occasions. We found a statistically significant (p<0.05) difference between the restrictiveness of coverage of cancer and non-cancer drugs. CONCLUSIONS: Our study suggests that payer coverage of cancer drugs is less restrictive than coverage of non-cancer drugs.

PHP43
RATES OF PRESCRIPTIONS FOR HIGH OPIOID DAILY DOSES ACROSS MULTIPLE EMPLOYER GROUP PLANS IN EASTERN TENNESSEE
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OBJECTIVES: CDC has released guidelines for providers on appropriate opioid use which identify potentially unsafe opioid daily doses (>50 morphine milligram...
equivalents (MME) and $\geq 90$ MMEs). This study used a multi-employer dataset in eastern Tennessee to identify the proportion of opioid prescriptions that exceeded these thresholds. MEPS prescription and medical claims data were obtained from the data warehouse of HealthCare 21, the employer coalition in eastern Tennessee. A cross-sectional analysis was conducted including beneficiaries with continuous eligibility from July 2014 to June 2015 who were ages 18-64. Individuals with a cancer diagnosis were excluded. Filled opioid prescriptions were identified and daily doses in MMEs were calculated. Daily doses of $\leq 50$ MMEs and $\geq 90$ MMEs were identified as these were thresholds described in CDC guidelines. **RESULTS:** The final sample included 63,648 beneficiaries. The median age was 44 and 58% were female. Of these beneficiaries, 14,115 (22%) filled at least one opioid prescription. A total of 47,508 opioid prescriptions were filled. Among the population who filled at least one opioid prescription, the median number of prescriptions was 1, the mean was 3.4, and the maximum was 45. The median daily dose for all opioid prescriptions was 32 MMEs, the mean was 51 MMEs while the 90th and 95th percentiles were 90 and 135 MMEs, respectively. Nearly one third of opioid prescriptions were for daily doses $\geq 50$ MMEs. Further research is warranted to better understand factors contributing to the prevalence of high dose opioid prescriptions and how exposure to these potentially dangerous doses can be reduced.

**PHP44**

MEDICATION ADHERENCE AND DISCONTINUATION IN MEDICAID PATIENTS WITH DUAL DIAGNOSES OF SCHIZOPHRENIA AND BIPOLAR WHO INITIATED LONG ACTING INJECTABLE ANTIPSYCHOTIC VERSUS THOSE WHO CHANGED ORAL ANTIPSYCHOTICS

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**OBJECTIVES:** To compare medication adherence and discontinuation between patients with dual diagnoses of schizophrenia and bipolar disorder (BPD) who initiated a long-acting injectable antipsychotic (LAI) and those who changed to a different oral antipsychotic (OA). This retrospective cohort analysis used the Truven Health Analytics MarketScan Medicaid claims database. Of the identified schizophrenia patients ($\geq$18 years) with co-morbid BPD (dual diagnosis), two mutually exclusive cohorts were created: "LAI," patients initiating LAI therapy between 01/01/2013 and 06/30/2014 (the identification period); and "oral," patients who changed to a different oral antipsychotic during the same period. The first day of initiating LAI or new oral was the index date. Primary outcome measures were medication adherence (proportion of days covered [PDC]) during the 1-year follow-up and medication discontinuation (continuous medication gap $\geq 60$ days) during entire follow-up. General linear regression and Cox regression models were used to estimate adjusted medication adherence rate and risk of discontinuation, respectively, adjusting for patient demographic and clinical characteristics, baseline medication, and baseline emergency department visits or hospitalizations. **RESULTS:** The study sample consisted of 1,028 (45.1%) LAI initiators and 1,250 (54.9%) oral monotherapy users. Compared with oral users, LAI initiators had better medication adherence (adjusted mean of PDC: 0.52 vs 0.48; p=0.023). LAI initiators also had a significantly longer time to medication discontinuation (mean of 168 days) compared with 30 days in the oral cohort (p=0.052). Adjusting for covariates, the risk of discontinuing index treatment in the oral cohort was higher than in the LAI cohort (HR 1.14; p=0.01). This real-world evidence suggests that among patients with dual diagnoses of schizophrenia and BPD, use of LAI was associated with slightly better medication adherence and lower discontinuation risk compared with use of oral antipsychotic monotherapy.

**PHP45**

RELATIVE RISK OF ANTI-PSYCHOTIC USE IN FOSTER CHILDREN BENEFICIARIES ENROLLED IN THE MISSISSIPPI DIVISION OF MEDICAID (DOM) Gangan N, Banahan III B

Center for Pharmaceutical Marketing and Management, University of Mississippi, University, MS, USA

**OBJECTIVES:** Increasing use of antipsychotic medications in children, especially outside of FDA approved uses has become a topic of national concern. Higher utilization of antipsychotic medications in foster children has raised questions about treatment disparities. This study assesses the relative risk of antipsychotic use in foster children compared to non-foster children in Mississippi Medicaid.** METHODS:** We employed a retrospective observational design. DOM pharmacy claims for all children from ages 4-18 years and continuously enrolled for 2015 were analyzed for antipsychotic use. Antipsychotic use was identified using International Classification of Disease-9th Generation antipsychotics. Foster children were identified using eligibility codes, which excluded children who received long-term care or had dual eligibility. Poison regression with log link was used to assess the adjusted and adjusted relative risks of antipsychotic use in foster children compared to non-foster children. **RESULTS:** We identified 6,626 foster children and 274,043 non-foster children continuously enrolled in 2015. Foster children had higher rates of mental disorders such as psychosis, ADHD, conduct disorder, and disruptive behavior disorder. The unadjusted relative risk of antipsychotic use in foster children was 3.6 times higher compared to non-foster children (95% CI, 3.303-4.013, p<0.0001). When adjusting for demographics and mental health disorders, the relative risk of antipsychotic use dropped to 1.4 (95% CI, 1.279-1.603, p<0.0001). Conclusions: The use of antipsychotics in foster children was significantly higher among foster children. After adjusting for mental health and developmental conditions, the relative risk of use was still significantly higher but much lower. The drop in adjusted relative risk indicates that higher rates of use in foster children might be explained by higher rates of trauma and mental health disorders. Future work examining additional confounding variables may be needed to determine whether a treatment disparity actually exists between foster and non-foster children.

**PHP46**

ALL-CAUSE INPATIENT HOSPITALIZATIONS IN MEDICAID PATIENTS WITH DUAL DIAGNOSES OF SCHIZOPHRENIA AND BIPOLAR WHO INITIATED LONG ACTING INJECTABLE ANTIPSYCHOTICS

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**OBJECTIVES:** To compare all-cause inpatient hospitalizations among Medicaid patients with dual diagnoses of schizophrenia and bipolar disorder who initiated long-acting injectable antipsychotics (LAs). **METHODS:** This retrospective cohort analysis used the Truven Health Analytics MarketScan Medicaid claims database. Schizophrenia patients $\geq$18 years with comorbid bipolar disorder (dual patients) and having at least one claim for one of the following four LAs were identified between 01/01/2013 and 06/30/2014: aripiprazole, haloperidol, paliperidone, and risperidone. The first day of initiating LAI was considered the index date. We compared all-cause hospitalization rates during the 1-year follow-up and discontinuation during the entire 365 days. The four LAI cohorts. Logistic and Cox regression models were used to estimate risks of inpatient hospitalization, adjusting for baseline patient demographic and clinical characteristics, medication exposure, and emergency department hospitalizations. **RESULTS:** Of the identified Medicaid patients with schizophrenia and bipolar dual diagnoses, 935 initiated an LAI: 49.3% received paliperidone, 23.3% haloperidol, 16.4% risperidone, and 11.5% aripiprazole. Controlling for covariates, the adjusted post-first index hospitalization rate in aripiprazole (36.8%) was lower than in paliperidone (41.9%), haloperidol (45.6%), and risperidone (47.3%). The median time to first hospitalization in aripiprazole was 647 days, vs. 507 days in paliperidone, 426 days in haloperidol, and 419 days in risperidone. With the aripiprazole cohort as the reference group, the risk of having any inpatient hospitalizations during the entire follow-up was higher in haloperidol, paliperidone and risperidone cohorts. However, none of these differences were statistically significant ($p>0.05$). **CONCLUSIONS:** This is among the first study to compare inpatient hospitalizations among Medicaid patients with dual diagnoses of schizophrenia and bipolar who initiated LAs. Our findings suggest that patients treated with aripiprazole have a numerically lower risk of having any hospitalizations, compared with those treated with haloperidol, paliperidone, and risperidone, although the difference was not statistically significant.

**PHP47**

PATIENT CHARACTERISTICS RELATED TO SPECIALTY MEDICATION USE

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**OBJECTIVES:** To identify characteristics associated with specialty medication use by employing a large, nationally representative sample of patients using specialty medications for their chronic conditions in the U.S. **METHODS:** This study used the MarketScan and Medicaid Coverage Expenditure Panel Survey (MEPS) data from 2000 through 2013. Among the MEPS respondents aged 18 or older who received at least one specialty medication during the years 2000 through 2013, those who used any specialty pharmaceuticals were considered as specialty medication users (SMUs). Accordingly, adults 18 or older who used any specialty pharmaceuticals other than oral medications were considered traditional medication users (TMUs). Those who used only specialty medications but also traditional medications concurrently were labeled as both medication users (BMDUs). Andersen's Health Services Utilization model was used to identify potential factors related to specialty medication use. Associations between the variables identified by Andersen's model and specialty medication use were analyzed using logistic regression in a hierarchical fashion. Sampling weights were considered and standard errors were adjusted to account for the complex survey design. **RESULTS:** A fully adjusted model suggested that older adults or individuals using mail order services were more likely to use specialty medications regardless of whether they used traditional medications concurrently. Behaviors of using specialty medication(s) were positively associated with married and active working status and negatively associated with middle or high income and having a usual source of care (visiting a doctor's office, clinic, or health center they usually go when sick) when comparing TMUs and SMUs. In addition, when comparing TMUs and BMUs, behaviors of using specialty medication(s) were positively associated with female gender, having drug insurance, worse health state and more comorbidities and negatively associated with other race/ethnicity (not white European American) and having a usual source of care. The most important factors of patients using specialty medication(s) were sociodemographic, economic, and clinical factors were related to specialty medication use among U.S. adults.

**PHP48**

KNOWLEDGE, ATTITUDE AND PRACTICE: STUDY OF GENERIC MEDICINES AMONG STAKE HOLDERS IN BAHAWALPUR CITY

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**OBJECTIVES:** This study aimed to assess public knowledge and attitudes toward generic medicine usage within a government hospital and community setting in
Bahawalpur which could serve as baseline data for future studies. METHODS: A cross-sectional survey involving 600 respondents was conducted using a validated questionnaire at the Bahawalpur Teaching Hospital, City, Punjab, Pakistan. The data was collected from 150 pharmacists and 237 doctors by using self-administered questionnaire, while 301 patients were questioned verbally. The data was analyzed using SPSS version 15 and the results were tabulated. RESULTS: Out of 150 pharmacists, 102 (68%) had knowledge that generic medicines show same effects as branded medicines. Out of 150 doctors, 67 (44.7%) considered that generic medicines were as effective as branded medicines. Out of 300 patients, 277 (93.3%) considered that branded medicines were safer than generic medicines. Patients 268 (89.3%) were not interested to know about cheaper alternative of prescribed medicines. Patients 296 (98.7%) were not asked by doctors or pharmacist to switch from branded to generic medicines. Pharmacists 113 (75.3%) showed positive attitude to have awareness about shops where generic medicines were available while who suggested the patient regarding use of generic medicines were (75.3%) showed positive attitude to have awareness about shops where generic medicines were available while who suggested the patient regarding use of generic medicines were as effective as branded medicines. Out of 150 doctors, 67 (44.7%) considered that branded medicines were as effective as branded medicines. Patients 268 (89.3%) were not interested to know about cheaper alternative of prescribed medicines. Patients 296 (98.7%) were not asked by doctors or pharmacist to switch from branded to generic medicines. Pharmacists 113 (75.3%) showed positive attitude to have awareness about shops where generic medicines were available while who suggested the patient regarding use of generic medicines were as effective as branded medicines. Patients 268 (89.3%) were not interested to know about cheaper alternative of prescribed medicines.

OBJECTIVES: The study concluded that poor knowledge about safety, efficacy, quality, and the availability of both generic and branded medicines among respondents towards generic medicines. Most of the respondents showed negative attitude towards generic medicines and generic substitution.

PHEP49 A CROSS-SECTIONAL STUDY TO EVALUATE THE FACTORS INFLUENCING THE PRESCRIBERS TO PRESCRIBE AN EXPENSIVE BRAND IN BAHAWALPUR, PUNJAB, PAKISTAN Rehman H, Areej S, Ikhtiar S, Arif R, Khan A, Agbar A, Ashraf F, Mumtaz N, Ashraf M, Zafar S, Zafar M 1 Akhtar Saeed College of Pharmaceutical Sciences, Lahore, Pakistan OBJECTIVES: To promote economic treatment option in the society by reducing treatment cost and by supporting generic prescribing trends. METHODS: A descriptive, cross-sectional survey targeted mangers at hospital pharmacies in Bahawalpur, using a pre-tested questionnaire. Statistical Package for Social Sciences (SPSS) was used to analyze the data. RESULTS: A total of 250 of the prescribers were included for the study including general practitioners (134) and specialists (116). 93.7% of the prescribers agreed the cost difference between generic- and branded medicines, 52.1% of the prescribers disagreed that generic and branded medicines were equally effective, 73.1% of the prescribers believed that branded medicines followed more safety standards than the generic medicines and 61.1% of the prescribers agreed that advertisements have great impact on prescribing behavior. CONCLUSIONS: This study concluded that poor knowledge about safety, efficacy, quality, and the availability of both generic and branded medicines among prescribers may have contributed to the prescribing pattern. An economic approach towards rationalizing prescription practices will help to achieve more cost-effective prescribing.

PHEP50 EXPLORE ANTIMICROBIAL DRUG UTILIZATION REVIEW PROGRAMS IN SAUDI HOSPITALS Alkolya M1, Alatib M2 1King Abdullah International Medical Research Center (KAIMRC), Riyadh, Saudi Arabia, 2Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia OBJECTIVES: Antimicrobial drug utilization review (DUR) is one of the essential tools to optimize antimicrobial use. The aim of this study was to identify inconsistency in clinical centers of Saudi Arabia and to minimize the prescription practices associated with irrational use of this therapeutic group including the Antimicrobial drug resistance. The objective of the study is to explore how Saudi hospitals setup DUR program for Antimicrobial drugs use. METHODS: A cross-sectional survey targeted mangers at hospital pharmacies in both governmental and private hospitals in Riyadh City in 2014. The survey gathered information about safety and efficacy of generic medicines and 118 (78.1%) doctors said that their prescribing decision was influenced by advertisements of drug companies. CONCLUSIONS: It was concluded from current study that there was gap of knowledge among respondents towards generic medicines. Most of the respondents showed negative attitude towards generic medicines and generic substitution.

PHP52 DRUG REVIEW OF CLASS L - ANTIPLASMODIC AND IMMUNOMODULATING FOR TREATMENT OF APAFLIC / HEMOLYTIC ANEMIA AND APAFLIC PURPURA ACQUIRED Nunes TR1, Goldino-Pitta MR2, Leite BF1, Oliveira PS1, Viana DC1, Araujo BC1, Zanghetti P1, Rege M1, Pereira MC2, Oliveira MD2, Pitta ID1, Pitta MG1, Andrade CA1 1Universidade Federal de Pernambuco, Recife, Brazil, 2Federal University of Pernambuco, Recife, Brazil, 3Brazilian Ministry of Health, Brasília, Brazil, 4Avenida Professor Moraes Reis, Recife, Brazil, 5UPFC, Recife, Brazil, 6University Federal de Pernambuco, Recife, Brazil OBJECTIVES: To evaluate the therapeutic indication of 25 mg, 100 mg and 200 mg injectable lyophilized powder of antithymocyte immunoglobulin (rabbit) for the treatment of aplastic anemia. METHODS: A literature review was conducted on February 2015 in the following databases: BMJ - Best Practice, Dynamed and UpToDate. The search strategy adopted the vocabulary of structured Descriptors in Health Sciences (DeCS) and Medical Subject Headings (MeSH) to better identify the references of interest. Indexed search terms used were: “Aplastic anemia”, “Aplastic”, and “Antithymocyte Globulin rabbit”. RESULTS: According to evidences in BMJ, the use of antithymocyte immunoglobulin is indicated as first-line treatment in patients with aplastic anemia in groups of patients with non-severe, severe or very severe acquired disease over the age of 50 years. According to Dynamed database, the use of antithymocyte immunoglobulin at a dose of 15 mg/kg/day for 5 days with prednisolone and cyclosporine 5 mg/kg/day for 6 months improves the response rate and the free time of blood transfusions. Since the evidence synthesis found in UpToDate base demonstrates that for the treatment of severe or very severe aplastic anemia there should be a combination of removing potentially offending agents (for acquired aplastic anemia), additional supportive care (for example, transfusion and antibiotics) and some form of definitive therapy (e.g., transplantation of hematopoietic cells or immunosuppressive regimens). Since 2014, none of the published studies comparing horse and rabbit immunoglobulin have been conducted and rabbit antithymocyte globulin is not available in Brazil, we recommend the inclusion of rabbit antithymocyte globulin in the Antithymocyte immunoglobulin dosages of 25 mg, 100 mg and 200 mg, in the form of injectable lyophilized powder in the National List of Essential Medicines of Brazil.
EFFECT OF CASH PRESCRIPTIONS ON ADHERENCE PERFORMANCE MEASURE

ESTIMATES USED IN MEDICARE STAR RATINGS

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OBJECTIVES: Medicare Star Ratings evaluates the quality of Medicare Advantage plans with Part-D coverage (MA-PD) and stand-alone Part-D plans (PDPs) via multiple measures, including adherence metrics developed by the Pharmacy Quality Alliance (PQA). The objective of this study was to assess the impact of missing cash prescriptions on PQA-adjudicated star ratings for statin, angiotensin system antagonists (RASA), and antidiabetic medications. METHODS: The Medical Expenditure Panel Survey 2010-2014 was used for this study. Proportion of days covered (PDC) was calculated for all prescriptions, as well as noncash-only prescriptions, where by stratified by drug class. Population adherence was defined as PDC ≥ 80%. Index date was defined as the first noncash prescription fill date or the round-start-date of the first noncash prescription. Participants were included if they had 2 or more noncash claims, were continuously enrolled in a MA-PD or PDP, and were age ≥65. Patients with multiple insurance types, not inscope, with a measurement period < 91 days, with end-stage renal disease, and diabetic patients with any insulin claim, were excluded. RESULTS: Of PDP-enrollees taking a statin (N=10,255,696) the proportion considered adherent decreased from 65.2% for all prescriptions to 59.7% when measuring noncash-only claims. MA-PD-enrollees using statins (N=17,407,689) displayed similar results, and the proportion considered adherent decreased from 62.9% to 56.6%. For those on RASA-the proportion of PFP-enrollees (N=13,224,287) considered adherent decreased from 67.2% to 57.3%, and the proportion of MA-PD-enrollees (N=13,625,655) considered adherent decreased from 63.1% to 56.6%. For patients taking antidiabetics the proportion of PFP-enrollees (N=3,804,912) considered adherent decreased from 72.8% to 62.6%, while the proportion of MA-PDP-enrollees (N=4,792,802) considered adherent decreased from 75.0% to 65.1%. On average 1 million MA-PD/PDP enrollees per year were incorrectly classified as nonadherent when using noncash-only claims. CONCLUSIONS: Cash-only prescription fills represent a significant source of drug-exposure misclassification bias for adherence calculations in MA-PD/PDP enrollees using statin, RASA, or antidiabetic medications.

KEY GROUPS INFLUENCING GENERIC DRUG USE IN THE U.S. AND THE NATURE AND EXTENT OF THEIR INFLUENCE

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OBJECTIVES: Research to better understand the key influencers of generic drug use – including their knowledge base and perceptions toward generic drugs – is needed to effectively design and deliver communications to these key groups that impact consumer acceptance and use of generic drugs. In order to address this important regulatory science need, this qualitative study identifies the informational needs of these key groups regarding generic drugs was conducted. METHODS: Key informants in each of the following 6 groups were interviewed between 9/16/2016 and 11/10/2016: 1) patients/caregivers; 2) prescribers; 3) pharmacists; 4) formulary managers and knowledge base toward generic drugs; 5) large purchasers of drugs; 6) large purchasers of generics. Participate selections differed by group. All interview guides focused on the participant’s drug prescribing, dispensing, and utilization background, roles in generic drug use, beliefs about safety and effectiveness of generic drugs, and informational needs related to generic drugs. Interviews were audio recorded and transcribed. Qualitative data derived from the transcripts were analyzed with the assistance of NVivo 10 software. Initial themes were identified and then all research members agreed upon final themes. RESULTS: While participants are likely to prescribe, dispense, or utilize generic medications, many suggested that because generic drug information is dispersed across multiple sources, it may be challenging to obtain generic drug information from one source. Likewise, policymakers, large purchasers, and formulary managers participating in the study believe generic drugs to be as safe and effective as their brand name counterparts, but find information difficult to obtain. Participants provided suggestions to improve accessibility of information, including electronic mailings that include information on drug safety, effectiveness, and approval process. CONCLUSIONS: Data collected from these key informant interviews will be used to inform the development of educational materials to address the key groups’ knowledge gaps regarding generic drugs.

ASSESSMENT OF PAEDIATRIC PHARMACOTHERAPY AT A PRIVATE HEALTHCARE FACILITY

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OBJECTIVES: This study evaluated the prescription at a private paediatric out-patient setting and estimated the cost of treatment in paediatric patients. METHODS: A cross-sectional study was conducted in the outpatient department of private paediatric clinic for a period of six months. The patients below 18 years of age were included in the study. The prescribing pattern for 624 patients was analyzed by using WHO recommended prescribing indicators. The cost of the drugs was obtained from current index of medical specialties (CIMS). RESULTS: Of 624 patients, 366 were male and 258 were female. Most of the patients were pre-schoolers and toddlers. The average number of drugs prescribed was 2.78±0.05; and, only 4.69% of drugs were prescribed by their generic name. In this study, 7.69% of patients were prescribed with antibiotics and the use of injections was minimal. Nearly half of the drugs were prescribed from the National List of Essential Medicines, 2015. The most common dosage form was syrup (40%). Viral infections were the most common indication (26.12% of patients). Amoxicillin and clavulanic acid fixed dose combination was the most commonly prescribed antibiotics. In this study, the average cost of drug per encounter was found to be INR 99. Conclusion: There is a scope of prescribing medications by their generic name. This, may help in keeping the cost of drug therapy low and possibly better compliance.

UTILIZATION OF PRESCRIPTION MEDICATIONS AND MEDICATION LABELS LABELED FOR SUICIDE RISK AMONG VETERANS WITH POST-TRAUMATIC STRESS DISORDER, BIPOLAR AFFECTIVE DISORDER, MAJOR AFFECTIVE DISORDER AND/OR SCHIZOPHRENIA IN A PRAGMATIC RANDOMIZED TRIAL

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OBJECTIVES: To describe the prescription drug utilization of 243 Veterans with post-traumatic stress disorder, schizophrenia, bipolar disorder or major affective disorder who both enrolled and completed at least 2 assessments for a pragmatic randomized trial of blister packaging versus dispensing as usual of all prescribed medications in Denver, Colorado between 2012 and 2014. The intervention was designed to improve adherence and reduce suicide risk. METHODS: Trial records were linked to VA Corporate Data Warehouse (CDW) prescription fill records for the study period by unique patient ID. This study was reviewed and approved by the VISNs 2 and 19 Human Subjects Review Boards and the Department of Defense Human Research Protections Of. RESULTS: 236 (97.1%) of these Veterans filled at least one prescription for a tablet or capsule drug product at the VA outpatient pharmacy while enrolled in the study. Subjects were enrolled for an average of 14.4 months during which time they filled a total of 24,180 filled and 2 capsule prescriptions. The most prevalent drug classes were antidepresen (CN(609)(1.7%) and anticonvulsants (CN(400)) (12%). The most frequent drug products dispensed were trazodone (6%), sertraline (5%), prazosin (5%), omeprazole (4%), and gabapentin (4%). CONCLUSIONS: This pragmatic randomized trial was designed to improve medication adherence among Veterans who may be at elevated risk of suicide or overdose due to schizophrenia or bipolar disorder, for example, are both associated with increased risk of suicide. The most prevalent prescription medications in this pragmatic trial were antidepressants and anticonvulsants, all of which are labelled for risk of suicidal ideation and behavior. Further examination of combination prescribing refinement of warning labels for specific drug classes and prevention efforts LIMITATIONS: Prescription fills outside of VA were not observed.
practice and System of staff motivation for implementation of new technologies were developed; 2) During the years 2015-2016 82 mini hospital-based HTA reports were used for opportunity to make informed managerial decisions about viability of implementing and using new health technologies in Hospital practice; 3) A database of health technologies was established for monitoring and analysis of effectiveness of, using implemented technologies, and for development and improvement healthcare quality in Hospital; 4) 20 new health technologies were submitted for inclusion in the Guaranteed volume of free medical care formed by the Ministry of Healthcare. CONCLUSIONS: 1) Carrying out of Hospital-based HTA was the basis for making informed managerial decisions about viability of implementing and using new health technologies in Hospital practice; 2) Refusal of implementation of clinical and/or economical non effective health technologies is not always according to hospital's financial situation and economic effective health technologies; 3) We consider that the first experience of Hospital-based HTA in Kazakhstan is quite successful and effective.

PHP63

THE DYNAMIC RELATIONSHIPS BETWEEN ECONOMIC INDICATORS AND PHYSICAL HEALTH MEASURES AMONG WORKING-AGE ADULTS IN THE UNITED STATES

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OBJECTIVES: To examine the dynamic relationships between various measures of economic status and physical health using a sample of working-age adults (18-64 years) in the US. The study examined the effect of positive and negative changes in economic status on health, and improvement and decline in economic status. METHODS: The study used repeated cross-sectional design with repeated measures of economic indicators and health for a period of 14 years using 8 waves of the Panel Study of Income Dynamics: 1999, 2001, 2003, 2005, 2007, 2009, 2011, and 2013. Health measures were self-rated health (SRH) and functional limitations; economic indicators were family income, labor income and net wealth. Four approaches of panel models: 1) System-Generalized Method of Moment (system-GMM); 2) first-difference; 3) first-difference with instrumental variables (IV); 4) Two Stage Least Squares (2SLS) and 2 IV OLS were used to evaluate the dynamic relationships between economic indicators and health measures. RESULTS: Standard models revealed significant positive relationships between economic indicators and SRH and negative relationships between all economic indicators and functional limitations. System-GMM estimators revealed that SRH was positively associated with family income (β = 0.871, p < 0.05), labor income (β = 0.868, p < 0.001) and net wealth (β = 0.317, p < 0.001). Nevertheless, only labor income (β = 0.515, p < 0.001) and net wealth (β = 0.142, p < 0.05) were negatively associated with functional limitations. SRH declined due to losses in family income; decrease in family income decreased both SRH and functional limitations. CONCLUSIONS: Our findings suggest the need for integrating the economic and health policies and programs to prevent the adverse effects on health whenever an individual experiences either a decline in economic status or decline in health.

PHP64

QUALITY OF PHARMACOLOGIC CARE BY PHYSICIANS, NURSE PRACTITIONERS AND PHYSICIAN ASSISTANTS IN THE UNITED STATES

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OBJECTIVES: Nurse practitioners (NPs) and physician assistants (PAs) have increasingly broad prescribing authority in the United States, yet little is known regarding whether they deliver the same quality of pharmacologic care as physicians. We sought to compare the quality of ambulatory pharmacologic care provided by NPs, PAs and physicians. METHODS: A total of 50,000 office visits were randomly sampled from the 2010-2012 National Ambulatory Medical Care Survey (NAMCS) and National Hospital Ambulatory Medical Care Survey (NHAMCS) to examine ambulatory care services in physician offices, hospital emergency departments and outpatient departments. Participants included a nationally representative sample of patient visits to physicians, NPs and PAs and main outcome measures included thirteen validated outpatient quality indicators focused on pharmacological management of chronic disease. RESULTS: 21% of the sampled patient visits were included during the study period, which represented an estimated 8.33 billion visits nationwide. Physicians were the primary provider for 96.8% of all outpatient visits examined, while NPs and PAs each accounted for 2.6% of these visits. The proportion of eligible visits where quality standards were met ranged from 34.1% (angiotenin converting enzyme [ACE]-inhibitor use for congestive heart failure) to 89.5% (avoidance of inappropriate medications among elderly). The median
overall performance across all indicators was 58.7%. On unadjusted analyses, there were statistically significant differences in quality of care between non-physicians and physicians for each indicator. After adjusting for patient and provider characteristics, the quality of pharmacologic care delivered by non-physician providers was similar to the care delivered by physicians for ten of the thirteen indicators, and there was no significant interaction between provider type and indicator fulfillment for the remaining measures.

CONCLUSIONS: While there were significant shortfalls in the quality of ambulatory pharmacologic care among these visits, the quality of care delivered by non-physicians and physicians was generally comparable.

HEALTH CARE USE & POLICY STUDIES – Formulary Development

PHP65
THE 2017 US PAYOR LANDSCAPE: TRENDS AND RESULTS FROM SURVEYS OF MEDICAL AND PHARMACY DIRECTORS ON FORMULARY MANAGEMENT
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OBJECTIVES: To determine the types of approaches preferred by Medical and Pharmacy Directors (PDs) to manage formularies, plans, insurers, and pharmacy-benefit managers to enhance the P&T decision-making process and understand formulary reviews/coverage and changes from prior surveys. METHODS: Online survey sent to 459 MDs/PDs on advisor.com, plan administrators, insurers, and pharmacy-benefit managers to enhance the P&T decision-making process and understand formulary reviews/coverage and changes from prior surveys. METHODS: Online survey sent to 459 MDs/PDs on advisor.com, plan administrators, insurers, and pharmacy-benefit managers to enhance the P&T decision-making process and understand formulary reviews/coverage and changes from prior surveys. RESULTS: The survey was completed by 52 MDs/PDs (11.3%): 55.8% were MDs and worked for: health plans/DNPs/IPAs (57.7% ; PBMs=13.3%); Employer/Self funded lives (45.8%); Employer-funded plans (25.9%), conditions with multiple MH-therapies were in place for: All (67.7%; Traditionally–22.9%); Medicare (66.7%; Traditionally–22.9%); PPO-only (45.8%) and Employer/Self-funded lives (66.7%). Clinician-administered medications were always covered under the medical-benefit (55.6% previously 64.3%) 4.4% (previously 5.4%) exclusively under the pharmacy-benefit, the remaining 5.6% (previously 37.2%) benefit coverage was threshold/plan-design based, changes were: not anticipated (77.8% previously 70.9%), expected by 12/17–44% by 12/18–13.3% or by 12/19–4.4%. Parity policies were in place for: self-administered and clinician-administered agents for: no plans=33.3%, select-plans=28.2%, all members=25.6% members in mandated-states=10.3%, commer- cial plans=7.7%, Medicaid plans=7.7%, Medicare plans (all=62.5%, none=10%, Medicaid=15%); Commercial plans=15%, Select-plans=10%; Medicaid-plans=7.5%; Never heard of=7.5%. Respondents involved in decisions for prescription-drugs (All=75.0%, Some=18.2%, None=6.8%) and Medical-devices (All=43.9%, Some=41.5%, None=14.6%). Budget impact models were used in 73.2% of pharmacological and 63.2% of medical-device reviews. Biosimilar use is expected for all reference-products (93.0%) and reference products (91.0%); while 31.0% will restrict biosimilars to approval indications (31.0%). Most respondents were happy with their medical-benefit, the most request change was moving all drugs to the pharmacy-benefit. Top concerns today and in the future included: Onco-ology, Diabetes and Cardiovascular diseases (45.7%), Mental health (45.7%); Common-mental health (45.7%), Mental health (45.7%); Common-mental health (45.7%), Mental health (45.7%); and Mental health (45.7%). The managed care pharmacy process is undergoing a series of changes. Medical and pharmacy directors, who commonly serve as P&T Committee members, have distinct opinions as to how to alter the process to adapt to these influences.

PHP66
THE MANAGEMENT OF SPECIALTY DRUGS, SPECIALTY PHARMACIES AND BIOSIMILAR DRUGS IN THE UNITED STATES
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OBJECTIVES: A better understanding of health-plan management of specialty pharmacy (SP), SP-products and biosimilars of SP-products. METHODS: Online survey sent to 459 US medical-pharmacy directors (MDs/PDs on: advisor.com) regarding: specialty-pharmacy/pharmaceuticals, expected biosimilar coverage/definition, co-pays. RESULTS: The survey was completed by 52 MDs/PDs (11.3%): 55.8% were MDs and worked for: health plans/DNPs/PPOs/IPAs=57.7% ; PBMs=9.6%; Government=3.8%; the remainder consultants. Plans were National=41.9%,Regional=34.5%, Local=23.3%. 51% restrict Specialty Providers (SPs). Most common ICD-9 codes. Defined 45.7%, 34.5% varied by the healthplan; 17.4% independent; 10.9% hospital/IDN only. 65.9% of plans restricted SPs to those under contract; 6.8% only restricted SPs available through multiple SPs; 6.8% allowed switch-the most preferred agent. Specialty product co-pays continue to move from fixed to percentage with more plans using group-benefit design to determine the co-pay. Plans covered clinician-administered products under the medical-benefit (MB)=15.2%, previously 64.3%; under the pharmacy-benefit (PB)=6.8%, previously 18.5%; the remainder based on price and plan-design and 89.1% do not expect this to change. Biosimilar use is expected for all reference-product indications (59.5%), while 31.0% will restrict to their approved indications (31.0%). Plans expect biosimilar co-pays to be indication-based (9.5%); discount off the innovator (45.2%); to vary based on the approval timing (13.3%) or be the only product available (21.4%). Member-provider biosimilarity education codes will be provided through: different co-pays=63.8%, prescriber-mailings=63.4%, patient-mailings=53.7%; prescriber-calls=39.0%, and patient-calls=19.5%. Biosimilars savings are expected to be: <10% in 2017 (52.4%), 60.5% expect 10-20% by 2020 (57.4%); 77.8% expect > 20% by 2023. For potential conflicts, non-clinician-administered agents (NCA) and patient-caregiver characteristics, the quality of pharmacologic care delivered by non-physician providers was similar to the care delivered by physicians for ten of the thirteen indicators, and there was no significant interaction between provider type and indicator fulfillment for the remaining measures.

PHP67
A REVIEW OF PUBLIC COVERAGE OF CDR REVIEWED DRUGS
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OBJECTIVES: This PMPRB study analyzes the coverage of drugs reviewed by the CDR across Canadian public drug plans, and examines both the number of drugs and the extent of reimbursement. METHODS: The drugs reviewed by the CDR from December 2003 through June 2015, along with their listings as of December 2015, were obtained from IMS Brogan’s iMAM and public formularies. The sales data for 2015 was retrieved from the IMS Brogan Private Drug Plan and IMS AG MIDAS+ databases. The coverage rates for 10 provincial drug plans and the NHIB were calculated as simple and weighted percentages of all select drugs. The analysis also includes an inter-jurisdictional comparison using simple agreement descriptive statistics. RESULTS: The CDR issued positive recommendations for 55% of the analyzed drugs, with provinces following the CDR recommendation in 78% of the cases. With sales weighting, most provinces listed all major drugs. An inter-jurisdictional comparison of all CDR drugs indicates medium to high rates of coverage agreement, ranging from 50% to 86% across all pairs of the public drug plans. The number of weighted sales and coverage of all CDR drugs are expected to increase significantly as SP management has grown. Biosimilars are expected to provide some cost growth relief but only over after the introduction of more than 2 competitive Biosimilars.

HEALTH CARE USE & POLICY STUDIES – Health Care Costs & Management

PHP68
ESTIMATING THE STATE BURDEN OF MENTAL DISORDERS IN THE US OVER NEXT 15 YEARS USING A MICROSIMULATION MODEL
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OBJECTIVES: Mental disorders have become the most costly health conditions in the United States. The aim of this study is to estimate the health and financial burdens of five major mental disorders to each of 50 US state governments, through 2030, and quantify the potential benefits from improvements in treat- ment coverage and medical advancements. METHODS: We identified three target population cohorts—state employees, Medicaid beneficiaries and state inmates—from a baseline population synthesized from National Health and Nutrition Examination Survey, American Community Survey, Behavioral Risk Factor Surveillance System, and National Nursing Home Survey data. A published Markov-based microsimulation model was used to simulate the prevalence, incidence, programs, and potential treatment effects of depression, bipolar, schizophrenia, anxiety disorder and Alzheimer’s disease at the individual level. The baseline scenario assumes current population behavior and treatment states continue into the future. While an improvement scenario assumes higher treatment adher- ence, timely diagnosis, insurance coverage expansion, better life style plus certain treatment advances. RESULTS: The burden to state governments’ spending varies depending on the size of its covered cohorts, prevalence of mental disorders and population health profile of each specific state. Using Ohio for illustration, if current trends continue, mental disorders will result in $14 billion in medical expenditures and $371 million of indirect costs annually. Approximately 911,000 people will have at least 1 of the listed mental conditions. By 2030, it will cost each state resident on average $1,200 in health expenditures to treat the target populations. The modeled ‘improvement’ scenario could reduce mortality by 165,000 and generate $25 billion in medical savings cumulative through 2030. CONCLUSIONS: Mental disorders impose substantial financial costs to state governments. Efforts to expand mental health coverage and improve treatment could effectively reduce the future burden of mental disorders.

PHP70
COST ANALYSIS OF HEALTH EXPENDITURES ASSOCIATED WITH DEPRESSION AMONG INDIVIDUALS WITH DIABETES
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OBJECTIVES: Diabetes is still one of the serious and expensive health problems in the US and often associated with comorbidities. Compared with the general population, individuals diagnosed with diabetes are 60% more likely to be diagnosed with depression. The goal of this study is to conduct cost analysis estimating excess health care expenditures associated with depression among adults with diabetes by comparing them to those with diabetes and without depression. METHODS: In this cross-sectional study, the 2013 Medical Expenditure Panel Survey (MEPS) was used to analyze data on 2,771 adults with diabetes. Individuals with depression were identified using ICD-9-CM and clinical classification codes. Adjusted mean direct health care utilization and expenditures...
linked}

**PHP3**

**ECONOMIC BENEFIT OF PROCESS OPTIMIZING IN BLOOD COLLECTION CENTER WITH LEAN SIX SIGMA APPROACH**

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**OBJECTIVES:** Patients at Zhongshang Hospital have complained a lot about the long waiting time and crowded environment of out-patient blood collection center for years. To improve the total efficiency and reduce non-value-added cost, the blood collection center launched a process optimization project with cost-benefit support from Becton, Dickinson Company during March to July in 2016. **METHODS:** Lean Six Sigma methodologies were used in this project. Process map and spaghetti diagram are used to understand current work flow and patient traveling flow. Data of patient distribution by time, average patient waiting time and per capita blood collection time were collected from LIS (laboratory information system). The cause of prolonged waiting time was analyzed using Ishikawa chart. A sophisticated cost-driver model isolated the key cause of waste. SS tools were also used to make an organized environment. Improvement actions were taken in 3 areas: environment and layout, patient education, shift and duty arrangements of staff. The outcome was needed to be evaluated. **RESULTS:** With an investment of $58 ($580 in total, 10 years straight-line depreciation), the average patient waiting time dropped from 14.5 to 9 minutes and the per capita blood-collection cost dropped from $4.31 to $4.02, saving $4,065 in 1 year. The net benefit of the project was $28,876 per year. At the same time, patient satisfaction rating increased from 4.59 to 4.97 as a result of improved waiting environment and shorter waiting time. **CONCLUSIONS:** Hospital can economically benefit from Lean Six Sigma project through efficiency improvement and reduction of unqualified blood samples.

**PHP4**

**COST DRIVERS OF PUBLIC DRUG PLANS IN CANADA, 2015/16 - COMPASSRX**

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**OBJECTIVES:** After several years of low or negative growth, drug expenditures in public drug plans increased sharply by 12.1% in 2015/16. The 3rd edition of the Canadian Generic Drug Price Reporting and Information System (GPRIS) was released in 2016 to provide a current and comprehensive view of drug expenditures in public drug plans in Canada. Data from GPRIS was used to examine the growth in costs. **METHODS:** The analysis uses claims-level public drug plan data from the Canadian Institute for Health Information’s NPDUS Database for the 2011/12 to 2015/16 fiscal years. A sophisticated cost-driver model isolated the key factors contributing to changes in drug and dispensing costs: the mix of drugs, drug prices, dispensing fees, the volume of drugs, and changes in the demographic profile of the beneficiaries. **RESULTS:** The striking growth in drug costs in 2015/16 was due to the combined effect of limited generic savings and an increased use of high-cost drugs. The hepatitis C drugs Harvoni, Sovaldi and Okirka alone contributed 7.3% toward this increase in growth, while other high-cost drugs continued to put pressure on costs. The generic drug use and lower prices, which markedly pulled down drug costs in recent years, had a diminished cost saving impact from -9.2% in 2012/13 to -4.1% in 2015/16. The net benefit of the project was $28,876 per year. At the same time, patient satisfaction rating increased from 4.59 to 4.97 as a result of improved waiting environment and shorter waiting time. **CONCLUSIONS:** Hospital can economically benefit from Lean Six Sigma project through efficiency improvement and reduction of unqualified blood samples.

**PHP7**

**AN EVALUATION OF INJECTABLE DRUG PRICES DURING TIMES OF SHORTAGE IN THE UNITED STATES**

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**OBJECTIVES:** To examine trends in drug prices for injectable products listed on the American Society of Health-system Pharmacists (ASHP) drug shortage list. **METHODS:** Medications were identified using the American Society of Health-system Pharmacists Drug Shortage list and if the shortage limited supply to a large academic medical center in the US. National Drug Codes (NDCs) for affected and available products were retrieved from the ASHP Current Drug Shortages updates page. Wholesale acquisition cost (WAC) and historical average whole sale prices (AWP) price for each NDC was obtained from Red Book. Price changes were based on the defined daily dose (DDD). A WAC per DDD (or alternate dose) was calculated for each NDC and changes in AWP between January 1, 2015 and March 15, 2016 were identified. **RESULTS:** The 25 medications identified with cost data for 454 NDCs. The WAC per DDD ranged from $1.23 to $234.60 for the 207 medications on shortage and from $1.40 to $139.09 for the 247 available products. **CONCLUSIONS:** A greater understanding of the forces driving expenditures in Canadian public drug plans will inform policy and stakeholder discussions and aid in anticipating, managing and responding to evolving cost pressures.

**VALUE IN HEALTH 20 (2017) A1–A83**

Associated with ambulatory visits, emergency department visits and prescription drugs per person in 2013 were estimated using analysis of covariance after adjusting for age, gender, race/ethnicity and number of comorbidities. **RESULTS:** Out of 2,771 individuals with diabetes, approximately 16% (N=443) had depression. Adjusted mean health care utilization analysis showed that depression was associated with more ambulatory visits (20 vs 6) and used more prescription medications (47 vs 22) as compared to non-depressed individuals. Unadjusted mean expenditures for diabetic individuals with depression were $11,572 relative to $8,576 for no depression. After controlling for demographic and number of comorbidity covariates, it was found that an individual with diabetes and depression had significantly greater annual mean health care expenditure of $4,192 compared to that of $2,012 for an individual with diabetes alone. Depression did not have a significant effect on pharmacy expenditures. Depression was associated with increased pharmacy expenditures of $1,041 and prescription medications ($2,769 vs $968) found to be major contributing factors in excess health care expenditure associated with comorbid depression. **CONCLUSIONS:** Depression is a significant contributor to the economic burden of diabetes by time and frequency, such incremental expenditures can be due to increased health care utilization.
PHP76 REDUCING OUT-OF-POCKET COST-BARRIER TO MEDICATION SPECIALTY DRUG USE UNDER MEDICARE PART D TO ADDRESS THE PROBLEM OF "TOO MUCH TOO SOON" Doshi JA1, Li P1, Pettit AR1, Dougherty JS2, Flint AL1, Ladge VP3

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OBJECTIVES: Medicare Part D specialty drug users who do not qualify for low-income subsidies (indigent beneficiaries) face variable cost sharing during the calendar year. We examined their out-of-pocket (OOP) cost patterns under the existing Part D cost-sharing policies and under proposed changes to these policies.

METHODS: Using 2012-100% Medicare claims data, we examined annual and monthly OOP drug costs for Medicare Part D patients who were full-year users of Part D specialty drugs for rheumatoid arthritis (RA, n=1,063), multiple sclerosis (MS, n=2,256), or chronic myeloid leukemia (CML, n=1,135) under Medicare Part D policy recommendations and our own recommendations. RESULTS: In 2012, our sample faced mean annual cumulative OOP drug costs (for all medications) of $3,940 (RA), $2,456 (MS), and $2,456 (CML) in January alone. A substantial proportion of total annual OOP prescription spending also occurred during the catastrophic coverage phase (RA=$1,229 [31%], MS=$2,456 [47%], CML=$2,456 [56%]). Under proposed Medicaid PAC changes, patients would have faced maximum annual OOP spending of $4,700, but mean OOP costs in January and February would have been higher compared to existing policy. Under our proposed strategy, OOP costs would have been spread evenly over 12 months ($392 per month). The potential incremental costs of our proposed strategy would have been $235 per non-LIS Part D beneficiary per year.

CONCLUSIONS: The existing Part D cost-sharing structure creates substantial financial burden for specialty drug users, especially early in the year. Implementing both annual and monthly OOP maximum spending limits would result in lower, more consistent OOP costs, potentially increasing patients’ ability to access treatments for life-threatening, chronic, and rare diseases.

PHP77 LATE-TO-REFILL REMINDER CALLS HAVE GREATER IMPACT ON MEDICATION ADEQUACY IN MEDICARE PART D PATIENTS WITH A 90-DAY FILL

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OBJECTIVES: To study whether late-to-refill reminder calls (LTR) from pharmacists are more effective on medication adherence, in patients with 90-day fill than patients with 30-day fill, within Medicare Part D (Med D) population. METHODS: A total of 51,870 beneficiaries who have filled their scripts at a retail pharmacy in January 2015 were randomized into an intervention group to receive LTR reminder calls or a control group. Patients were categorized into two subgroups based on days of supply for prescription that triggered LTR: 30-day (166 injectable, 30-day supply) subgroup (n=395,560) and 90-day (84-100 day supply subgroup) (n=288,211) patients with other days of supply were excluded. We compared the LTR effect on medication adherence for the 90-day subgroup to the 30-day subgroup. Within each subgroup, the LTR effect is measured as the difference in medication adherence between the intervention and control group. Medication adherence was measured as Propotion Days Covered (PDC) and the percent of patients with optimal adherence (≥80%). RESULTS: Within each subgroup, late-to-refill reminder calls are associated with an increase in PDC and t-tests were used to test differences. RESULTS: The LTR effect on average PDC is significantly higher by 1.1 percentage points (67.0% vs. 65.9%) for the 90-day subgroup and 0.6 percentage points (28.1% vs. 27.5%) for the 30-day subgroup. The LTR effect on average PDC and proportion of OA patients for the 90-day subgroup was significantly greater than the 30-day subgroup by 0.3 and 0.9 percentage points respectively. CONCLUSIONS: Pharmacists initiated late-to-refill reminder calls had a greater impact on adherence in Medicare Part D patients with 90-day fills than 30-day fills.

PHP78 RISK SCORE, COST & UTILIZATION IN THE HEALTH INSURANCE EXCHANGE POPULATION: OPEN ENROLLMENT VS. SPECIAL ENROLLMENT PERIODS

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OBJECTIVES: To examine differences in risk scores, cost, and utilization between Affordable Care Act (ACA) health insurance exchange plan members enrolled during open enrollment period (OEP) to those who enrolled during a special enrollment period (SEP). METHODS: This study uses claim data from ACA plans from January-September 2015. Descriptive analyses were conducted to examine differences in risk scores, per member per month cost, and health care utilization between members enrolled during OEP who were compared to SEP. The sample consisted of 1,744,766 enrollees (11% SEP). RESULTS: Average risk scores were 20% (1.2 vs. 1.4) lower in SEP versus OEP enrollees. Cost was 5% ($407 vs. $398) higher in SEP. The ratio of cost to risk (cost/risk) OEP was 0.45 vs. 0.36 for SEP. 12 month claims data were used consistent across mental health levels, except for Catastrophic. The high cost of SEP enrollees were driven by hospitalizations (46% higher) and emergency room visits (24%). Rates of hospitalization were 3.0% higher in OEP. Prescription drug spending was lower in OEP compared to SEP. 12 month claims data were used. CONCLUSIONS: Members who enrolled in on-exchange plans during a SEP had higher risk scores and lower risk scores on average compared to those who enrolled during OEP. The difference in cost-risk ratio was driven more by month of enrollment and less influenced by month of disenrollment. Between the SEP, cost-risk ratios steadily increased for members who enrolled closer to the end of the benefit year.

PHP79 PRICE TRAJECTORIES ASSESSMENT FOR INJECTABLE MEDICARE PART B GENERIC DRUGS

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OBJECTIVES: To assess price changes with time following launch for Medicare part B injectable, generic drugs and to understand how drug characteristics influence price trajectories. METHODS: We included all Medicare part B drugs that were reported in both 2006 and 2016. Vaccines, biologics, oral agents and inhalers were excluded. Patent expiration dates were attached using the Medicare Drug Patent Expiration tool. Drug and generic drugs were matched under both proposed MedPAC policy recommendations and our own recommendations. RESULTS: In 2012, our sample faced mean annual cumulative OOP drug costs (for all medications) of $3,940 (RA), $2,456 (MS), and $2,456 (CML) in January alone. A substantial proportion of total annual OOP prescription spending also occurred during the catastrophic coverage phase (RA=$1,229 [31%], MS=$2,456 [47%], CML=$2,456 [56%]). Under proposed Medicaid PAC changes, patients would have faced maximum annual OOP spending of $4,700, but mean OOP costs in January and February would have been higher compared to existing policy. Under our proposed strategy, OOP costs would have been spread evenly over 12 months ($392 per month). The potential incremental costs of our proposed strategy would have been $235 per non-LIS Part D beneficiary per year.

CONCLUSIONS: The existing Part D cost-sharing structure creates substantial financial burden for specialty drug users, especially early in the year. Implementing both annual and monthly OOP maximum spending limits would result in lower, more consistent OOP costs, potentially increasing patients’ ability to access treatments for life-threatening, chronic, and rare diseases.

PHP80 BURDEN OF COST OF ADVERSE DRUG REACTION IN PSYCHIATRIC PATIENT—AN ACTIVE SURVEILLANCE FROM A DEVELOPING COUNTRY

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OBJECTIVES: To determine the incidence and estimate the direct cost incurred for the treatment of adverse drug reaction (ADR) in ambulatory psychiatric patients METHODS: This prospective active surveillance pharmacovigilance study carried out over a period of two years. Patients of any age presented with psychiatric illness receiving at least one psychotropic agent were included. Economic burden assessed with the management of ADRs was calculated by considering the cost of medications, medical devices, bed charges, laboratory investigations charges and other relevant charges. RESULTS: Of the total 1913 patients observed,763 were identified with 1058 ADRs, which translates to an ADR rate of 39.8%. The average number of ADRs in a patient was 1.3 (range 1 to 8). Majority of ADRs were observed in females [n=456 (59.7%)], patients receiving 3-4 drugs [n=323 (42.3%)], and in patient with co-morbid medical condition [n=386 (50.5%)] On the total ADRs, 47.9% of the ADR resulted in economic burden to patient. Total direct cost incurred in the management of 296 ADRs was INR 144731.00 (2,125.00 USD). Average cost incurred per ADR was INR 488.95 (71.75 USD) (range: INR 10 (0.14USD) to INR 7846 (115.2 USD). Bed charge [INR 75460.00 (1108.11 USD), INR 427.47 (6.27USD) and INR 5280(77.54 USD) respectively. CONCLUSIONS: In our study Adverse drug reactions added an economic burden in patients. Educating the patient and the care giver for early detection and management of ADR may provide a more favorable outcome in psychiatric practice.

PHP81 RETROSPECTIVE DATABASE ANALYSIS OF HOSPITAL LENGTH OF STAY (LOS) AND COST PER HOSPITAL DAY IN PATIENTS UNDERGOING COMMON SURGICAL PROCEDURES IN THE UNITED STATES

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OBJECTIVES: Hospital length of stay (LOS) is an important contributor to healthcare costs in surgical patients, but surgery-specific estimates of daily costs are lacking. We aimed to describe hospital LOS and cost per day in patients undergoing inpatient surgical procedures. METHODS: Using the Premier Perspective database, we identified the most common surgical procedures performed in adults (total knee and hip replacement, laparoscopic cholecystectomy and appendectomy, cervical fusion; open fracture reduction of the femur and tibia/fibula, lumbar/iscral fusion; total abdominal hysterectomy with or without adnexal debriement) were included. Maternal or neonatal hospitalizations and those with any intensive care unit stay were excluded. Outcomes included LOS, total and daily room and board costs by surgical procedure. All outcomes were summarized descriptively using means and standard deviations.
deviations. RESULTS: A total of 307,326 hospital discharges of interest occurred during the study period. Of these, one-third were total knee replacements, with a mean length of stay of 2.7 days, room and board cost of $677 per day, and total costs of $4,088/day. Mean LOS was shortest for cervical fusion (1.9 days) and longest for excisional wound/burn debridement (7.1 days). Cost per hospital day was highest for cervical fusion (room and board $594/day, total $680/day) and lowest for excisional wound/burn debridement (room and board $793/day, total $1,885/day). CONCLUSIONS: tal cost per hospital day varied over 3-fold among the 10 most common surgeries performed in US hospitals, likely reflecting the acuity of the patient population and surgery. Shortening LOS by one full day could reduce room and board costs by $594 to $793.

PHP82 COST-UTILITY OF BLISTER VERSUS BULK PACKAGING ALL MEDICATIONS FOR VETERANS WITH POST-TRAUMATIC STRESS DISORDER, BIPOLAR AFFECTIVE DISORDER, MAJOR AFFECTIVE DISORDER OR SCHIZOPHRENIA: RESULTS OF A PRAGMATIC RANDOMIZED TRIAL

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OBJECTIVES: To estimate the cost-utility of blister versus bulk packaging of all prescribed medications for 303 Veterans with post-traumatic stress disorder, major affective disorder, bipolar affective disorder, and/or schizophrenia during a 12-month pragmatic randomized trial in Denver, Colorado, 2012-2014 (NCT01118208). METHODS: The perspective is that of the US Department of Veterans Health Affairs (VHA) pharmacy. A pragmatic trial of QALYs were calculated in the area under the SF-6D curve as derived from baseline and monthly SF-36 assessments for 243 subjects (80.2%) who completed at least 2 assessments. The intervention was expected to improve adherence to prescriptions for indications beyond the eligible criteria. Therefore, all VA utilization and costs were extracted from the VA Corporate Data Warehouse for the intervention period and expressed in 2012 dollars. Costs were estimated at $0.46 - $0.52 per blister card per 30 days and $0.14 per prescription. The blister cards was estimated at 10 - 15% more. The incremental cost effectiveness ratio (ICER) was calculated. RESULTS: The ICER point estimate was negative and blister pack dominated, with both lower mean total costs ($14,170 vs. $21,113) and higher mean QALYs (0.59 versus 0.58). Next steps include bootstrap replications and net benefit calculations to ascertain confidence in this point estimate. CONCLUSIONS: In this group of 236 Veterans, the point estimate suggested that blister packaging all prescribed medications in bulk would be more effective and produces higher quality of life than dispensing in bottles. LIMITATIONS: Blister packaging costs are based on cold seal and small-scale production and are likely higher than would be expected with mass production technologies and economics of scale. Medications filled outside of the VA system were not observed.

PHP83 TRENDS IN PRICES OF NEW SYSTEMIC ANTIBIOTICS APPROVED BY THE FDA (1999-2016)

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OBJECTIVES: Antibiotic resistance is considered a main public health concern. The price of new antibiotics must be sufficient to recover the investment. This study assessed the cost per course of antibiotic therapy of new systemic antibiotics approved by the FDA in the period 1999-2016. METHODS: A list of new antibiotics marketed in the US in the period 1999-2016 was extracted from the FDA webpage. Average wholesale prices (AWP) were extracted from the RedBook (Truven Health). Daily doses and duration of the treatment were extracted from the FDA-approved label. The AWP cost per course of antibiotic drug therapy were calculated. Prices were adjusted by the consumer price index to 2012 dollars. RESULTS: A total of 40 antibiotics were approved by the FDA in the period 1999-2016. The mean annual growth rate (CAGR) was calculated for each price from market entry to December 31, 2016. Descriptive analysis were done in the study using Excel 2013. RESULTS: The FDA approved a total of 19 new systemic antibiotics in the period 1999-2016. The antibiotics had an average of standard deviation of 3.0±2.1 indications (range 1-8). Price information was available for all drugs with the exception of olitoximab (2016). The cost of a course of drug therapy at market entry varied by drug, indication and population subgroup. The median cost per course of drug therapy was $1,305.46. Ciprofloxacin had the lowest CFI ($0.0001) for patients discharged home versus other settings of care. An incremental cost effectiveness ratio (ICER) was calculated. RESULTS: The ICER point estimate was negative and blister pack dominated, with both lower mean total costs ($14,170 vs. $21,113) and higher mean QALYs (0.59 versus 0.58). Next steps include bootstrap replications and net benefit calculations to ascertain confidence in this point estimate. CONCLUSIONS: In this group of 236 Veterans, the point estimate suggested that blister packaging all prescribed medications in bulk would be more effective and produc
PHP87
SHORT-TERM COSTS OF WHOLE GENOME SEQUENCING IN CARDIOLOGY AND PRIMARY CARE: FINDINGS FROM THE MEDGEOSS PROJECT
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OBJECTIVES: To determine the short-term cost impact of integrating whole genome sequencing (WGS) into cardiology and primary care settings. METHODS: A cost analysis was conducted alongside a randomized controlled trial. Cardiology and primary care settings with different models of hypertension management in the US and ostensibly healthy primary care patients (n=100) were randomized to review family history alone (control arm) or with WGS reports (WGS arm). To estimate the cost of WGS from consent through results disclosure, study staff tracked all personnel time and resource use. To estimate the costs of follow-up health care, study staff identified services ordered after disclosure sessions by reviewing medical records and survey data, and then applied cost-up weights for CMS fee schedule costs through 6 months post-disclosure averaged $13,799 and $10,086 in the WGS and control arms, respectively, in cardiology settings (p=3.713, <0.001) and $7,956 and $2,771, respectively, in primary care settings (p=0.185, <0.001). RESULTS: WGS was identified as a potential care preference between acute costs due to the costs of sequencing itself. Longer time horizons are needed to understand the impact of WGS on patient health, but early evidence about its cost impact are encouraging given expectations that prices will continue to fall rapidly.

PHP88
HEALTH ECONOMIC IMPLICATIONS AND CONSUMER PREFERENCE DISTORTIONS OF NEGATIVE INTEREST RATE POLICY
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OBJECTIVES: Monetary policy has evolved, in some countries, to the form of a negative interest rate policy (NIRP). The objective of this research is to review the costs effectiveness literature to identify examples of negative discounting within CEA analyses, and examine the theoretical implications of such discounting on potential care preferences between acute costs – potentially descriptive of one-time procedures – and chronic costs – potentially descriptive of long-term pharmacological treatments (LPTs) of the Tufts CEA Registry, examining the reported discount rate of all CEAs that reported a discount rate. A theoretical model was developed to estimate the value of a 5- and 10-year stream of future, chronic costs, discounted by several scenarios – (0%), 0% and 3% – to examine how these changes in discount rates may alter the evaluate of these chronic costs, relative to a one-time acute cost. RESULTS: Zero analyses were identified within the Tufts CEA Registry with a negative interest/discount rate (n=0) according to utilizing a 3% discount rate; the lowest identified interest rate was 1%. At a NERF of (0.5%), the economic model suggests indifference between acute costs equal to 5.08-times chronic costs over a 5-year period, or 10.28-times over a 10-year period. At 0%, those multiples become 5X and 10X, respectively. At 3%, those multiples become 4.57X and 8.49X. Thus, the alternation of the discount rate from 3% to (0.5%) potentially allowed acute costs 5x and 10x, respectively. At 3%, those multiples become 4.57X and 8.49X. Thus, the alternation of the discount rate from 3% to (0.5%) potentially allowed acute costs.

PHP89
IMPACT OF ARGININE-BASED IMMUNONUTRITION ON INPATIENT TOTAL COSTS AND HOSPITALIZATION OUTCOMES FOR PATIENTS UNDERGOING COLORECTAL SURGERY
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OBJECTIVES: We assessed the impact of arginine-based immunonutrition intervention on inpatient costs and hospitalization outcomes for patients undergoing elective colorectal surgery on post-surgical utilization and cost outcomes. METHODS: This analysis is based on data from two Washington State databases: Surgical Care and Outcomes Program (SCOAP) linked to the Comprehensive Hospital Abstract Reporting System (CHARS). The sample (N=722) comprised adult patients from Washington State hospitals that participated in the Strong for Surgery ($45) initiative between January 1, 2012 and December 31, 2013. A generalized linear model was used to predict the outcomes, adjusting for demographic characteristics and patient health at baseline: regression within a multiple regression framework. RESULTS: Our findings indicate significantly fewer readmissions (<0.1, p<0.01) and hospital days (-1.3, p<0.01) for the intervention group during the 180 days following index hospitalization. Clinical benefits included decreased risk of infections (p=0.05) and venous thromboembolism (p<0.01). There was a similar pattern toward lower total costs ($4,675, p<0.10) in the immunonutrition patients group; however, these were not statistically different compared to the control group at any time point. Nonetheless the group in the immunonutrition group were subjected to lower costs per patient less by approximately $2,500 at index hospitalization, $3,500 less through 30 days of follow-up, and $5,300 less over 180 days compared to control group. CONCLUSIONS: Among a select patient group, the 180-day follow-up period was post-operative complications. Overall, the findings suggest that arginine-based immunonutrition should be thoroughly evaluated for incorporation into clinical practice for elective surgery patients. Moreover, there is the potential of making the impact of the intervention in other hospitals both within and outside Washington.

PHP90
PRICE ANALYSIS OF THERAPEUTIC BIOLOGICS MARKETED IN THE UNITED STATES
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OBJECTIVES: The objective of this study was to evaluate trends in manufacturer-listed prices of therapeutic biologics approved by the FDA for chronic use and marketed in the US during the period 1986-2015. METHODS: A review of the Tufts CEA Registry was performed to identify and collect all therapeutic biologics that were marketed in the US during the period 1986-2015. The median market entry price (AWP) was collected from the RedBook. A meta-analysis was performed to determine the incremental price over time using the consumer price index (CPI) US city average, all items. Descriptive statistics and Wilcoxon rank sum tests and t-tests were performed. The significance level was set at 0.05. RESULTS: The analytical sample included 58 biologics (representing 51% of all FDA- approved therapeutic biologics during the period 1986-2015). The median market entry price-adjusted AWP per DDD was $118.10 (n=2, interquartile range [IQR]=47.70) in the 1980s ($64.80 (n=7, IQR=99.70) in the 1990s, $105.90 (n=24, IQR=294.60) in the 2000s, and $213.00 (n=25, IQR=504.10) during the period 2010-2015. The median market-entry adjusted AWP per DDD increased at a rate of $389.20, n=34, IQR=636.00) than for standard review ($88.50, n=24, IQR=105.30; p<0.05). CONCLUSIONS: The FDA approved an increased number of therapeutic biologics for chronic use during the period 1986-2015. Median AWP prices at market entry increased over time, and the increase in the prices of therapeutic biologics at market entry exceeded the inflation rate.

PHP91
ECONOMIC BURDEN ASSOCIATED WITH TEMPERATURE DISRUPTION
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1C.R. Bard Inc., Murray Hill, ON, Canada, 2Cornerstone Research Group Inc., Burlington, ON, Canada
OBJECTIVES: Thermoregulatory mechanisms are often disrupted in patients with critical neurological injury, leading to increased complications and resource use. Previous studies have found that early initiation of mild-moderate hypothermia (32–34 C) was associated with improved survival and neurologic outcomes. A structured literature review was performed to identify the economic burden associated with temperature dysregulation. The assumed costs associated with temperature dysregulation included potential cooling procedures, hospital length of stay (LOS), rehabilitation, and labor costs. RESULTS: Review of published studies indexed on Medline was performed in December of 2016 without a date restriction. Only English studies were considered. The search strategy included the key words “temperature management” or “therapeutic hypothermia” plus terms including but not limited to: (1) “fever,” “cardiac arrest,” “hypoxic-ischemic encephalopathy,” “stroke,” “intracerebral hemorrhage,” “Glasgow coma scale,” “cerebral performance category,” “traumatic brain injury,” “subarachnoid hemorrhage,” or “cerebral injury,” and (2) “cost,” “economic,” “nursing care,” “reimbursement,” “resource,” “societal,” or “labor,” including Mesh terms where appropriate. Additional references were obtained by reviewing bibliographies. RESULTS: Over 2000 titles and abstracts were screened, 146 studies were considered potentially relevant (i.e., included clinical and/or economic outcomes), and 29 of these studies focused on costs, resource use, or public health/economic impact. In patients with critical neurological injury, fever, fever related poor prognosis, and was often associated with increased LOS, costs, and costs varied considerably depending on region, definition, perspective, neurological status, and disease state. For example, reported LOS ranged from 2.5 to 35 days. Long-term societal costs associated with rehabilitation and nursing care, as well as specific costs comparing temperature management methods were limited. CONCLUSIONS: Studies have evaluated cost of temperature dysregulation in subsets of patients and have suggested some methods for cost savings. Further research quantifying the longer term economic impact of temperature dysregulation and how temperature regulation methods can avert these is warranted.
A COMPARISON OF ONCOLOGY AND NON-ONCOLOGY ORPHAN DRUG PRICES IN EUROPE

OBJECTIVES: This study aimed to assess price differences of oncology and non-oncology orphan drugs in France, Germany, Italy, Norway, Spain, Sweden, and UK by comparing the annual treatment cost per patient of similarly available drugs. RESULTS: Orphan drugs granted market authorization up to June 13, 2016 were extracted from the European Medicines Agency website and divided into oncology and non-oncology. The annual treatment costs per patient were calculated based on the summary of product characteristics (SmPC) using ex-factory prices from IHS POLI and country price databases. The treatment cost of the each country (comparator country) was compared to the UK (reference country) and ratios were analysed for both oncology and non-oncology drugs. The absolute and relative differences of costs of non-oncology orphan drugs within each country was also analysed. RESULTS: 120 orphan drugs were included in the analysis. Compared to the UK, the average annual costs of non-oncology drugs were minimally more expensive in France (averaged ratio 1.03), Germany (1.09), Italy (1.05), and similar in Sweden (1.0), and were cheaper in Spain (0.94), and Norway (0.86). The cost differences (ratios) for oncology orphan drugs did not differ greatly with non-oncology (FR 1.04, DE 1.11, IT 1.1, ES 1.01, NO 0.83, SE 0.96). In absolute values, the median annual treatment cost of non-oncology orphan drugs were more expensive than oncology orphan drugs in UK, France, Spain, and Norway, while oncology drugs were more expensive in Germany, Italy and Sweden. The absolute cost differences only amounted from €1,700 to €19,400 per patient per year. CONCLUSIONS: In Europe, the price differences of oncology and non-oncology orphan drugs are negligible within and among countries. Moreover, oncology orphan drugs are not generally more expensive than non-oncology orphan drugs.

A COST-EFFECTIVENESS ANALYSIS OF SELF-DEBRIEFING VERSUS INSTRUCTOR DEBRIEFING FOR SIMULATED PERIOPERATIVE MEDICINE IN CANADA

METHODS: This study aimed to assess price differences of oncology and non-oncology orphan drugs. After controlling for the various covariates, SMUs used about 65% fewer prescription medications than non-SMUs. The SMU medication spending was about $100 less than non-SMUs. CONCLUSIONS: Higher OOP medication spending was associated with more expensive than oncology orphan drugs. Reduced hospital costs typically incurred on hospital Day 1 from variable costs incurred on surgery costs were typically incurred on hospital Day 1. The 1,527 total cost of $1,369,222. The 1,527 total cost was a retrospective cohort study of US adults aged 18 or older using Medical Expenditure Panel Survey (MEPS) data from 2000 through 2013. MEPS respondents aged 18 or older who used any specialty medications were considered specialty medication users (SMUs). Individuals who used pharmaceuticals other than specialty medications were considered traditional medication users (TMUs). Outcomes of health care use included the number of prescription medications as well as the annual number of emergency department visits, hospitalizations, office-based visits, and hospital outpatient visits. Outcomes of health care expenditures included total health care expenses, total prescription medication expenses, out-of-pocket (OOP) expenses for prescription medications as well as spending on emergency department visits, hospitalizations, office-based visits, and hospital outpatient visits. For outcomes of health care use, a negative binomial model (or a zero-inflated negative binomial regression model for the outcomes with zero inflation was employed. To analyze the outcomes of health care spending, a generalized linear model (GLM) with a log link function and gamma distributed errors (or a two-part model for zero-inflated expenditure data) was used. RESULTS: After controlling for the various covariates, SMUs used about 65% fewer prescription medications than non-SMUs (IRR = 0.35, 95% CI = 0.18-0.68) and had 68% fewer hospital outpatient visits (IRR = 0.32, 95% CI = 0.16-0.68) compared with TMUs. However, SMUs spent about $3,600 more on prescription medications than SMUs ($100 less than TMUs. CONCLUSIONS: Compared with TMUs, SMUs used less prescription medications and had less hospital outpatient visits. Spending on prescription medications was higher by SMUs than TMUs, unlike OOP spending.
common surgical procedures performed in adults (total knee and hip replacement, cervical fusion; laparoscopic cholecystectomy and appendectomy; and to summarize the economic outcomes of multimorbidity.

To describe the methods of cost-of-illness (COI) studies on multimorbidity was spent on inpatient (95%) or medicines (64%) costs in non-

Multimorbidity was associated with considerable economic burden even in children. Costs of different definitions of multimorbidity were limited by the data available. Standardized methods are required for improving accuracy, enhancing interpretation and facilitating comparisons between studies from different perspectives.

PHP100

COST-EFFECTIVENESS OF VENOUS THROMBOEMBOLISM PROPHYLAXIS AFTER TOTAL KNEE AND HIP REPLACEMENT FROM THE BRAZILIAN PRIVATE HEALTHCARE SYSTEM PERSPECTIVE

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OBJECTIVES: To access the cost-effectiveness of apixaban versus other anticoagulants in the venous thromboembolism (VTE) prophylaxis after total knee (TKR) and hip (THR) replacement in the Brazilian private healthcare system (PHS).

METHODS: A cost-effectiveness analysis of apixaban versus other anticoagulants was performed using a Markov-associated decision tree model that followed patients who had undergone TKR and THR (56% of the cohort underwent THR) over a 12-month time period and documenting of medication errors in adults and pediatrics of inpatient pharmacy services. The program led by trained pharmacist and delivered Basic medication safety education to all health professional. The estimated cost calculated by using International Study Model (Ling et al., Am J Health Syst Pharm 2005). It expressed in USD, the cost considered were the expected results of medication errors sequel if not stopped; starting from Physician visit, additional laboratory test, further treatment, hospital admission, Critical care admission to estimate cost-avoidance of Medication Safety program at the public hospital in Brazil. Explaining medication safety over all hospital health care services associated with preventing drug-related problems, and avoiding unnecessary cost

PHP99

WHEN COST EFFECTIVE INTERVENTIONS ARE UNAFFORDABLE

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OBJECTIVES: Interventions deemed cost-effective in academic literature are not always affordable, particularly, interventions may provide high benefits, but adopting them may necessitate elimination of other more beneficial expenditures. One tool to assess affordability is budget impact analysis (BIA), which estimates a program’s short-term costs and savings from the payer’s perspective. We examined how BIA has been employed in the global health effectiveness analysis (CEA) literature and explored how to incorporate affordability information alongside CEA. ANALYSIS: We investigated BIA in 384 articles from Global Health Cost-Effectiveness Analysis (GHECA) Registry, developed by the Tufts Center for the Evaluation of Risk in Health. Three percent (n=12/ 384) of articles performed a formal BIA. Most of these (n=9/12) noted that cost-effective interventions might be prohibitively expensive for government budgets.

In practice, the conclusions of CEA and BIA can differ because: the CEA warning about budget threshold may be too high; CEA measures societal costs while BIA calculates the benefits from the payer’s perspective. In some instances, the CEA and BIA demonstrate that interventions are affordable in practice. Researchers should report both CEA and BIA with information about why the two may diverge in a given context. Policymakers should be wary of binary classification of cost-effectiveness, as high-value programs may require substantial new resources. They might seek support from external funders or lenders to adopt programs that have a favorable incremental cost-effectiveness ratio but high upfront costs.

CONCLUSIONS: Commonly, interventions may be affordable if the budget impact is not considered in the economic evaluations. Policymakers should be aware of the potential for interventions to be affordable if supported by additional resources. The results of this study can help decision-makers understand the cost-effectiveness of interventions, and the potential for interventions to be affordable if supported by additional resources.

PHP98

A SYSTEMATIC REVIEW OF COST-OF-ILLNESS STUDIES ON MULTIMORBIDITY

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OBJECTIVES: To describe the methods of cost-of-illness (COI) studies on multimorbidity, and to summarize the economic outcomes of multimorbidity. METHODOLOGY: A systematic search for COI studies of multimorbidity published in English from 2000 to 2016 was performed. Inclusion criteria: peer-reviewed cross-section, cohort and modeling COI studies of multimorbidity; exclusion criteria: studies focusing on the index disease. Data extracted for each eligible study included: definition, measure, prevalence of multimorbidity; number of included health-related expenditures. Categorization of COI studies according to proportion of multimorbidity costs and average costs per capita. The adapted British Medical Journal Checklist was used to assess the study quality. Costs were converted to 2016/USD using the exchange rate for each currency, with adjustments made based on the Consumer Price Inflation. RESULTS: 26 articles were included, of which, the definition used in the 14 studies that clearly defined multimorbidity was limited to a simple count of 2 or more conditions. Methodology used to derive costs varied among the studies, with the most common being the substitution of a close substitute was used if the experimental drug was not listed in either ABDL or VADL.

METHODS: We selected all phase two and three industry-sponsored trials that started in 2012 in Northern Alberta, Canada. We used trial-specific budget documents to estimate billing costs into three major groups: administration, ethic review and patient costs. We used the trial-specific budget documents obtained from sponsors of all eligible drugs, labor costs averaged dosages and treatment lengths in each trial. Alberta Health Drug Benefit List (ADBL) and the US Department of Veteran Affairs Drug List (VADL) (adjusted for common co-morbidities) were used to obtain drug prices. Price of a close

OBJECTIVES: Clinical trials are recognized as drivers of economic activity as well as mechanisms of scientific evidence. Industry-sponsored trials alleviate healthcare costs. We sought to examine the economic contribution of industry-sponsored trials in Northern Alberta, Canada. METHODS: We selected all phase two and phase three industry-sponsored trials that started in 2012 in Northern Alberta, Canada. We used trial-specific budget documents to estimate billing costs into three major groups: administration, ethic review and patient costs. We used the trial-specific budget documents obtained from sponsors of all eligible drugs, labor costs averaged dosages and treatment lengths in each trial. Alberta Health Drug Benefit List (ADBL) and the US Department of Veteran Affairs Drug List (VADL) (adjusted for common co-morbidities) were used to obtain drug prices. Price of a close substitute was used if the experimental drug was not listed in either ABDL or VADL.

RESULTS: There were 40 trials initiated in Northern Alberta in 2012. The mean (standard deviation (SD)) trial length was 29.7 (SD: 14.5) months. 25 patients (75% on experimental arms) were enrolled. Five trials had an open label phase for 28 patients. 55 drugs were evaluated; of which, 15 were biological
products. Total healthcare cost avoidance was Canadian $29 million. Of which, operating costs were $5.2 million, drug costs were $13.5 and $10.3 million during the first and second line of contraceptive treatment, respectively, as a result of the medical advancement benefits, industry-sponsored clinical trials in Northern Alberta contribute a significant dollar amount to the Alberta healthcare system. Therefore, industry-sponsored trials should be in place to help alleviate healthcare costs.

**PHP104**

**ASSESSING THE FINANCIAL VALUE OF PATIENT ENGAGEMENT**

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**OBJECTIVES:** While patient groups, regulators, and sponsors are increasingly considering engaging with patients in the design and conduct of clinical development programs, sponsors are often reluctant to go beyond pilot programs due to uncertainty in patient engagement investment. The objective of this work was to develop an approach to estimate the financial value of patient engagement.

**METHODS:** Expected net present value (ENPV) is a common technique that integrates the key business drivers of cost, time, and risk into a summary metric for project strategy and pre-design decisions. We describe an approach to assess the impact of patient engagement on ENPV for a medical treatment development program, then apply it to a typical oncology development program entering phase 2 (cost to launch $212MM, NPV $469MM at phase 3) or phase 3 (cost to launch $114MM, NPV $669MM at phase 3). For a pre-phase 2 project, the cumulative impact of a patient engagement activity that avoids one protocol amendment and improves enrollment, adherence, and retention is an incremental patient engagement value (ENPV) of $622MM ($695MM for pre-phase 3) and an increase in ENPV of $35MM ($75MM for pre-phase 3). Compared with an investment of $50,000 in patient engagement, the NPV and ENPV exceed 1000-fold the investment. This ENPV increase is the equivalent of accelerating a pre-phase 2 product launch by 2 years (2012 in next year pre-phase 3). CONCLUSIONS: Risk-adjusted financial models can assess the impact of patient engagement. A combination of empirical data and subjective parameter estimates shows that engagement activities with the potential to avoid protocol amendments and/or improve enrollment, adherence and retention may add considerable financial value. This approach can help sponsors assess patient engagement investment decisions.

**PHP105**

**PRICES OF TUBERCULOSIS DRUGS MARKETED IN THE US (1973-2016)**

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**OBJECTIVES:** This study describes trends in average wholesale prices (AWP) at market entry of drugs and vaccines approved by the FDA for the treatment and prevention of tuberculosis (TB) and marketed in the US in the period 1980-2016. METHODS: The AWP, invoice, and average price to provider were extracted from the RedBook (Truven Health) and converted to 2016 USD using the Consumer Price Index. RESULTS: Twenty-six TB drugs and vaccines approved by the FDA were included in the analysis. There were seven products approved by the FDA in the period 1973-1989, nine products in the period 1990-1999, and nine products in 2000-2016. The market entry cost Per Treatment was $207.20 for hydrocortisone and $147.43 for Bacillus of Calmette and Guerin (BCG) vaccine. The highest TB drug prices for the period 1973-1989 were $8.65 for rifampin (intravenous), $3.29 for hydrocortisone (topical), $1.61 for a combination of isoniazid (oral), $0.34 per capsule in the first quarter of 2013 to $8.43 per capsule in the first quarter of 2014. 831 of the 3513 extra prices increases were less than 5% over 1 year, $0.25 to higher than 5% or higher. 15 were 1,000 % or higher. The Clomipramine HCl/50mg/capsule/oral, 2,000 % in 1 year, $0.16 per tablet in the first quarter of 2012 to $0.41 per tablet in the first quarter of 2013. CONCLUSIONS: Based on the analyses conducted to date, a vibrant generic market can exert downward pressure on overall drug prices. Generic drugs account for majority of prescriptions filled in US hospitals and may add considerable financial value to the Alberta healthcare system. Factors such as drug shortages, the ability to obtain new market exclusivities, the distribution system, small market size, and consolidation in the generic drug industry prevent potential barriers to ongoing competition in the general drug market, and will be subject of continuous study.

**PHP106**

**COST-EFFECTIVENESS ANALYSIS OF THE USE OF SIU-LNG AGAINST LONG- AND SHORT-ACTING CONTRACEPTIVES, AS CONTRACEPTIVE METHODS FOR WOMEN OF FERTILE AGE IN COLOMBIA**

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**OBJECTIVES:** To estimate the cost-effectiveness ratios of the use of SIU-LNG against the use of T-copper, implants, patch, injectable, oral contraceptives and vaginal ring as contraceptive use for women of childbearing age. METHODS: Markov model was developed to estimate the differences in the main outcomes, as avoided pregnancies and total costs, including first and second lines of contraceptive treatment, as well as costs of pregnancy and delivery. The birth rate was 2%, 0.5%, and 0.1% per 1,000 women. The outcomes were: monthly cycles, thus were estimated, abandoments / changes method, failures, presence of adverse events, no use of any method or preestation of pregnancy. Technology costs were estimated with national databases, and insurance costs for results. CONCLUSIONS: Long-acting methods-LARCS- (T-Copper, Implants and SIU-LNG) are considered dominant over all short-acting methods, that is, more effective in terms of reducing unwanted pregnancies and are less expensive. Compared to LARCS, on average, an avoided pregnancy represents 32.8 more unwanted pregnancies and an over-cost of 51.8% in 5 years. Among LARCS, cost differences are narrow, but in avoided pregnancies, it is estimated that SIU-LNG has the lowest number of pregnancies (19), compared to 49 with implants and 37 with a cobalt shield. In the horizon, from the second year, the implants shows ICER of dominance over the T-Copper, while the SIU-LNG shows the very first 3 years as a dominant option vs all other technology evaluated but shows versus copper T, a cost-effectiveness ratio for avoided pregnancy of $5,945,273 in the second year, in the third year of $1,104,713, and from the fourth year, a dominance relationship on T-Copper. CONCLUSIONS: Long-acting contraceptive methods have a dominance relationship over the short-acting methods and increased use of LARCs is the most effective option for preventing unwanted pregnancies. SIU-LNG is a dominant technology over all competitors evaluated over a five-year horizon.

**PHP107**

**THE PRICE RISE OF GENERIC DRUGS IN US MARKET**

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**OBJECTIVES:** After amendments were made to the law in favor of generic drug market, this market saw an influx of new players, which brought generic prices further down. Currently, on average, the cost of a generic drug is 80 to 85 percent lower than the brand name product. As prices declined, usage of generics picked up rapidly. The main objective is to determine the extent to which generic drug price increases and to determine which drug classes has the most cost in order to discover the challenge and the barriers behind generic drug prices increase. METHODS: The difference with generic prices has been obtained by the Medicaid file using National Average Drug Acquisition Cost (NADAC) Weekly reference file. The NADAC, for prescription and over-the-counter covered outpatient drugs is reported at the 11-digit National Drug Code level. RESULTS: Most extra price increases were between 25% and 200 percent. 48 were 500% or higher. 15 were 1,000% or higher. CONCLUSIONS: Risk-adjusted financial models can assess the impact of patient engagement. A combination of empirical data and subjective parameter estimates shows that engagement activities with the potential to avoid protocol amendments and/or improve enrollment, adherence and retention may add considerable financial value. This approach can help sponsors assess patient engagement investment decisions.
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Included in the study was the cost Model calculated based on variable expenses including personal cost, material, and supply cost. Fixed cost was including direct cost, non-salary cost, and overhead cost. All cost used of US dollar currency and local prices. RESULTS: The estimated cost of delivery of drug therapy services for all total number adults beds per day was (1,214.72 USD). It consisted of three types; the unit dose system (717.9 USD), drug floor stock distribution system (350.34 USD), and discharge medication services (92.5 USD). The majority of cost came from overhead cost, and material and supply in floor stock services and discharge medication delivery, while the personal cost in unit dose services delivery. The total estimated annual expenditures of Drug distribution services were (445,371.83 USD). The highest budget expenditures from unit dose services (63.54 USD), followed by floor stock medication delivery 28.8 % (127,872.64 USD), and discharge drug therapy 7.6 % (337,561.17 USD).

CONCLUSIONS: The estimation cost of delivery pediatrics drug therapy is the first study in the Middle East, Gulf countries, and Saudi Arabia. It is a basic element of cost calculation of Pediatrics-related health care services.
of therapy areas. This study quantifies the publication of RW/HE evidence in clinical journals over ten years (2005–2015) and across different therapy areas. Therapy areas were selected: cardiology, diabetes, neurology, oncology, and nephrology. Within each therapy area, three journals were identified based on impact factor (high) and clinical editorial focus. For these journals, articles were identified using EMBASE to identify accounts of RW/HE publications dedicated to each journal (or an abbreviated form thereof, if the journal itself was not available). The proportion of RW/HE publications was then calculated for each journal (or its abbreviated form) and compared to journal characteristics, such as the number of articles published per year and the number of RW/HE articles published as a proportion of the total number of articles published. The results demonstrate that RW/HE publications have increased significantly over the past ten years, with the proportion of RW/HE articles increasing from 6.6% in 2005 to 9.0% in 2010 and 17.1% in 2015 (p < 0.001). The proportion of RW/HE publications was highest in cardiology, diabetes, and nephrology, and lowest for neurology (8.4%) and oncology (11.7%). Compared with non-society journals, society journals published a higher proportion of RW/HE publications (5.9% vs 20.1% in 2015; p < 0.001) and had a stronger increase over time (growth rate 74.3% vs 99.9% for 2010–2015; p < 0.001). CONCLUSIONS: During the period 2005–2015, the proportion of RW/HE articles in top clinical journals increased across all therapeutic areas investigated. These results could suggest an increasing willingness to publish RW/HE evidence for healthcare decision-making, with some notable differences between therapy areas.

PHP116

STAKEHOLDER DEMAND FOR INFORMATION RELATED TO PIPELINE PRODUCTS AND UNAPPROVED USES OF APPROVED MEDICINES

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OBJECTIVES: This study sought to better describe payer and physician interest, perceptions, and use of information about pipeline products and unapproved uses of approved medicines. METHODS: We conducted a series of 15-minute online surveys in November 2014 among 364 specialist physicians (cardiologists, oncologists, endocrinologists, neurologists, psychiatrists, and rheumatologists) and payer executive (representing managed care organizations, pharmacy managers, and large integrated delivery networks). RESULTS: 138 specialists and 39 payer executives participated in the study. More than 80% of respondents indicated they would like to receive more information about products in the biopharmaceutical pipeline. Among those interested in pipeline information, 72% of payer executives and 53% of physicians indicated that they would like to receive information about unapproved uses of medicines. The majority of payer executives (82%) and physicians (85%) say they those interested in pipeline information, 72% of payer executives and 53% of physicians thought that if they had more information on unapproved uses they would value it. Respondents saw the most value in receiving information that underwent strong evidence. These stakeholders do not quality of the information is scientifically sound. Respondents believed that the development of the technologies in active care. Considering chronic care, slight development could be observed. The number of nursing days decreased from 90.3 days in 15 years. Bed occupancy ratios in chronic care increased for approximately 84%. CONCLUSIONS: According to international trends, the significance of chronic inpatient care capacities increased in Hungary. The internal rates of the number of chronic beds are consistent with the types of disorders, their necessity is supported by the bed occupancy indicators.

PHP119

EXPLORING FACTORS ASSOCIATED WITH MEDICATION SELF-SYNCHRONIZATION

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OBJECTIVES: To explore factors associated with medication self-synchronization. METHODS: This observational study includes established Walgreens customers who filled four unique maintenance prescriptions in July 2016. Logistic regression is used to evaluate variables associated with medication self-synchronization defined as having just 1 trip (measured as unique prescription sale) for all maintenance medications in the previous 30 days. Significant variables include age, gender, payment type, copay amount, total number of prescriptions, maintenance medications indicators, and days supply indicator. RESULTS: Out of 613,645 patients, in the study, 168,441 (27.4%) are self-synchronized and 444,964 are not (37.86% with 2 trips; 26.77% with 3 trips; and 7.91% with 4 trips). Younger patients are more likely to self-synch than older patients: odds ratios (OR) range from 1.37 [1.33, 1.40] to 1.81 [1.73, 1.91] compared to patients over 65 years old. Patients with low copays are more likely to self-synch than patients with high copays: odds ratios range from 1.09 [1.04, 1.14] to 1.61 [1.55, 1.66] compared to patients with high copays. Younger patients are more likely to self-synch than older patients: odds ratios (OR) range from 1.37 [1.33, 1.40] to 1.81 [1.73, 1.91] compared to patients over 65 years old. Patients with low copays are more likely to self-synch than patients with high copays: odds ratios range from 1.09 [1.04, 1.14] to 1.61 [1.55, 1.66] compared to patients with high copays. Patients taking selected maintenance medications are more likely to self-synch: patients with specific maintenance medications have odds ratios from 1.08 [1.06, 1.10] for anti-diabetic, 1.34 [1.31, 1.36] for anti-hypertensive, and 1.33 [1.30, 1.35] for anti-hyperlipidemic medications. Compared to patients who had both 30-day and 90-day fills, patients who had only 30-day fills or 90-day fills are more likely to self-synch (ORs are 1.52 [1.49, 1.55] for 30-day fills and 2.92 [2.81, 2.93] for 90-day fills, respectively. Finally, patients with more prescriptions are less likely to self-synch (OR = 0.91 [0.906, 0.915]). CONCLUSIONS: Medication self-synchronization is associated with age, copay amount, and days supply indicator, and total number of prescriptions. Understanding the underlying factors of medication synchronization helps pharmacies design and deliver more effective patient support programs.

PHP120

THE PREVALENCE AND TYPE OF POTENTIALLY INAPPROPRIATE PRESCRIBING AMONG HOSPITALIZED GERIATRICS IN MALAYSIA

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OBJECTIVES: To identify the prevalence and types of potentially inappropriate medications (PIMs) and potentially prescribing omissions (PPOs) among community-dwelling geriatrics pre- and post-hospitalization. METHODS: A prospective cohort study involving patients > 65 years old, on at least one medication for a minimum of 3 months prior to hospitalization, in a tertiary hospital in Malaysia. Data was collected from patients and their records after a signed consent form has been obtained. Patients were followed up until discharge. RESULTS: Out of 112 patients, 94% (n = 107) were females, with a mean age of 72 ± 6 years, length of hospital stay was 5.4 ± 3.1 days. The cumulative incidence of at least one PIM was 74% ± 4% over all patients. Ten PIMs and 10 PPOs are also identified. CONCLUSIONS: The prevalence of PIMs at admission was 47.6% (453 patients, 207 PIMs), which increased at discharge to 48% (144 patients, 201 PIMs) (p < 0.05). The three most common PIMs at admission and discharge were drugs that increase the risk of falls in patients ≥ 75 years of age: acetaminophen, anti-hypertensive, and anti-inflammatory NSAIDs used in patients with creatinine clearance < 50 mL/min, and metformin used in patients with CrCl < 30 mL/min. The prevalence of PPOs at admission was 47.6% (453 patients, 207 PPOs), which increased at discharge to 48% (144 patients, 201 PPOs).
discharge were the omission of vitamin D supplement in patients with a history of falls, and the omission of angiotensin converting enzyme (ACE) inhibitor and β-adrenergic blocker in patients with documented coronary artery disease. CONCLUSIONS: PIWs and POPs are prevalent among community-dwelling geriatrics and hospitalization did not change their prevalence or type significantly.

PH121
NATIONAL SURVEY OF PHARMACY PRACTICE AT MOH HOSPITALS IN SAUDI ARABIA 2016: DRUG MONITORING AND PATIENT EDUCATION
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OBJECTIVES: To explore the drug monitoring and patient education at Ministry of Health (MOH) hospitals in Saudi Arabia
METHODS: It is a 4-months cross-sectional national survey of drug monitoring and patient education at MOH hospitals in Saudi Arabia. The study consisted of two-part; a demographic information and the second part contained eighty-five questions divided into six domains from American Society of Health-System Pharmacists (ASHP) survey. The parts were pharmacy management and resources, prescribing and medication management, preparation of drugs and dispensing, technology and clinical pharmacy services, adherence and patient education, and pharmacy education and training. The 5-points Likert response scale system closed and ended questions used. An electronic questionnaire distributed to the one hundred eighty-five directors of pharmacies at MOH hospitals, and it analyzed the drug monitoring and patient education through survey monitoring system
RESULTS: The total responders were seventy hospital pharmacies; the repose rate was 37.73%. The highest estimated number of drug monitoring was a previous medication record per hospital per year was 109,360.75. The number of medication inquiry per hospital per year was 69.703.23, the adverse drug reaction was 61,905.16. The average number of patients counseling per hospital per year was 58,643.33, the number of pharmacist intervention per hospital per year was 58,624.81. The patient education services existed in 52 (74.3%) hospitals. The patient education services were given through outpatient services 59 (84.3%), and at the bedside during discharge 19 (27.1%). The patient education provides to adults patient followed pediatricians and geriatrics patient at outpatient and inpatient setting. The most hospital pharmacies shared in national diabetic day 45 (64.3%) and national asthma day 23 (32.9%). CONCLUSIONS: The pharmacist had the active role in drug therapy monitoring and patient counseling. Expanding those services with written education is recommended to improve the quality of the services and patient health care outcomes.

PH122
THE IMPACT OF A PHARMACY OPERATIONS MODEL ON IMPROVING MEDICATION ADHERENCE
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OBJECTIVES: Medication adherence continues to be a recognized issue. In recent years, one emerging pharmacy operations approach to improving adherence has been the appointment-based medication synchronization model. We evaluated the available literature to summarize the impact of medication synchronization models on patient adherence and identify gaps for future research. Methods: A comprehensive literature search was conducted using PubMed and EMBASE since database inception. English studies were included if they were peer-reviewed observational studies and/or interventional studies that investigated impact of medication synchronization on outcomes. References of included studies were screened to identify additional articles for inclusion. Each study was screened by two independent reviewers. Discrepancies were resolved through a third reviewer. RESULTS: The search yielded a total of 271 records. After screening for relevance, inclusion criteria, and exclusion criteria, 38 articles were included for review. Of those articles, 29% who are using IV iron if hemoglobin (Hb) level is lower than 10 g/dL or hematocrit (Hct) is below 0.3 1. At the bedside during discharge 19 (27.1%). The patient education provides to adults patient followed pediatricians and geriatrics patient at outpatient and inpatient setting. The most hospital pharmacies shared in national diabetic day 45 (64.3%) and national asthma day 23 (32.9%). CONCLUSIONS: The pharmacist had the active role in drug therapy monitoring and patient counseling. Expanding those services with written education is recommended to improve the quality of the services and patient health care outcomes.

PH123
THE IMPACT OF THE ORDER OF DRAW FOR MULTIPLE BLOOD COLLECTION TUBES ON DIAGNOSTIC PARAMETERS
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OBJECTIVES: There are numerous international standards and recommendations by pharmaceutical manufacturers for the order of draw to avoid contamination of the sample caused by additives in blood collection tubes. Our goal was to examine whether changing the order of draw results in biases in the analyzed diagnostic parameters.
METHODS: The study was conducted cross-sectionally in the inpatient setting at Karolina Hospital, Moszmegyárváros, Hungary between September 1 and November 31, 2016. We used non-randomized, purposeful sampling in both experimental and control groups (N=30–30). In the experimental group, the order of draw for phlebotomy tubes were used (Clot-activator, Na-citrate, Li-heparine, Na-citrate, K3 EDTA, native, Na-citrate, native). In the control group, the correct order of draw was followed (Na-citrate, native, K3 EDTA). The following parameters were examined: hemoglobin, INR, Calcium, Sodium, Potassium, pH, Glucose, AST, ALT. RESULTS: The order of draw for phlebotomy tubes were used (Clot-activator, Na-citrate, Li-heparine, Na-citrate, K3 EDTA, serum tube) resulted in significantly decreased calcium levels in the experimental group compared to the control group (2.39 mmol/L [IQR: 2.33-2.46] vs. 2.60 mmol/L [IQR: 2.57-2.63], p < 0.001). Any other deviation in the order of draw failed to show significant biases. CONCLUSIONS: Incorrect order of draw for the sampling tubes during phlebotomy resulted in decreased level of calcium ion, which is a statistically significant difference, however, the value still remained in the normal clinical range.
**PHLP12**

**COMPARISON OF ADVERSE DRUG REACTIONS BETWEEN OLDER AND YOUNGER PATIENTS IN KOREA: USING ADVERSE EVENT REPORTING SYSTEM DATABASE FOR 2013-2015**

Je S, Kim NH, Song SM, Lim SJ, Suh D

**OBJECTIVES**: Although older adults appear to be more prone to experience adverse drug reactions (ADR), a comparison of the health consequences of ADR between older (e.g., over 65 years of age) and younger (e.g., 65 years of age and under) adults has not been performed in the South Korean population. The aim of this study was to identify the characteristics of MEs between older and younger adult patients in South Korea using the Korea Adverse Event Reporting System (KAERS).

**METHODS**: The KAERS database contained a total of 754,231 ADR reports from 38,974 patients. We examined 1,593 reports per patient with KAERS collected August 1999 to March 2018. Reports that include patient demographics, concomitant drugs, patient outcome, reaction severity and the results of causality assessments. We conducted analyses with geriatric ADR reports from the KAERS database covering 2013 to 2015. Reporting odds ratio (OR) was calculated to examine whether the number and types of ADR reports were statistically different between the two groups (younger vs. 65 years old).

**RESULTS**: The proportion of ME reports for older adults was 1.38 times (95% CI: 1.14-1.62) greater in the older group than in the younger group. In the same period, the reports of off-label use (n=166, 50.8%) and “accidental overdose” (n=21, 6.4%) was 1.65 times (95% CI: 1.14-1.49) and 2.96 times (95% CI: 1.48-5.90) greater respectively, in the older patients compared to younger patients. In addition, frequently used drugs and underlying diseases in the 33 older adults ADR reports were “pacopride” (n=6, 25.2%) and “unspecified primary hypertension” (n=32, 11.0%), respectively. “Carcinoma in situ of stomach” (n=30, 8.3%) was the most frequently reported disease condition for which medicines that caused ME was prescribed. Older adult patients are more likely to experience ADRs because of label medication use and accidental overdose than younger patients. This finding suggests the need for healthcare professionals to continuously monitor medication use to prevent possible ADRs.

**PHLP17**

**MULTIMORBIDITY AND POLYPHARMACY AMONG MEDICARE BENEFICIARIES – A MULTI-STATE ANALYSIS**

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**OBJECTIVES**: Multimorbidity is highly prevalent among young adults and these adults often use multiple medication classes known as polypharmacy. Current definitions of polypharmacy are limited because they do not measure daily use of multiple medication classes. To examine the relationship between multimorbidity and polypharmacy, polypharmacy was estimated with the commonly-used measure and a novel measure. **METHODS**: In this cross-sectional study, data on fee-for-service Medicare recipients (N = 54,907) were derived from 2010 Medicaid Analytic extracts for 13 states and the District of Columbia. Among those, 80% of patients were included in the study. The US Department of Health and Human Services framework was selected. Medication classes were identified using the National Drug Codes. Commonly-used polypharmacy measure was defined as number of drug classes (within an arbitrary 30-day time period) was 1 standard deviation above the mean. A novel approach integrated the number of drug classes and duration of use to calculate simultaneous daily use medication classes. The simultaneous use of 5 or more different drug classes for a 60-day consecutive period was defined as chronic polypharmacy. The association between multimorbidity and polypharmacy was examined with Chi-square tests and logistic regressions. **RESULTS**: Polypharmacy was estimated at 17.1% under the commonly-used approach and 38.1% under the novel measure. Individuals with multimorbidity had higher rates of polypharmacy under both definitions (33.3% - commonly-used measure vs. 64.5% - novel measure). Adults with multimorbidity were more likely to have polypharmacy for both measures (AP: 8.6, 95% CI: 8.1 - 9.2 - commonly-used measure; and AP: 9.9% CI: 6.0 - 6.5 - novel measure), compared to those without multimorbidity. **CONCLUSIONS**: Polypharmacy was highly prevalent among adults with multimorbidity regardless of the definition used, although the commonly-used definition may underestimate the rate of polypharmacy.
OBJECTIVES: This study was aimed to impact the conversion of from minimally invasive surgical (MIS) to open surgery in rectal resection for non-rectal cancer patients. METHODS: Patients who underwent rectal resection in Pakistan (Hospital Perspective) database from 2008/1/1 to 2015/9/1 were included. Cases with rectal cancer ASCI-9 diagnosis codes were excluded. Conversions were identified by ICD-9. Multivariate regressions were used to estimate the impacts of conversion through comparing converted vs. non-converted cases. Open surgery outcomes included postoperative complications, length of stay (LOS), operation time, total hospitalization cost. Further stratification analyses by surgeon specialty and teaching status were performed.

RESULTS: There is a significant impact of the pharma- cist in the pharmacokinetics services, more compliance to indication guidelines, and decrease drug-related problems. Expanding the role of the pharmacist in therapeutic drug monitoring services is required at all hospitals in the Kingdom of Saudi Arabia.

PHP134

ANTIMICROBIAL DRUG CONSUMPTION IN AMBULATORY CARE CLINICS AND EMERGENCY UNITS AT NORTH WEST (TABUK) REGION HOSPITALS, SAUDI ARABIA

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OBJECTIVES: To compare the drug consumption among non-rectal cancer patients is associated with higher risk of complication and longer OR time than non-converted cases and open cases. There are variations among surgeon specialties and hospital teaching status.

RESULTS: The total number of Antimicrobial standard units at Ambulatory care clinics and Emergency were 25,116 and (8,667) with average (5,023.2) and (1,737.4) per hospital respectively. The highest drug consumption at Ambulatory care was Azithromycin tablet (10,932), followed by Azithromycin syrup (7,760), and Moxifloxacin tablet (3,045) respectively. WHO-UMC criteria showed 15.8% of the ADRs were associated with GIT (46.3%) followed by metabolic (35.3%), haematological (14.6%) and cutaneous (9.7%). Constipation (19.5%) followed by hypokalemia (19.5%), coagulopathy (14.6%), hypoglycaemia (14.3%) and hypersensitivity reactions (9.7%) were most commonly observed ADRs. Causality assessment from Phase I was the Pre-intervention phase; the second was the intervention phase (Phase II). Any patient received Gentamicin followed up by trained pharmacist. The pharmacist all pharmacokinetics parameters such as weight, height, culture sensitivity, and any adjustments in dosage, trough and peak levels and duration of administration recorded on a pharmacokinetics form on a routine basis at each phase. The total number of patients was 162 in Phase I and 136 in Phase II, the patients had an incidence of 67 (41.4%) to 73 (53.7%) patients while adherences of non-labeled indications decreased from 95 (58.6%) to 63 (46.3%) patients. The sub-therapeutic trough levels of Gentamicin significantly decreased from 22 (13.6%) to 12 (7.1%) patients (p<0.05). The therapeutic level of Gentamicin statistically significantly increased from 22 (13.6%) to 63 (46.3%) patients (p<0.05). The sub-therapeutic peak levels of Gentamicin statistically significantly decreased from 40 (24.7%) to 18 (13.2%) patients (p<0.05), while the therapeutic level of Gentamicin statistically signifi- cantly increased from 2 (1.2%) to 55 (40.4%) patients (p<0.05). All patients 136 (100%) were compliance of Gentamicin duration of administration time in the intervention phase. CONCLUSIONS: There is a significant impact of the pharma- cist in the pharmacokinetics services, more compliance to indication guidelines, and decrease drug-related problems. Expanding the role of the pharmacist in therapeutic drug monitoring services is required at all hospitals in the Kingdom of Saudi Arabia.

PHP135

POPULATION HEALTH STATUS OF BENEFICIARIES IN NARROW NETWORKS

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OBJECTIVES: To compare Medicare Advantage beneficiary population health status for patients utilizing provider services solely with narrow networks (NN) which are plans with relatively low copays and premiums, but where provider ambulances are considerably constrained, or with Patient Centered Medical Home (PCMH) provid- ers. METHODS: This retrospective cohort study used data from Streuirus, a managed care type health insurance program, to identify beneficiaries in NN and PCMH. Five insurers were selected based on size and variety of products, and their NN and PCMH product were identified. The patient population of Medicare Advantage (MA) members was extracted from a large national representative and statistically de-identified administrative claims database. Members were divided into three groups based on their provider: 1) members receiving services solely within a NN/PCMH (in); 2) members receiving services solely outside NN/PCMH (out); and 3) members receiving services both in NN and PCMH (in/out). Logistic regression (version 9.8) were calculated for each member. The study sample consisted of MA beneficiaries who were continuously enrolled for 12 months within 2014 (N=1,473,600) and in 2015 (N=1,143,000). RESULTS: The distribution of members across the groups (In, Out and Control) was 40%, 10% and 51%, respectively, and was consistent across years. In 2014, their mean risk score (and standard deviation) for In, Out and Control groups respectively were: 0.80 (0.56), 1.38 (0.70) and 1.44 (0.88). The mean risk scores across the three groups within each year were significantly different (p < .01). CONCLUSIONS: Data suggests that beneficiaries receiving all of their care open surgery had significant higher odds of postoperative complications (OR 1.41, 95% CI [1.23-1.62]), longer LOS (0-8 days, 95% CI [1.62-2.12]) and operation time (50-60 min, 95% CI [2.84-7.99]). In contrast, the impact of conversion on postoperative complication among colorectal surgeons’ cases was insignificant. In community hospitals, total hospitalization cost for converted cases was significantly higher than open cases ($2065.00, 95% CI [1285.00, 2845.00]) and open cases. In community hospitals, total hospitalization cost for converted cases was significantly higher than non-converted cases ($2065.00, 95% CI [1285.00, 2845.00]) and open cases ($2065.00, 95% CI [1285.00, 2845.00]). Similarly, in contrast, the impact of conversion on colorectal surgeons’ cases was insignificant. In community hospitals, total hospitalization cost for converted cases was significantly higher than open cases ($2065.00, 95% CI [1285.00, 2845.00]) and open cases ($2065.00, 95% CI [1285.00, 2845.00]). Similarly, in contrast, the impact of conversion on colorectal surgeons’ cases was insignificant. In community hospitals, total hospitalization cost for converted cases was significantly higher than open cases ($2065.00, 95% CI [1285.00, 2845.00]) and open cases ($2065.00, 95% CI [1285.00, 2845.00]).
To explore Drug Information Centers practice in Saudi Arabia: with errors, and the outcome of medication errors by using National Coordinating errors, description of errors, causes of errors, recommendation to prevent the medication through medication error form. The structure consisted of patient information and the second part with eleven domains. It included medication availability, patient counseling, pharmacist and patient relationship, medication reconciliation, medication aberrance, pharmacy location, Pharmacy waiting area, pharmacy communications, pharmacy waiting time, overall patient satisfaction of pharmacy services. The 5-points Likert response scale closed and ended questions used. The survey distributed through three public, pediatrics, and emergency hospitals ambulatory care patient. The authors did the interview with the patient with electronic survey documentation. It analyzed through survey monkey system. RESULTS: The total responders were (606) Patients. Of those 509 (84.3%) was Saudi and 95 (15.7%) was non-Saudi. The gender distribution 358 (53.8%) was female and 268 (46.2%) was male. The age group of them in age (25-34) 25.2, age (35-44) 27.4%, age (45-54) 25.4%, age (55-64) 20.9%, age (65-74) 11.4%. The scores of medication availability domain were (3.3), patient counseling was (3.2), pharmacist and patient relationship were (3.7), and medication reconciliation was (3.2). The medication adherence was (19.5% pharmacists located in 28.9%), pharmacy waiting area was (3.25), pharmacy communications was (2.14), pharmacy waiting time was (3.61), pharmacy recommends to others was (3.54). General evaluation of pharmacy services was very good-excellent with 381 (62.87%) of respondents recommended use system existed in 24 (60%) hospitals. The priorities aspects of MUE existed in 27 (67.5%) hospitals. The implementation plan for treatment protocols and standards of care existed in 26 (65%) hospitals applied 25-100% the elements. Educate health-care professionals to promote the use of criteria, guidelines, treatment protocols, and standards of care existed in 27 (67.5%) hospitals. The implementation plan for improvement of the medications use exist in 25 (62.5%) hospitals. CONCLUSIONS: There was an incomplete implementation of Medication-Use Evaluation in drug information centers practice. Establishing strategic planning of Medication-Use Evaluation system and set up an educational program for drug information pharmacist, will improve Medication-Use Evaluation practice.

OBJECTIVES: To explore Drug Information Centers practice in Saudi Arabia: with emphasis on Medication-Use Evaluation services at MOH. METHODS: It is a national survey of Drug Information Services at MOH. It consisted of a demographic section and ten domains with 181 questions. The ten areas included, Leadership and Practice Management, Medication Adherence System, Hospital Formulary System, Medication Safety System, Professional, and Public Education. The Evidence Based Medicine-Therapeutics Guidelines, Medication-Use Evaluation (MUE), Pharmacist and Antimicrobial Stewardship (IDS) and Professional Publications Services (PPPS), and Ethical and Legal issue. It drove from International pharmacy standard and best practice guidelines. The domain of Medication-Use Evaluation explored and analyzed. RESULTS: The survey distributed to forty-five hospitals. The response rate was 40 (88.8%) hospitals. Of that, 35 % were large hospitals and 37.5 % were medium-sized hospitals. The organizational authority for the MUE process found at 26 (65%) hospitals, while the indicators for comprehensive surveillance of the medications use existed in 24 (60%) hospitals. The priorities aspects of MUE existed in 24 (60%) hospitals. The informality of health-care professionals objectives and expected benefits of the MUE process exist in 25 (62.5%). The Criteria, guidelines, treatments protocols and standards of care for specific medications existed in 26 (65%) hospitals applied 25-100% the elements. Educate health-care professionals to promote the use of criteria, guidelines, treatment protocols, and standards of care existed in 27 (67.5%) hospitals. The implementation plan for improvement of the medications use exist in 25 (62.5%) hospitals. CONCLUSIONS: There was an incomplete implementation of Medication-Use Evaluation in drug information centers practice. Establishing strategic planning of Medication-Use Evaluation system and set up an educational program for drug information pharmacist, will improve Medication-Use Evaluation practice.

OBJECTIVES: To explore the patient’s satisfaction with ambulatory care pharmacy services at Riyadh city in Saudi Arabia. METHODS: It is a 4-months cross-sectional survey of Patients satisfaction of Ambulatory care pharmacy services at Riyadh city in Saudi Arabia. The survey consisted of forty-five questions divided into two parts demographic information and the second part with eleven domains. It included medication availability, patient counseling, pharmacist and patient relationship, medication reconciliation, medication aberrance, pharmacy location, Pharmacy waiting area, pharmacy communications, pharmacy waiting time, overall patient satisfaction of pharmacy services. The 5-points Likert response scale closed and ended questions used. The survey distributed through three public, pediatrics, and emergency hospitals ambulatory care patient. The authors did the interview with the patient with electronic survey documentation. It analyzed through survey monkey system. RESULTS: The total responders were (606) Patients. Of those 509 (84.3%) was Saudi and 95 (15.7%) was non-Saudi. The gender distribution 358 (53.8%) was female and 268 (46.2%) was male. The age group of them in age (25-34) 25.2, age (35-44) 27.4%, age (45-54) 25.4%, age (55-64) 20.9%, age (65-74) 11.4%. The scores of medication availability domain were (3.3), patient counseling was (3.2), pharmacist and patient relationship were (3.7), and medication reconciliation was (3.2). The medication adherence was (19.5% pharmacists located in 28.9%), pharmacy waiting area was (3.25), pharmacy communications was (2.14), pharmacy waiting time was (3.61), pharmacy recommends to others was (3.54). General evaluation of pharmacy services was very good-excellent with 381 (62.87%) of respondents recommended use system existed in 24 (60%) hospitals. The priorities aspects of MUE existed in 27 (67.5%) hospitals. The implementation plan for treatment protocols and standards of care existed in 26 (65%) hospitals applied 25-100% the elements. Educate health-care professionals to promote the use of criteria, guidelines, treatment protocols, and standards of care existed in 27 (67.5%) hospitals. The implementation plan for improvement of the medications use exist in 25 (62.5%) hospitals. CONCLUSIONS: There was an incomplete implementation of Medication-Use Evaluation in drug information centers practice. Establishing strategic planning of Medication-Use Evaluation system and set up an educational program for drug information pharmacist, will improve Medication-Use Evaluation practice.

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currency. RESULTS: The total number of Antimicrobial standard units was (14,305) and average (2,861) per hospital. The highest drug consumption was Ceftriaxone 1 gm injection (57,185), Amikacin 500 injection (116,500). The total cost of Antimicrobial consumption was ($3,884.95 USD) and (10,777 USD) per each hospital. The highest cost medication consumption from Adults critical care (39,562.33 USD) followed by pediatrics critical care (9,779.93 USD) and Neonates critical care (4,542.68 USD). The highest medication cost was Imipenem, Meropenem, and Moxifloxacin. It consumed more than 50% of the cost burden. CONCLUSIONS: The study is the first in Saudi Arabia, Gulf countries, and the second part of the hundred eighty-five divided into six domains drove from American Society of Health-System Pharmacists (ASHP) survey. The parts were pharmacy management and resources, prescribing and medication management, preparation of drugs and dispensing technology and clinical pharmacy services, drug monitoring and patient education, and pharmacy education and training. The 5-points Likert response scale system closed and ended questions used. An electronic questionnaire distributed to the one hundred eighty-five directors of pharmacies at MOH hospitals, and it analyzed the preparation of medications and dispensing section through survey monkey system. RESULTS: The total respondent were seventy hospital pharmacies; the response rate was (57.73%). The most hospital pharmacies had a continuing medical education (CME) required (41.68%) and allowed paid time off continuing education program was 31 (41.3%). The policy of CME existed in 33 (47.1%) only while not lived in 37 (52.9%) hospital pharmacies. The most courses delivered to health care providers by pharmacists were basic medication safety, cardiology pulmonary resuscitation drug, and an emergency medicine. CONCLUSIONS: The hospital pharmacies had adequate an education and training services for pharmacists and pharmacy technicians while missed of Pharm D student and post-graduated residency programs. Review of strategies for pharmacy education and training is highly recommended.

PHP141 NATIONAL SURVEY OF PHARMACY PRACTICE AT MOH HOSPITALS IN SAUDI ARABIA 2016: PHARMACY EDUCATION AND TRAINING SERVICES

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OBJECTIVES: To explore the education and training services at Ministry of Health (MOH) hospitals in Saudi Arabia. METHODS: It is a 4-months cross-sectional national survey of pharmacy education and training at MOH hospitals in Saudi Arabia. The study consisted of two-part a demographic information, and the second part contained eighty-five questions divided into six domains drove from American Society of Health-System Pharmacists (ASHP) survey. The parts were pharmacy management and resources, prescribing and medication management, preparation of drugs and dispensing technology and clinical pharmacy services, drug monitoring and patient education, and pharmacy education and training. The 5-points Likert response scale system closed and ended questions used. An electronic questionnaire distributed to the one hundred eighty-five directors of pharmacies at MOH hospitals, and it analyzed the preparation of medications and dispensing section through survey monkey system. RESULTS: The total respondents were seventy hospital pharmacies; the response rate was (57.73%). The most outpatient prescriptions dispensed to hospital employees 48 (68.8%), general public 42 (60%), hospital clinic or children 46 (67%) and hospital pharmacies only 4 (5.7%) hospital pharmacies only. The most outpatient prescriptions dispensed to hospital employees 48 (68.8%), general public 42 (60%), hospital clinic or children 46 (67%) and hospital pharmacies only 4 (5.7%). The total number of Antimicrobial standard units was (25,845) from Adults inpatients departments (6,803,229.92 USD) followed by pediatrics (16,087.6 USD) and Neonatal inpatient departments (5,169) per hospital. The highest drug consumption was Ceftriaxone 1 gm injection (57,185,763), Amikacin 500 mg injection (116,500) and Imipenem 500 mg injection (1,347). The total cost of Antimicrobial consumption was ($6,829,003.42 USD) and (1,365,800.68 USD) per each hospital. The highest cost medication consumption from Adults inpatient departments (6,803,229.92 USD) followed by pediatrics inpatient (16,087.6 USD) and Neonatal inpatient departments (9,685.9 USD). The highest medication cost was very broad spectrum antibiotics like Meropenem, Imipenem, and Ceftriaxone. It consumed more than 50% of the cost burden. CONCLUSIONS: There was very high consumption of Antimicrobial drugs inpatient department with huge cost burden. Urgent application of antimicrobial stewardship program especially adults inpatients departments is a mandate and urgent.
patients were 162, which 126 (77.7%) were male and 36 (22.4%) were female and a mean age of 34.3 ± 15.11 (M±SD) years. Of those 22 (13.8%) patients located from general surgery wards, 29 (18%) patients were from an internal medicine specialty and 24 (14.8%) were from a pharmacy career. Only Ninety-Five (54.6%) non-adherence to FDA labeled indications while 67 (41.4%) adherence to FDA labeled indication. All patients 162 (100%) were non-compliance with their medications. A comparison of the pharmacy supervisors, relationship with coworkers, and pharmacist interaction with other healthcare providers, the customer interaction, and overall job satisfaction. The 5-points Likert response scale system closed and ended questions used. The survey was used as an electronic format, and it analyzed through survey monkey system.

**RESULTS:** The total responders were two hundred and forty-two. Of those 214 (90.6%) respondents were male, 33 (8.2%) was male, 169 (70.7%) was male, and 70 (29.3%) was female. The majority of them 202 (84.2%) were in age (20-39). The most educational level of the responders was pharmacy diploma level was 97 (40.6%) and pharmacy bachelor degree 58 (41%). Most patients 162 (100%) did not check the drug levels. CONCLUSIONS: There was a poor adherence to Gentamicin basic pharmacokinetics and therapeutics monitoring guidelines. For aiming compliance, and the guidance leads to decrease Gentamicin resistance, prevent the Gentamicin-related problem, improve Gentamicin therapeutic outcome, and avoid the unnecessary additional cost.

**OBJECTIVES:** To explore the communications and relationships factors of Pharmacists job satisfaction in Saudi Arabia. The study consisted of forty-three questions divided into two-part demographic information and the second part was the questions about communication and relationships factors of pharmacy job. It included pharmacy supervisors, relationship with coworkers, and pharmacist interaction with other healthcare providers, the customer interaction, and overall job satisfaction. The 5-points Likert response scale system closed and ended questions used. The survey was made as an electronic format, and it analyzed through survey monkey system.

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PHIP51 ECONOMICS OUTCOMES OF PHARMACIST MANAGED NEONATAL TOTAL PARENTERAL NUTRITION SERVICES AT MINISTRY OF HEALTH IN SAUDI ARABIA
Alomi YA, Almotairi MM, Alkhamis MA, Alshamrani AS, Almogren AM, Fahad AI
Ministry of Health, Riyadh, Saudi Arabia
OBJECTIVES: The National Total Parenteral Nutrition Program started in 2013 at General Administration of Hospitals, Ministry of Health Saudi Arabia. The pharmacist-managed Neonates Total Parenteral nutrition (TPN) services. The study objective was to estimate the cost avoidance of pharmacist-managed neonates TPN services. The National Total Parenteral Nutrition Program started in 2013 at General Administration of Hospitals, Ministry of Health, Saudi Arabia. The pharmacist-managed Neonates Total Parenteral nutrition (TPN) services. The study objective was to estimate the cost avoidance of pharmacist-managed neonates TPN services. The National Total Parenteral Nutrition Program started in 2013 at General Administration of Hospitals, Ministry of Health, Saudi Arabia. The pharmacist-managed Neonates Total Parenteral nutrition (TPN) services. The study objective was to estimate the cost avoidance of pharmacist-managed neonates TPN services. The National Total Parenteral Nutrition Program started in 2013 at General Administration of Hospitals, Ministry of Health, Saudi Arabia. The pharmacist-managed Neonates Total Parenteral nutrition (TPN) services.
METHODS: The study divided into three phases, each of 3-month duration for data collection and evaluation. The first phase (Phase I) was the Pre-intervention phase; the second was the intervention phase (Phase II); and the third was the Post-intervention phase (Phase III) managed by pharmacist. Any patient received Vancomycin followed up by trained pharmacist. The pharmacist followed a labeled indication, all pharmacokinetics parameters such as weight, height, body weight, and urine sensitivity, and any adjustments in dosage, drug level, and duration of administration recorded on a therapeutic drug monitoring form on a regular basis at each phase. RESULTS: The total number of patients 53 in phase I, 22 in phase II, and 13 in phase III respectively. The labeled indication adherence increased significantly from phase I to phase II (45.3%) to 19 (86.4%) respectively while significantly decreased in 21 (41.5%) to 7 (31.8%) in patients (p<0.05).
CONCLUSIONS: There is a significant adherence to Vancomycin therapeutic guidelines. Targeting to expanding the role of the pharmacist in Vancomycin therapeutic monitoring is required to improve patient outcome and hospital in Saudi Arabia and avoid the unnecessary additional cost.

PHIP52 CLINICAL OUTCOMES OF VANCOMYCIN THERAPEUTIC MONITORING SERVICES AT MINISTRY OF HEALTH HOSPITAL IN SAUDI ARABIA
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Ministry of Health, Riyadh, Saudi Arabia
OBJECTIVES: To explore the clinical outcome of Vancomycin therapeutic monitoring services at Ministry of Health Hospital in Saudi Arabia. METHODS: It is a cross-sectional clinical outcome of Vancomycin therapeutic monitoring over a period of 9-months at King Saud Medical City (KSMC). The study divided into three phases, each of 3-month duration for data collection and evaluation. The first phase (Phase I) was the Pre-intervention phase; the second was the intervention phase (Phase II); and the third was the Post-intervention phase (Phase III) managed by pharmacist. Any patient received Vancomycin followed up by trained pharmacist. The pharmacist followed a labeled indication, all pharmacokinetics parameters such as weight, height, body weight, and urine sensitivity, and any adjustments in dosage, drug level, and duration of administration recorded on a therapeutic drug monitoring form on a regular basis at each phase. RESULTS: The total number of patients 53 in phase I, 22 in phase II, and 13 in phase III respectively. The labeled indication adherence increased significantly from phase I to phase II (45.3%) to 19 (86.4%) respectively while significantly decreased in 21 (41.5%) to 7 (31.8%) in patients (p<0.05).
CONCLUSIONS: There is a significant adherence to Vancomycin therapeutic guidelines. Targeting to expanding the role of the pharmacist in Vancomycin therapeutic monitoring is required to improve patient outcome and hospital in Saudi Arabia and avoid the unnecessary additional cost.
no significant difference for those undergoing revision surgery. (2) Average length of stay decreased significantly for primary and revision TJA in bundled payment system. (3) There was a small and non-immediate decrease in the readmission rate after TJA under a bundled payment system, but there was no significant difference for those undergoing revision TJA. (4) Qualitative survey analysis suggests bundled payment systems are perceived positively by doctors, and may be sufficient to alter physician behaviour, but concerns included disincentives to operate on high-risk patients and uncertainty about revenue sharing.

CONCLUSIONS: Bundled payments appear to be effective in reducing costs, length of stay and readmission rates for primary joint arthroplasty. This systematic review is limited by the paucity of studies in the literature and the restriction of all current studies to the US healthcare system. This study warrants more thorough analysis on the specific outcomes of bundled payment systems across multiple geographies and for different procedure types.

PHP157
DO FRENCH HEALTH ECONOMICS AND CLINICAL HTA COMMITTEES HAVE coherent appraIsals OF CLINICAL TRIALS?
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OBJECTIVES: In France, the Economic and Public Health Assessment Committee (CEESP) and the transparency committee (TC) are 2 independent committees affiliated to the French health authority (Haute Autorité de Santé: HAS). TC assesses medicinal products clinical evidences and provides recommendations on reimbursement whereas CEESP provides recommendations on economics evaluations. These 2 committees operate in parallel without any coordination or communication of information which constitutes a specificity of the French system. Aim of this study is to evaluate the coherence in evaluating clinical trials between CEESP and TC.

METHODS: All available CEESP published opinions were searched in HAS website, then the TC opinions for the same products were published. Major comments were drawn, and trials listed were extracted from both reports by two different analysts. Comments were classified as limited number of included patients (<50), non-comparative trials, and insufficient data based on CEESP opinion and then compared to TC opinion. RESULTS: Twenty published CEESP opinions were identified. Aside health economics comments, CEESP comments on clinical trials in 11 reports, while TC identified limitations in 8 reports. In 2 CEESP reports insufficient data was claimed, 4 had a limited number of included patients and 3 non-comparative trials. Out of the comments, 6 were mentioned also on TC opinions. However, TC presented more detailed evaluation and discussion of all the product clinical trials. CONCLUSIONS: A strong coherence in the assessment of clinical trials can obviously be concluded from this comparison of both reports. In fact, has limited number of included patients (<50) and non-comparative trials were considered as non-significant for TC whereas CEESP could consider them as major comments. Finally, the publication of public governmental documents or regulations related to pharmacoeconomics has long been a hot academic area, which should attract other attentions from both French HTA committee and reimbursement decision makers. Our study aim to provide updates on the role of pharmacoeconomics in drug pricing and reimbursement in China. Methods: Comprehensive review of related literature or official documents was conducted within "CNKI", "Wanfang data" and "CNPR". In the latter, we used the "Bundled payment" as keyword. Literature searches were carried out as needed. All published governmental documents or regulations related to pharmacoeconomics for drug pricing and reimbursement were included for further analysis of the latest national reports. CONCLUSIONS: Pharmacoeconomics has not been mandatory in drug pricing and reimbursement in China, however, government have realized the great importance of scientific decision making. Pharmacoeconomics is expected to play an important role in pricing and reimbursement in the future.

PHP160
REVISITING ROLE OF PHARMACOECONOMICS IN DRUG PRICING AND REIMBURSEMENT IN CHINA: A GOVERNMENT PERSPECTIVE
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OBJECTIVES: In China, Pharmacoeconomics has long been a hot academic area, which should attract other attentions from both French HTA committee and reimbursement decision makers. Our study aim to provide updates on the role of pharmacoeconomics in drug pricing and reimbursement in China. Methods: Comprehensive review of related literature or official documents was conducted within "CNKI", "Wanfang data" and "CNPR". In the latter, we used the "Bundled payment" as keyword. Literature searches were carried out as needed. All published governmental documents or regulations related to pharmacoeconomics for drug pricing and reimbursement were included for further analysis of the latest national reports. CONCLUSIONS: Pharmacoeconomics has not been mandatory in drug pricing and reimbursement in China, however, government have realized the great importance of scientific decision making. Pharmacoeconomics is expected to play an important role in pricing and reimbursement in the future.
hospitals. Small hospitals have higher overtime and staffing costs associated with transportation of patients. Small hospitals provide 24/7 emergency services, acute inpatient services and laboratory/diagnostic services. Additional costs at some sites include dialysis, obstetrics and surgery. A conceptual funded model for funding was developed using the cost drivers identified. CONCLUSIONS: A patient-based funding model must take into consideration some of the unique cost structure and utilization patterns of these hospitals.

PHI62 MECHANISMS TO MITIGATE HEALTHCARE COSTS IN THE US – AN INTERNATIONAL COMPARATIVE ANALYSIS OF THE EVOLVING ROLES OF HTA
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OBJECTIVES: Due to increasing health care cost containment pressures in the United States, various evidence-based evaluations are in development that can be used to influence reimbursement coverage decisions. Since a wide range of different models exist for pricing and reimbursement (P&R) evaluation of drugs internationally, we aimed to compare clinical evidence-based ratings (CER) and cost-effectiveness ratios (CER) between the Institute for Clinical and Economic Review (ICER) in the United States (US) and key systems in the ex-US markets. The aim of this study was to compare the ICER reports as a reference document to extract corresponding forty-nine HTA reports in France, Germany, Australia, Canada, and the United Kingdom (UK) in selected medical diabetics (DM), heart failure, hepatitis-C, hypercholesterolemia, multiple myeloma, and non-small-cell lung cancer (NSCCL).

RESULTS: For CER analysis, similar ratings were seen for drugs evaluated in NSCCL (high: immunooncology drugs, low: non-immuno-oncology drugs). hypercholesterolemia, hepatitis-C and heart failure, and multiple myeloma. For remaining drugs in heart failure, hepatitis-C, and non-small-cell lung cancer (NSCCL).

CONCLUSIONS: The results of this study show that the transparency board in 95% of cases in the year 2014 and in 76% of cases in the year 2015. Of all 187 records, including 183 Transparency Board statements and 186 recommendations and reimbursement decisions. Measurement of agreement was used to assess the compliance between state-ments and recommendations issued by the advisory boards. Positive recommendations can result in the lack of reimbursement, whereas variations in the year 2014 and 76% of cases in the year 2015. Of all 187 records, including 183 Transparency Board statements and 186 recommendations and reimbursement decisions. For remaining drugs in heart failure, hepatitis-C, and multiple myeloma. In conclusion, a high number of positive recommendations were seen for drugs evaluated in NSCCL.

PHI63 RELATION BETWEEN POLISH HTA RECOMMENDATIONS AND REIMBURSEMENT DECISIONS
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OBJECTIVES: The aim of the study was to assess the influence of public advisory bodies (the Transparency Council, the President of the AOTMiT, The Polish Agency for Health Technology Assessment (PolSMA)) on decision-making in the process on final reimbursement decisions performed by the Ministry of Health. METHODS: We have analyzed all statements, recommendations and final reimbursement decisions made in Poland for the years 2014 and 2015. Of all 187 recommendations, 183 Transparency Board statements and 186 recommendations by the President of the AOTMiT, of which 74% and 79%, respectively in the year 2014 and 55% and 42%, respectively in the year 2015, were positive. The President of the AOTMiT was compliant with the statement of the Transparency Board in 95% of cases in the year 2014 and in 76% of cases in the year 2015. Of all 44 drugs, 44% have already gained a positive reimbursement decision (53% in 2014 and 33% in 2015). Agreement between the recommendation and reimbursement status was 0.3188, which represents only moderate agreement. 24% of drugs with negative recommendations obtained positive final reimbursement decision. CONCLUSIONS: We observed that final reimbursement decisions did not reflect statements and recommendations made at the advisory boards. Positive recommendations issued by the AOTMiT did not guarantee positive reimbursement status, and negative recommendations in some cases did not result in the lack of reimbursement.

PHI64 RELATION OF POLISH HTA RECOMMENDATIONS AND DECISIONS ISSUED BY SELECTED NATIONAL HTA AGENCIES
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OBJECTIVES: The aim of this research was to assess the agreement between recommendations issued by the Polish HTA Agency (AOTMiT) and recommendations published by other national HTA agencies chosen for reference by the Polish HTA Agency. METHODS: All recommendations produced by the AOTMiT for years 2013-2015 were collected and scanned for references to corresponding recommendations issued by selected national HTA agencies. The agreement in type of recommendation, recommendation between others and the HTA agencies was measured using Kappa coefficient. Odds for positive recommendations of the AOTMiT assuming positive recommendations of other national HTA agencies were estimated using logistic regression. RESULTS: In total 265 recommendations by the AOTMiT were analysed of which 174 were positive (and suggest reimbursement). Six national agencies were considered (NICE, CADTH, SMC, FRAC, HAS, AWMSG) of which significant agreement was observed only for: CADTH (Kappa of 0.2343, received approval only in 6 out of 7 cases (Kappa of 0.111 - 0.4625)); SMC (Kappa of 0.3333; 4/4 cases) and AWMSG (Kappa of 0.146 - 0.889). CONCLUSIONS: Agreement between AOTMiT and other agencies was significant only for CADTH and FRAC. The regression analysis showed that in all cases positive recommendation by the national HTA agency outside Poland was associated with the greater odds for the positive recommendation by the AOTMiT, however only in case of CADTH and FRAC the statistical significance was revealed.

PHI65 REGULATORY, PRICING AND REIMBURSEMENT LANDSCAPE OF BIOSIMILARS IN AUSTRALIA
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OBJECTIVES: To understand the dynamics of regulatory approval, pricing, and reimbursement of biosimilars in Australia METHODS: Publically available documentation of biosimilar appraisals by the Therapeutic Goods administration (TGA) and Pharmaceutical Benefits Advisory Committee (PBAC) were reviewed to obtain data on the following: number of submissions, time taken after successful development to the TGA approval, economic analysis in PBAC submission, and interchangeability at physician/pharmacy level of biosimilars. RESULTS: The literature search identified 13 biosimilars approved by TGA. Of which, three biosimilars were not considered relevant for the review due to non-availability of data. Out of 10 biosimilars, 8 got approval for multiple indications corresponding to the reference biologics based on their comparable clinical results in a subset of the approved indications. However, interchangeability at pharmacy level was approved only in four of six indications. Additionally, one remaining biosimilar (insulin glargine) got approval in line with its reference biologic (there was no need for indication extrapolation). 7 of 10 biosimilars were approved and reimbursed within 12 months of TGA approval except one (insulina: 20 months). Of these seven, five submitted cost-minimization analysis in PBAC and demonstrated potential net savings at 5th year and/or over 5 years (Australian Dollar: 10-60 million and 100-150 million, respectively). With respect to the adoption of biosimilars at the provider level, only three biosimilars received interchangeable status (2-Prescriber and 1-Pharmacist). Differences in route of administration and dosage strength to the reference biologics were cited as key reasons for non-interchangeability. CONCLUSIONS: Biosimilars in Australia go through standard regulatory, pricing and reimbursement appraisal process. Further, the majority of biosimilars have been recommended on the basis of cost-minimization by PBAC, thereby highlighting their role in the reduction of overall health care costs. Additionally, more initiatives would be needed to drive adoption of biosimilars at patient and provider level.

PHI66 WHAT IS THE REVISED HHS RISK ADJUSTMENT METHODOLOGY IMPROVING ACCURACY IN PREDICTING COSTS FOR DISEASES WITH NON-UNIFORM PATIENT USE OF SPECIALTY THERAPEUTICS?
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OBJECTIVES: To assess the accuracy of the Affordable Care Act’s (ACA) Risk Adjustment Program, which will include additional adjustment for prescription drugs for select diseases in the 2018 plan year, in predicting costs for patients with diseases that have significant cost variance due to non-uniform use of specialty therapeutics. METHODS: This study compares actual patient costs, as reported by Truven Marketscan database, to estimated disease-related costs as predicted by the ACA Risk Adjustment Program’s revised 2018 methodology, which incorporates additional adjustment for prescription drug users. Errors in estimated costs for specialty therapeutic users and non-specialty therapeutic users are determined for Rheumatoid Arthritis (RA), Multiple Sclerosis (MS), and Inflammatory Bowel Disease (IBD). Monte Carlo simulation was used to calculate errors in estimated costs for five plan sizes (1250, 3750, 7500, 37500, 100000) dollars per year for RA. Using the 2018 methodology, the median error among RA patients taking a specialty therapeutic is $6982 and $39,075 for non-specialty drug users. MS patients have a median error of $7,855.24 among specialty drug users and $13,251.32 for non-specialty drug users. IBD patients have a median error of $11,226.73 and $28,264.24 for specialty and non-specialty users. MS patients may result in the substantial over-estimation of costs for patients taking less expensive therapies. This significant difference in predicted risk could lead to harmful incentives for payers, including limiting access to specialty therapeutics and engaging in adverse selection practices.
HEALTH CARE USE & POLICY STUDIES – Health Care Research & Education

PHP167
DOES PATIENT-PROVIDER COMMUNICATION INFLUENCE PATIENT’S RATINGS OF HEALTH CARE QUALITY?
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OBJECTIVES: Evidence supports that a strong patient-provider interaction and patient engagement in health care decision making improves health outcomes and quality of care. We aimed to explore factors related to patient’s rating of quality care in relation to patient-provider communication. METHODS: Sociodemographic and patient-provider communication variables were included in cycle 4 (4th edition) of Health Information National Trends Survey using a self-administered mailed questionnaire. We analyzed N=3063 subjects with at least one provider visit in the past 12 months from 3,677 records for the year 2015. Univariate logistic regressions were performed followed by multivariate logistic regression. RESULTS: In the univariate logistic model, adults with at least one provider visit were more likely to be satisfied with the healthcare quality they received, if they were 50+ years (p=0.0497), had a household income $>50,000 (p=0.0027), had health insurance (p=0.0041), had good health general health (p<0.001) and were more confident about their ability to take care of their own health (p=0.0004). Hispanic adults were less likely to be satisfied with healthcare quality, compared to non-Hispanic Whites (p=0.0016). Patients who had providers involving them in making health-decisions (p<0.0001), had providers who allowed them to ask questions (p<0.0001), and spent enough time (p<0.0001), were more likely to give high quality ratings. In the multivariate logistic model, adults who were over 50+ (OR=2.31; 95%CI 1.16-4.62), had providers involving them in making health-decisions (OR=4.28; 95%CI 1.18-15.56), were allowed to ask questions (OR=4.28; 95%CI 1.18-15.56), and spent enough time (OR=4.28; 95%CI 1.18-15.56) were more likely to give high healthcare quality ratings, after controlling for sociodemographic determinants. CONCLUSIONS: These findings suggest that the patient-provider communication positively influences patient’s rating of health care quality and satisfaction with care. Further, improving patient-provider engagement, patient’s involvement in decision making and patient’s self-efficacy in health management.

PHP168
ADJUSTING FOR DIFFERENTIAL ITEM FUNCTIONING IN THE EQ-SD-5L USING EXTERNALLY-COLLECTED VIGNETTES
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OBJECTIVES: The EQ-5D-5L is a five-level QALY measure designed to be used in practice to obtain QALY measures that are comparable across different population groups. METHODS: We adjust for DIF in the Multi Instrument Comparison (MIC) study (our main dataset of interest) using vignettes collected in an online survey of Australian respondents (the vignette sample). We restrict our analysis in both samples to individuals aged 55 years and above (606 respondents in the MIC sample, 519 in the vignette sample). To adjust for DIF we use a special case of the HOPIT, where the likelihood function index two different samples – the vignette sample and the MIC data – which are linked through common parameters in threshold equation. The threshold adjustment is obtained, and tariffs are applied to calculate the adjusted DIF indices. RESULTS: Differences in indices between the lowest and highest educated individuals increased from 0.045 before adjustment to 0.079 post DIF adjustment, which is above a suggested minimum important difference (MDI) of 0.074. The difference between employed individuals and those not employed increased from 0.003 to 0.141 after adjusting for DIF. Differences between married and non-married individuals also increased from 0.065 to 0.096, which is also above the MD. Differences across subgroups in the unadjusted and DIF-adjusted indices were not substantive across subgroups according to gender, migrant status or age group. CONCLUSIONS: Ignoring DIF could potentially bias conclusions regarding subgroup comparisons in health-related quality of life if left unadjusted.

PHP169
US PAYER VIEWPOINTS ON, AND USE OF, REAL WORLD EVIDENCE (RWE)
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OBJECTIVES: The term Real-World Evidence (RWE) is frequently used but its understanding and its use of RWE is primarily unknown. METHODS: We surveyed twenty US payers, medical directors or pharmacy directors, of self-funded plans and approximately 50% of medical directors or pharmacy directors selected using the structure of a national level, which were divided into 5 groups in October 2016. Criteria were selected using the structure of “value trees” (Kanavos, Angelis, 2013) and weighing was performed in the deliberate process. The criteria were ranked of their relative importance by allocating a total of 100 weight points between them. The mean values and standard deviations were estimated in MS Excel. RESULTS: We ranked the criteria due to their importance comparison and weighing for oncology treatment – 37 (SD=37, SD=17, cost of treatment – 38,8 (SD=20,8), safety – 18,8 (SD=7,95), innovation level 9 (SD=3,46), burden of disease – 4,4 (SD=3,03), where weights sum to 100 (%)=100). CONCLUSIONS: We found high interest to participate and intention to implement the rational and consistent decision-making frameworks. It was concluded that health status of Balochistan people have same EQ5D trend in Balochistani population HRQOL data measured by the EQ-5D tool. Current study showed that mean age of respondents was 30.7 years. Maximum respondents 57.1% were male. Majority of respondents 38.1% had no any income. Most of respondents 34.6% were having bachelor education. Occupation wise maximum respondents 22.9% were government employee. Maximum were 88.4% were from urban locality. Sixty-three percent were single and most of respondents 87.4% had their own house. Total of 46 health states reported by the respondents of which most prevailing was having kidney and liver being the most common, little is known about the hospitalization characteristics of these donors. The purpose of this study was to evaluate most important benefits of RW data are better understanding cost implications, identification of unexpected AIs and the validation of adherence. As the largest drawback of RWE data, payers indicated the unacceptably of bias and the fact that often RW study populations are perceived as not reflective of the population in the health plan. Furthermore, payers indicated that RWE is primarily influencing decisions in – 32% (69,8), cost of treatment – 25% (60,5), burden of disease – 17,4 (SD=9,9), safety – 15 (SD=6,45), innovation level – 11 (SD=4,47), where weights sum to 100 (%)=100). CONCLUSIONS: We identified that evidence is useful, what are key gaps in the evidence provided by the companies, and what are the key gaps in the evidence provided by the companies which younger age have better health states which reduced as age increasing. significantly, pain and anxiety is seen more in elderly as compared to earlier ages.

PHP170
METHODOLOGICAL ISSUES IN MCDA FOR TRAINING NEED: ELICITING STAKEHOLDERS’ VALUE PREFERENCES IN UKRAINE
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OBJECTIVES: This study aimed to measure and analyze EQ-5D derived population norms of general population of Balochistan province by demographic characteristics. METHODS: A cross-sectional study was conducted in Balochistan. Population sample (n=3982) was collected by using stratified sampling approach from Quetta, Sibi and Loralai. The EQ-5D 3L tool was used to measure health-related quality of life (HRQOL) of healthy population of Balochistan by socio-economic demographic characteristics. The sample was drawn by Stratified random sampling approach. RESULTS: The percentage of people responding to any problems in the health domains of the EQ-5D tool was 6.6%, 3.5% and 3.8% respectively in the domains of mobility, self-care and pain, respectively. The mean EQ5D scores and VAS for the Balochistani population HRQOL data measured by the EQ-5D tool were 0.80 ± 0.25 and 79.21 ± 12.97 respectively. CONCLUSIONS: This study showed Balochistan population HRQOL data measured by the EQ-5D tool. Current study concluded that health status of Balochistan people have same EQ5D trend in which younger age have better health states which reduced as age increasing. PHP171
ASSESSMENT OF EQ-SD DERIVED POPULATION NORMS OF GENERAL POPULATION OF BALOCHISTAN PROVINCE BY DEMOGRAPHIC CHARACTERISTICS
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OBJECTIVES: The present study was conducted in Balochistan. Population sample (n=3982) was collected by using stratified sampling approach from Quetta, Sibi and Loralai. The EQ-5D 3L tool was used to measure health-related quality of life (HRQOL) of healthy population of Balochistan by socio-economic demographic characteristics. The sample was drawn by Stratified random sampling approach. RESULTS: The percentage of people responding to any problems in the health domains of the EQ-5D tool was 6.6%, 3.5% and 3.8% respectively in the domains of mobility, self-care and pain, respectively. The mean EQ5D scores and VAS for the Balochistani population HRQOL data measured by the EQ-5D tool were 0.80 ± 0.25 and 79.21 ± 12.97 respectively. CONCLUSIONS: This study showed Balochistan population HRQOL data measured by the EQ-5D tool. Current study concluded that health status of Balochistan people have same EQ5D trend in which younger age have better health states which reduced as age increasing. similarily, pain and anxiety is seen more in elderly as compared to earlier ages.

PHP172
PATIENT AND HOSPITAL CHARACTERISTICS ASSOCIATED WITH LIVER AND KIDNEY DONATIONS IN THE UNITED STATES
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OBJECTIVES: Throughout the past several decades, demand for organ transplant- ation has greatly increased. In 2016, only 27,600 kidneys 15,951 were active waiting list candidates, but only 33,596 transplants were performed from 15,951 organ donors. While donation rates have slowly risen each year, with kidney and liver being the most common, little is known about the hospitalization characteristics of these donors. The purpose of this study was to evaluate
differences between living and deceased kidney and liver inpatient donors with respect to their demographics and hospitalization characteristics. METHODS: The study used 2009-2012 National Inpatient Sample (NIS) data. Groups of living and kidney and liver donors were identified using ICD-9 diagnosis codes V594 and V596, respectively, and grouped into living and deceased cohorts. Both demographics (e.g., age and sex) and hospital factors (e.g., charges, length of stay, and hospital location) were compared using t-tests for means and Wilcoxon Rank Sum tests for medians. RESULTS: 3,739 kidney donors were identified, of which 98% were living and 2% were deceased. Among liver donors (n=291), 74% and 26% were living and deceased, respectively. Median age was lower for living kidney donors (41 vs. 48 years; p<0.005) and liver donors (35 vs. 47 years; p<0.001) vs. their deceased counterparts. Average hospital charges were higher for deceased kidney donors ($141,144 vs. $88,572; p<0.001) but the contrary was seen among liver donors ($48,141 deceased vs. $88,572 living; p<0.001). Living kidney and liver donors had longer lengths of stay (kidney 2.7 days; liver 4.3 days) than their deceased counterparts (kidney 1.4 days; liver 1.2 days; both p<0.001). There were no differences in inpatient length of stay between living and deceased kidney donors, and living and deceased liver donors had greater lengths of stay and hospital charges vs. their deceased counterparts. Additional research is needed to confirm these findings and identify causes of these differences.

PHP173 ASSESSMENT OF HEALTH-RELATED QUALITY OF LIFE (HRQOL) OF GENERAL POPULATION OF SINDHI, PAKISTAN Nasim A1, Haq N1, Ahmad A1, Aziz M1, Riaz S1

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OBJECTIVES: This study aimed to measure and analyze Health-Related Quality of Life (HRQOL) of general population of Sindh, Pakistan through the EQ-5D-3L tool. METHODS: A cross-sectional study was conducted in Karachi, Hyderabad and Sukkur. Population sample (n=3069) was collected by using stratified sampling approach. The EQ-SD-3L tool was used to measure HRQOL of general population of Sindh, Pakistan. The descriptive and inferential statistics have been done by using SPSS version 20. RESULTS: This study showed Sindh population HRQOL data measured by the EQ-5D-3L tool. The percentage of people responding to any problems in the four EQ-5D-3L dimensions increased with age and males have better health as compared to females in all age groups. Comparison of mean score and inferential statistics showed all demographics were significantly associated (P<0.01) with mean EQSD score and VAS score. CONCLUSIONS: This study provided Sindh population HRQOL data measured by the EQ-SD tool. Current study concluded that health status of Sindh province of Pakistan people has somewhat better EQSD index score compared to other cities of Pakistan.

PHP177 THE DIRECT MEDICAL COST OF SUCCESSFUL FERTILITY TREATMENT CASES USING THE IN-VITRO FERTILIZATION AT TU DU HOSPITAL IN HO CHI MINH CITY, VIETNAM BETWEEN JUNE 2014 – DECEMBER 2015 Ngoc-Van T1, Bao-Tran T2, Huy-Nhu V1

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OBJECTIVES: To describe the direct medical cost of using the in vitro fertilization at Tu Du hospital in Ho Chi Minh city, Vietnam. METHODS: A cross-sectional study. Average medical cost was calculated based on 295 couples that have experienced in vitro fertilization treatment by in vitro fertilization from 06/2014 to 12/2015 at Tu Du hospital in Ho Chi Minh city. RESULTS: Among 295 couples, mean (±SD) wife and husband ages were 31.0 (±4.3) and 34.4 (±5.5) years old, respectively. The mean infertility duration of the sample was 5.3 (±3.1) years. The proportions of primary and secondary infertility were 70% and 30%. The cycles of treatment noted in this study sample varied from one to four, in which 90% cases had successful treatment after one cycle. The median of the sample’s total cost was 2188 USD (range 1292 - 21127 USD). According to the property of the treatment, the procedural steps included ovum preparation, embryos preparation and transfering, and health service which respectively constituted 59%, 39%, and 2%. The costs were also categorized based on types of service or procedure which consisted of the medicine cost (36%), the procedural and medical services (37%), and the diagnostic cost (7%). CONCLUSIONS: This is one of the very first researches studying the direct medical cost of in vitro fertilization in Vietnam. The result shows that the cost of preparing the ovum and the medicine cost were the proportions in the direct cost for a fertility treatment case using the in vitro fertilization at Tu Du hospital in Ho Chi Minh city, Vietnam.

PHI175 THE INFLUENCE OF EXPANDING MEDICAID THROUGH COMMERCIALLY OBTAINED INSURANCE VERSUS TRADITIONAL MEDICAID ON INPATIENT UTILIZATION: A COMPARISON OF ARKANSAS AND KENTUCKY Shah AB1, Goudie A1, Martin BC2

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OBJECTIVES: The Affordable Care Act provided financial incentives for states to expand health coverage to all uninsured individuals earning below 138% of the federal poverty level. Kentucky adopted a managed care Medicaid expansion with aggressive outreach efforts, whereas Arkansas used federal funds to purchase commercial insurance through the marketplace. National Inpatient Sample (NIS) data for living related kidney and liver donors were used to identify insured and uninsured living related kidney and liver donors. RESULTS: 3,739 kidney donors were identified, of which 98% were living and 2% were deceased. Among liver donors (n=291), 74% and 26% were living and deceased, respectively. Median age was lower for living kidney donors (41 vs. 48 years; p<0.005) and liver donors (35 vs. 47 years; p<0.001) vs. their deceased counterparts. Average hospital charges were higher for deceased kidney donors ($141,144 vs. $88,572; p<0.001) but the contrary was seen among liver donors ($48,141 deceased vs. $88,572 living; p<0.001). Living kidney and liver donors had longer lengths of stay (kidney 2.7 days; liver 4.3 days) than their deceased counterparts (kidney 1.4 days; liver 1.2 days; both p<0.001). There were no differences in inpatient length of stay between living and deceased kidney donors, and living and deceased liver donors had greater lengths of stay and hospital charges vs. their deceased counterparts. Additional research is needed to confirm these findings and identify causes of these differences.

PHP176 ASSESSMENT OF HEALTH RELATED QUALITY OF LIFE OF HEALTHY POPULATION OF PAKISTAN Nasim A1, Haq N1, Riaz S1, Yasmin R1, Naseer N2, Burney F1, Khalid A1

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OBJECTIVES: This study aimed to measure and analyze EQ-SD derived population scores in a population by demographic characteristics. METHODS: A cross-sectional study was conducted in Karachi, Hyderabad and Sukkur. Population sample (n=3069) was collected by using stratified sampling approach. The EQ-5D-3L tool was used to measure HRQOL of healthy population of Pakistan. The descriptive and inferential statistics have been done by using SPSS version 20. RESULTS: This study showed Sindh population HRQOL data measured by the EQ-SD tool. The percentage of people responding to any problems in the four EQ-5D-3L dimensions increased with age and males have better health as compared to females in all age groups. Comparison of mean score and inferential statistics showed all demographics were significantly associated (P<0.01) with mean EQSD score and VAS score. CONCLUSIONS: This study provided Sindh population HRQOL data measured by the EQ-SD tool. Current study concluded that health status Population norms are useful in making health status of general persons of Pakistan. Socioeconomically deprived groups have inferior health status than more advantaged. The trends detected in high income nations were usually similar to the Pakistan.

PHP177 THE RELATIVE WEIGHT OF INDICATORS OF MULTIDIMENSIONAL POVERTY AND THEIR ASSOCIATION WITH SELF-REPORTED HEALTH: THE CASE OF CHILE Oyarte M1, Pedrero V1, Cabieses B1, Oyarzun C1

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OBJECTIVES: Chile has included recently the measurement multidimensional poverty (MDP) in population surveys This considers 12 indicators in 4 dimensions measured at the level of household. About 20% of the population is located in MDP. Objective: to explore the relative weight of each indicators of MDP on self rated health (SRH). METHODS: The CASIN survey 2013 estimated distribution of income in Chile. Using data of the population greater of 15 years of CASIN 2013 (n = 8519) equivalent to N = 6,718 (477) we estimated multiple models of logistics regression using as dependent variable the SRH (2 categories: good / bad) and independent each one of them indicators of MDP if only. Each model of regression was also adjusted for age, sex, household income and rurality. RESULTS: Only 5 of the indicators of MDP pointed to significant with poor health. These were: i) educational absenteeism (OR = 1, 78 CI95%=[1.51-2.17]); (ii) schooling less than that provided for by law (OR = 1, 8 CI95%=[1.54-2.1]); (iii) lack of healthcare attention (OR = 1, 68 CI95%=[1.13-2.9]); (iv) housing (OR = 1, 9 CI95%=[1.49-3.8]); (v) lack of basic services (OR = 0, 78 CI95%=[0.62-0.97]). The most striking result was that households with at least one member with less than secondary schooling are 69% more chance to present a bad health versus households with at least one member with at least secondary schooling. All these results suggest that the SRH in higher magnitude than other indicators. This evidence is relevant from a perspective of social determination and health in all populations to raise poverty to many families in Chile and other countries in developing countries.
administrators were severity of disease (32.53%), budget impact (15.07%) and fever and 15.25%), respectively; whereas the attributes with high importance for healthcare from vaccine (16.71%), burden of disease (13.48%) and budget impact (12.81%) were not attribute with highest importance for all groups was severity of disease (35.86%). Fever with high budget impact and low safety.

The results revealed the alignment of a desire for high protection possible to take into account multiple criteria from multiple stakeholders for new vaccine adoption. The results from vaccine. Main-effects orthogonal design was used to identify 18 best-worst scenarios. A postal survey was conducted among policy makers, healthcare professionals, health economists, and health care administrators during October 2013 and January 2014. Respondents were asked to choose the most important and the least important scenarios in each choice pair. The relative attribute importance was calculated by the difference between the maximum and minimum coefficient for each attribute divided by the sum of all differences. RESULTS: A total of seventy respondents completed the questionnaires. The attributes with highest importance for all groups was severity of disease (35.86%). Fever from vaccine (16.71%), burden of disease (13.48%) and budget impact (12.81%) were not attribute with highest importance for all groups was severity of disease (35.86%). Fever with high budget impact and low safety.

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at 500-bed pediatrics and maternity hospital in Asir region, at ambulatory care pharmacy. The survey made an electronic format, and it analyzed domain three through survey monkey system. RESULTS: The total responders were 649 Saudi patient. The gender distribution 523 (86.7%) was female, and 91(13.3%) was male. The majority of them in age (18-48) 78.3%, and located at Asir region 325 (115%) and Riyadh region 163 (46.5%). The type of procedures used was for Diabetic and Hypertension, Skin, Respiratory diseases. The responders showed good knowledge about drug storage at room temperature 380 (64.7%) or refrigerator 378 (64.7%), and how to behave with an expired medicine 328 (59.6%). The patient had adequate information about drug and light exposure 335 (57.56%) while incomplete information about prescription prices 265 (44.9%). The responders showed that a missing of medication knowledge lead them to visit doctor clinic (20%), visit the pharmacy (32.4%), hospital emergency (7.4%), hospital admission (13.9%) or intensive care admission (4.3%). CONCLUSIONS: The missing of drug information knowledge is burden cost on health care system. Drug-related prices and medication cost awareness are demanding for Saudi patient to prevent drug-related hospital admission, improve patient clinical outcomes and quality of life.

PHP184 UPDATED CODING ALGORITHMS FOR DEFINING CHARLSON COMORBIDITIES USING LARGE RETROSPECTIVE HOSPITAL ADMINISTRATIVE DATA Rosenthal N, Cao Z, Chang J, Magee G, Gunndrum J, Dreufius J, Robinson S, Baumer D, James B Peking University, Beijing, China, 3Peking University, Beijing, China

OBJECTIVES: To update Deyo’s International Classification of Disease, 9th revision, Clinical Modification (ICD-9) coding algorithm for Charlson Comorbidity Index (CCI) with corresponding ICD-10 codes and assess the concordance between algorithms using a large retrospective hospital administrative database. METHODS: Deyo’s CCI-9 algorithm for CCI was updated referencing Quan’s modified version of Deyo’s algorithm and clinical judgment made by the Premier team. The ICD-10 algorithm for CCI was developed using guidelines for assigning codes according to the Centers for Medicare and Medicaid Services (CMS) 2016 General Equivalence Mappings, with further adjustment according to the 2016 CMS ICD-10 codes tabular list. The ICD-10 algorithm was validated by a concordance analysis using data from hospitals that submitted both ICD-9 and ICD-10 data to the Premier Healthcare Database during Quarter 4 of 2015. Descriptive analysis was conducted to compare the distribution of CCI scores and prevalence for the individual conditions between the two algorithms. Concordance was assessed using the Kappa (k) statistic. RESULTS: The ICD-9 CCI algorithms results: The analysis included 26,792 inpatient discharges from 79 hospitals that reported both ICD-9 and ICD-10 diagnoses codes between 10/1/2015-12/31/2015. Modification to Deyo’s algorithm CCI-9 algorithm had a classification of 294.1x (demencia in conditions classified elsewhere) and 294.2x (dementia, unspecified) to Dementia codes; 2) removal of 250.7x (Diabetes with peripheral circulatory disorders) from Diabetes without chronic complications group and inclusion of 250.7a, 250.8a (diabetes with other specified manifestations) and 250.9 (Diabetes with unspecified complication) to Diabetes with chronic complications group. Mean CCI was 1.42 with standard deviation of 2.10 for both algorithms. The Kappa statistics ranged from 0.82 for diabetes with chronic complications category to 0.98 for AIDS, chronic heart failure, dementia, and myocardial infarction. CONCLUSIONS: The ICD-10 CCI score had excellent concordance with the ICD-9 algorithm and both algorithms are available for use in outcome studies.

PHP185 HEALTH RELATED QUALITY OF LIFE FOR GENERAL POPULATION IN CHINA BASED ON EQ-5D-3L: A SYSTEMATIC REVIEW Zhou T1, Guan HF1, Ma AX1, Liu GC1
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OBJECTIVES: Health related quality of life (HRQol) for Chinese general population is important to decision-maker. The aim of this study was to conduct a systematic review which is based on an EQ-5D-3L questionnaire in China to evaluate HRQol for general population. METHODS: To identify studies related to HRQol for general population in China, both English and Chinese literatures published from January 1990 to August 2015 were systematically searched by using PubMed, Embase, the Cochrane Library, VIP, WanFang Data and CNKI databases. A descriptive analysis was performed to study health utility, VAS scores, and proportion of people who have problems in five dimensions of EQ-5D-3L. RESULTS: In total, 17 studies were identified in this research, all age population and elderly population were included. As for all age population, the health utility ranged from 0.80 to 0.96 while VAS scores ranged from 77 to 86. In the majority studies, the dimension with highest proportion of people having problems was “Pain/discomfort”, followed by “Anxiety/Depression” while “Self-Care” dimension was the lowest one. For male, the utility, VAS scores and health utility were higher than female, suggesting a better HRQol of men. People living in rural areas were with lower health utility than urban residents, but VAS scores were higher. As for age population, the utility, VAS scores ranged from 0.79 to 0.89. The findings of those dimensions with highest and lowest proportion of people having problems aged population were the same in all age population. CONCLUSIONS: EQ-5D-3L is widely used in HRQol studies for Chinese general population. Both the sample size and population characteristics, the type of population and the usage of different utility values might have influence on measurement results.
MEDICAL NUTRITION TERMINOLOGY AND REGULATIONS IN THE US AND EUROPE: A SCOPING REVIEW

Volger S1, Freyer K1, Pitter JC1, Melsen I1, Coolba Participants L1, Evers S1, Hilgmann M1, Daniel A2, Aggarwal B1, Seyhun O1, Ola B2, Goates B1, Partridge J1, Laplante S1

1Nestle Nutrition R&D, King of Prussia, PA, USA, 2Maastricht University, Maastricht, The Netherlands, 3Syros Research Institute, Budapest, Hungary, 4TOFS, Lausanne, Switzerland. BACKGROUND: Medical nutrition (MN) is comprised of parenteral nutrition (regulated in pharmaceutical legislation) and all forms of enteral nutrition that are regulated as “foods for special medical purposes” (FSMP), as defined by the European Commission. Standardized MN terminologies and definitions are needed to facilitate comparative and cost-effectiveness research of MN in disease management and health outcomes. OBJECTIVES: Conduct a scoping review to identify MN terminology, definitions and regulations in the US and Europe. METHODS: The EBM Nutrition Special Interest Group’s Medical Nutrition Working Group identified 19 MN terms and developed a systematic keyword search and inclusion/exclusion criteria to review relevant literature published from 1/2000 to 8/2015. The following databases were searched: Embase; MEDLINE; Cochrane Clinical Trials Registry; Centre for Reviews and Dissemination; the Cumulative Index to Nursing and Allied Health Literature, as well as pertinent professional and regulatory websites. Two-person teams extracted, reviewed and compared results for accuracy and completeness using a two-step screening process (ie, title/abstract, then full-text review). RESULTS: Of the 1,687 titles/abstracts identified, 671 full-text articles were reviewed, and 473 articles were included in the final analysis, as well as an additional 222 records from 94 websites. Sixty-five percent of the articles mentioned MN terms, of which less than 35% provided a definition. The most common ICD codes/indicators for MN were: symptoms, signs, abnormal clinical/laboratory findings (30%), abnormalities in physiological function and metabolic and endocrine system diseases (13%). Less than 5% of the articles referenced a MN regulation, with fewer (7%) reporting a health or nutrition economics analysis. CONCLUSIONS: MN terminology and regulation is inconsistently defined and applied across the literature. This lack of standardization makes it challenging to interpret existing research findings and hampers effective assessment of the impact of MN on health outcomes and disease management.

FREQUENCY OF AND PERCEPTION TOWARDS CESAREAN SECTION: AN POPULATION-BASED, STRUCTURAL EQUATION MODELING STUDY

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OBJECTIVES: The literature reports an increased prevalence of cesarean section (CS) worldwide that is related to various reasons as well as to patients’ perception towards. Therefore, the aim of this study was to determine the frequency prevalence of CS (one year) in Balochistan, and to explore patients’ perception towards CS attending public hospital of Quetta city, Pakistan. METHODS: A retrospective, cross sectional study design was adopted. The retrospective study was conducted to assess the frequency of CS over one year time period. The cross sectional study was conducted to evaluate patients’ perception towards CS whereby a self administered questionnaire was used for data collection. SPSR v.22 was used for data entry and analysis of numerical data was performed using SPSS (v.19) and percentages were calculated for categorical data. RESULTS: For the year 2015, the prevalence rate of CS was 13.03% (3044 CS births among 23464 deliveries). Of 728, seven hundred and seventeen patients responded to the survey. Although 565 (78.8%) patients perceived CS as a dangerous procedure (education (p < 0.001), locality (p < 0.001), whereby respondents considered normal vaginal delivery as painful. CONCLUSIONS: The present study reports that the frequency of CS is almost equal to what is recommended by the World Health Organization. However, when it comes to perception towards CS, we conclude that women of the current cohort had less information about CS and there is a need to provide them education during antenatal.

PARENT-REPORTED HEALTH STATUS AND ITS ASSOCIATION WITH MULTI-DIMENSIONAL POVERTY AMONGST CHILDREN IN CHILE: A POPULATION-BASED, STRUCTURAL EQUATION MODELLING STUDY

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OBJECTIVES: There are 4.5 million < 18 years old living in Chile; about 22% living in multidimensional poverty. The aim was to explore the relationship between multidimensional poverty and parent-reported health status; and to explore whether access to health care could mediate this relationship. METHODS: We used data from Chile’s 2013 national survey. A population-based sample (n = 56,811, weighted N = 4,413,728). SEM Model 1 considered the crude relationship between household multidimensional poverty, parent-reported health status and access to health services (healthcare provision) of the child. SEM Model 2 we adjusted Model 1 by five covariates (sex, age, being an immigrant, household income and rurality). In both cases direct and mediated relations were explored. Both models were assessed using RMSEA < 0.05 and CFI > 0.95. RESULTS: Models 1 and 2 fitted the data appropriately. Model 1: a significant direct effect was observed between multidimensional poverty and parent-reported health status. Access to healthcare also had a direct and significant effect (b = 0.072, p-value < 0.005). However, the mediator effect was not found for access to healthcare in the relationship between poverty and children’s health status (p-value = 0.102). Model 2: the direct effect of multidimensional poverty on health of the children was maintained, but the effect of access on children’s health disappeared (p-value = 0.77). CONCLUSIONS: This is the first study in Chile to assess the relationship between household multidimensional poverty and parent-reported health status of children. Findings prove the strong relationship between household poverty and health status in children.

DO PAYERS VALUE RARITY IN DRUG PRICING BETWEEN ONCOLOGY AND NON-ONCOLOGY ORPHAN DRUGS IN EUROPE?

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OBJECTIVES: To assess if there is a difference on how payers value rarity in drug pricing between oncology and non-oncology orphan drugs in France, Germany, Italy, Norway, Spain, Sweden, UK. METHODS: Approved orphan drugs with their respective disease prevalence were extracted from the European Medicines Agency website and were divided into oncology and non-oncology. The annual treatment costs for each drug were computed based on the summary of product characteristics (SmPC) using median prices from Ireland and country service price (CSP) to calculate the annual treatment cost and price (cost) in each country. RESULTS: A total of 120 orphan drugs were analyzed. For both oncology and non-oncology orphan drugs, results show an inverse correlation between annual treatment cost and price in all countries, with the treatment being more expensive the rarer the disease. For non-oncology drugs, statistical significance was reached in all countries except Spain and Sweden (France: r = 0.41, p < 0.01; Germany: r = 0.41, p < 0.01; Italy: r = 0.38, p < 0.01; Spain: r = 0.57, p < 0.08; UK: r = 0.64, p < 0.06; Sweden: r = 0.67, p < 0.06). Of the 76 orphan drugs, 33 had a weaker correlation except Spain (France: r = 0.36, Germany: r = 0.18, Italy: r = 0.25, Spain: r = 0.49, UK: r = 0.23, Sweden: r = 0.47, Norway: r = 0.29, all p < 0.05 except Spain (p = 0.08)). CONCLUSIONS: This study shows an inverse correlation between annual treatment cost and disease prevalence in orphan drugs. A weaker correlation in oncology supports the idea that in this disease area, payers value other drivers aside from rarity which may include severity, the availability of treatment options, the drug development cost, and incremental cost-effectiveness ratio. Pricing is a complex process where different attributes are assessed, however rarity is valued by payers in pricing decisions in all the countries.
was conducted in three universities of Abbottabad from April 1 to May 31st 2016. The questionnaire comprised of questions aimed to explore knowledge, attitude and perception of pharmacy students. RESULTS: A total of 93 students enrolled in the programs of pharmacy science were surveyed. The response rate of 83.4%. Among the respondents 67% were females. More than half 60.4% of the respondents indicated that they had read formal topic on Pharmacovigilance concept. The mean knowledge score of Pharmacovigilance and ADR reporting for the final year pharmacy students was 62.6. 60.4% of students do not know how to report an ADR. Surprisingly, 24.2% believe that reporting of ADR makes no significant contribution to the reporting system. Majority of respondents 93.3% indicated that ADR reports must be submitted for investigation, because a misdiagnosed medication adverse reaction may alter treatment and harm the patient. A random sample of 2,817 threads (50%) consisting of 21,313 posts were included into the analysis, with 13% (n=5541) of posts were made by the patient. 13% gave value judgments, increase the patient-centeredness and value. Patients leverage these insights for drug development and safety.

CHANGES IN THE HEADCOUNT OF HEALTH CARE PROFESSIONALS IN HUNGARY

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OBJECTIVES: After Hungary joined to the European Union in 2004, health care professionals were allowed to enter onto the European labour market. The higher salaries in Western European countries are important motivating factors for Hungarian health care professional to go abroad. The aim of our study was to analyse changes of headcount of health care professionals in Hungar-

Y. METHODS: Data derive from the database of the Hungarian Central Statistical Office. The following health care professional – working in hospitals – were included into the headcount: nurses, physicians, dentists, pharmacists, dieticians, physiotherapists, ambulance men, midwifery, health visitors, and occupational health professionals. We calculated the average headcount between 2003-2012. RESULTS: Between 2003-2012 the average increase of the headcount of all health care professionals was 12%. We observed the highest increase in the headcount of nurses (+84%) midwifery (+67 %) and physiotherapists (+61%), while we found the highest decrease in the headcount of occupational health profes-

sionals (-76%), dentists (+43%) and pharmacists (+35%). In 2003, we observed the highest headcount for specialist physicians (8109), physicians (3822) and health visitors (3611). We found the highest headcount in 2012 for specialist physicians (7144), health visitors (3838) and physicians (3329). CONCLUSIONS: Between 2003-2012 there was a remarkable change in health care professionals in Hungary. The changes showed significant differences among different professions. In order to prevent well trained health care professionals leaving Hungary for working abroad, further increase of salaries is needed.
while sacrificing some revenue gain. Reputational costs / benefits are a new factor with significant influence on choice of premium-pricing strategy for manufacturers and a tool for payers and other system actors to indirectly contain costs through FR exposure.

**PHP202**

**ASSESSMENT OF ESSENTIAL DRUGS IN THE MEDICINES FORMULARY HOSPITAL Lachhaz, Serragu S, Cheragh Y, Ahid S Mohamed V University, Rabat, Morocco

**OBJECTIVES:** Essential medicines are those that satisfy the priority health care needs of the population. Morocco has a national list of essential drugs, which the last revision was carried out at the end of 2011. The pharmaceutical products covered by this list have an annual budget allocated by the Ministry of health (MOH) to ensure their availability in public hospitals. The aim of our study is to assess the part of essential medicine defined by the MOH in the formulary of a Moroccan tertiary hospital. **METHODS:** We have used the medicines formulary Ibn Sina University Hospital Center in Rabat, It was updated on 2016, which includes nine hospitals and contains all the medical specialties; we have analyzed the part of essential medicines according to the WHO list of 2015 and the national list of 2012. **RESULTS:** Of the 818 articles analyzed, we found that essential drugs account for 28.1% according to the WHO list and 37.7% according to the national list. Essential medicines belong mainly to the N, J and B therapeutic classes (ATC classification) according to the WHO list (27.9%, 15.3%, 13.9%) and Moroccan list (25.3%, 17.8% and 9.4%). **CONCLUSIONS:** Our results show that the rate of essential drugs in our hospital is not large enough. In order to adhere to the policy of the Ministry of Health which aims to ensure a harmonious and sustained health development based on the availability of essential medicines, our institution is asked to review the part of these drugs in the hospital formulary.

**PHP204**

**MINING ADVERSE EVENTS IN TWITTER: EXPERIENCES OF ADALIMUMAB USERS South Africa, South Africa, 1University of the Witwatersrand, Johannesburg, South Africa, 2University of the Witwatersrand, Johannesburg, South Africa, SINA - RABAT MOROCCO - where the ATC classification was one of the main methods used to determine the drug classes.

**OBJECTIVES:** Multiple methods to identify post-marketing adverse events related to medications exist, yet identifying and reporting adverse drug events (ADEs) remains problematic. The advent of social media platforms provides a robust source to mine pharmacovigilance data. The purpose of this study was to automatically identify associations of ADEs and adalimumab from Twitter accounts using natural language processing techniques and compare ADE tweet rates to known ADE sources. **METHODS:** Data were collected from Twitter Public API using keywords Humana, adalimumab, and common misspellings. The Twitter API makes available a sample of all the tweets mentioned adalimumab; 1382 mentioned mention adalimumab. Many tweets mentioned medication names but not ADEs. Of ADE tweets, 132 unique UMLS concept names were identified. Pain rates agreed with ADE rates in comorbidity (6 to 20%) but “sick” and “tired” were not specifically reported as such. Disproportionality analysis results in proportional ADR reporting ratio (PRR) of 0.011, 0.031, and 0.011 and lift of 0.012, 0.014, and 0.012 for the top three respectively. **CONCLUSIONS:** ADRMine identified frequently mentioned ADEs and found reporting rates of some UMLS concepts similar to ADEs catalogued in drug compendia. This study suggests that automatically mining social media and resulting disproportionality metrics can yield promising results for further quantification of ADEs.
The 20 participants with various healthcare-related backgrounds were asked to assign weights to five criteria (burden of disease, Therapeutic effect, Safety, Innovation, Costs) using two decision scenarios: assessing pharmaceuticals to treat oncological and rare diseases. The sum of the criteria weights was set to 100. The same participants were later assigned into 5 groups with 4 members each, to have an agreement on a set of weights that represent their opinion of their group. The sets of criteria weights of individuals and groups from this workshop were assessed with descriptive statistical methods. **RESULTS:** The means of the criteria weights of individuals and groups differed noticeably in some cases, e.g. 9.25 and 4.4 were the average values from individuals and from groups in the case of the ‘Burden of disease’ criterion for oncological drugs. The ‘Costs’ criterion had the highest standard deviation values in both decision scenarios and both in the case of individual and group settings. The mean number of participants that assigned a criterion was not always lower in the case of individuals than in the case of groups. Intra-group differences were also significant, e.g. one group assigned the weight of 5 to the ‘Therapeutic effect’ criterion while another group set this weight to 60. **CONCLUSIONS:** Our findings indicate the presence of different value judgments when the same people are put in different situations. It can be recommended to consider the potential behavioural biases and limitations when constructing an MCA framework in practice.

**PHP209**

**EVALUATION OF PHYSICAL AND VERBAL AGGRESSION TOWARDS PARAMEDICS IN HUNGARY**

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**OBJECTIVES:** Aggressive behavior from patients and relatives is a serious risk factor for paramedics. Verbal and physical aggression has an effect on their work, it can even cause inability to work and career changing in extreme cases. The aim of our study was to assess the frequency of verbal and physical aggression towards paramedics and their impact. **METHODS:** A quantitative, cross-sectional electronic questionnaire was carried out non-probabilistically among sampling. Our sample consists of paramedics working in health care for more than one year (N=100). Demographic data, number of verbal and physical aggression by patients or relatives, assumed cause of aggressive behavior and type of help paramedics received was assessed with a self-made questionnaire. SPSS 22.0 was used for calculating descriptive statistics, y2-test and Mann Whitney U test (p<0.05) **RESULTS:** Mean age of responders is 38.5±10.73 years. The average number of years in practice is 4.9±5.63. Sixty percent of the sample has experienced some kind of aggression during their career (verbal: >91%, physical: >49%). Number of conflicts containing verbal aggression is more frequent (from patient: 10.50±10.52, from relative: 9.05±7.77) than physical aggression (from patient: 2.91±4.85, from relative: 1.55±0.50). Paramedics who experienced aggressive behavior are more likely to consider career changing, whether it is verbal (from patient: p=0.016, from relative: p=0.046) or physical (from patient: p=0.001, from relative: p=0.001). Main causes of aggression according to paramedics are psychotropic drugs (72.73%), toxic condition (63.64%) and psychological disorders (10.30%). None of the responders (0%) received any kind of conflict management training or training for trauma processed. Although 60% of them would like to participate. **CONCLUSIONS:** Paramedics are put at a great risk of being confronted by aggressive patients of relatives. It is important to help them at their workplace, training them how to manage conflicts and process trauma.

**PHP211**

**MODERNIZING THE 14-ITEM TREATMENT SATISFACTION QUESTIONNAIRE FOR MEDICATION USING RASCH MEASUREMENT THEORY**

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**OBJECTIVES:** The Treatment Satisfaction Questionnaire for Medication (TSQM) Version 1.4’s psychometric properties have been demonstrated. The primary objective of this study was to review and to psychometrically evaluate the TSQM using Modern Test Theory Methods. **METHODS:** Patients with Multiple Sclerosis (MS) completed the TSQM electronically. Descriptive statistics were used to characterize the participants. Floor and ceiling effects were calculated per item. To evaluate the scaling properties and construct validity of the TSQM, Rasch measurement theory (RMT) was used and the following examined: 1) Fit to the RMT model; 2) Internal reliability; 3) Item category thresholds; 4) Unidimensionality; 5) Response dependency; 6) Differential item functioning (DIF); and 7) Targeting. A partial credit Rasch polymatous model was used. **RESULTS:** 283 patients completed TSQM. The mean age of patients who had some education, were female, and were on average 50 years old. Fit to the RMT model was examined which resulted in resizing items with disordered thresholds. Item reduction analysis was done. Reliability was recalculated. Items’ order from lowest to highest treatment satisfaction was examined. **CONCLUSIONS:** The TSQM has undergone extensive psychometric assessments leading to several versions. An examination of the psychometric properties using mixed methods is granted to improve the scoring and psychometric properties of the measure.
trends by condition, compared to adults with high adherence, adults with lower adherence had higher rates of emergency room visits, higher rates of hospitalizations, and greater work/activity impairment. CONCLUSIONS: Conditions that garner low adherence could suggest there is an unmet need. Since low adherence is associated with greater levels of resource utilization and impairment, understanding which conditions have low adherence could help inform stakeholders which conditions present opportunities for decreasing disease morbidity and improving outcomes. Further, understanding the reasons could also help determine appropriate measures for improving adherence.

**PHP215**

**THE VARIABILITY AND COMPLIANCE OF PREGNANCY MEDICATIONS: A RETROSPECTIVE STUDY**

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**OBJECTIVES:** Surgical procedures are invasive by nature and trigger a complex neurohumoral stress response which is critical to initiate physical recovery and tissue healing. Preoperative nutritional optimization with immune enhancing supplements containing arginine, omega-3 fatty acids and nucleotides modulates the stress response and reduces postoperative complications. Despite overwhelming evidence verifying the importance of preoperative nutritional intervention, preoperative nutritional protocols are not implemented consistently to promote patient compliance. The objective of this study was to evaluate the variability and compliance of surgical patients to their preoperative nutritional regimen. METHODS: A database including four surgical disciplines (major spine, bariatrics, total hip and knee replacement, and gastrointestinal malignancy) was developed to track variability and compliance with the nutritional supplementation. All patients received a free (5) day preoperative nutrition intervention protocol. Patients undergoing bariatric or total joint replacement surgery were given a separate pre-operative class. On the day of surgery, the patient self-reported the number of cartons consumed. Using SAS, these records were trended to identify variability and compliance. RESULTS: 2,883 patients records were included in this analysis. Compliance varied among the disciplines. Patients undergoing total joint replacement (n = 862) or bariatric surgery (n = 267) had the highest compliance rate of 52% and 48% respectively. The lowest compliance rate was seen in those having major spine surgery (n = 833, 28.9%) or GI malignancy (n = 201, 12.9%) surgery. CONCLUSIONS: Patient compliance did vary among the surgical disciplines. In addition, those patients who received a separate pre-operative class had higher compliance compared to patients which class was not needed reflecting the source of the variability of compliance, including the impact of preoperative education, as well as the impact of compliance with preoperative nutritional regimens on outcomes.

**PHP216**

**AVAILABILITY OF ECONOMIC DATA FOR THERAPEUTIC BIOLOGIC DRUGS IN THE US**

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**OBJECTIVES:** To assess the availability of economic evaluations of therapeutic biologic drugs marketed in the US in the period 1986-2015. METHODS: The FDA website was used to obtain information regarding the history of FDA approvals and labeling changes for BLAs in the study period. The labeling changes and approvals were extracted and organized according to approval year. Descriptive statistics were estimated using Microsoft Excel 2013. RESULTS: A total of 177 economic evaluations were published in the period 1989-2015. The FDA approved 114 BLAs in the study period. The BLAs had an average of 4.3 ± 4.9 labeling changes for every year a BLA was available on the market. The most common FDA approval label changes for BLAs were indications (59.64%) followed by labeling revisions (28.57%), and efficacy supplement with clinical data (9.96%). CONCLUSIONS: The economic information available for BLAs is limited and no economic evaluation was conducted for more than half of the BLAs marketed in the US. More BLAs economic evaluations are required for use by decision-makers.

**PHP217**

**HEALTHCARE NEEDS OF INTERNATIONAL MIGRANTS IN RELATION TO NATURAL DISASTERS: THE CASE OF CHILE**

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**OBJECTIVES:** Chile is Latin American country prone to natural disasters (NDs). Despite efforts to improve knowledge and effective strategies for prevention and control of NDs in this population, little has been explored related to international migrants (5% total population, N=550,000). We explored healthcare related needs of international migrants towards NDs in Chile. METHODS: Qualitative case study of the city of Valparaíso, one of the immigrant-dense cities in Chile and with one of the highest rates of NDs. We conducted 23 individual semi-structured interviews (12 women/11 men), until data saturation was reached. We transcribed interviews verbatim and conducted thematically analysis in NVivo Software. Ethical approval from UDD Ethics Committee. RESULTS: We found two types of participants, those who had not had a NDs experience before (immigrants from bordering countries) and those who did (Central Americans/Caribbean countries). In both cases there was little knowledge around this topic. Healthcare needs towards NDs were: being trained on how to safely evacuate, how to cope with own and relative distress, understand the location of safe zones, and what the exact role of the healthcare system is, especially given that the largest response comes from unprepared community members and not experts/authorities. They request for official communication channels with authorities/healthcare experts at all times. CONCLUSIONS: Interna- tional migrants have clear and urgent healthcare related needs in relation to NDs in Chile. This data should be integrated with ongoing strategies in the country, in order to protect the life and health of all residents in the country, including immigrants.

**PHP218**

**PATIENT REPORTED OUTCOMES WITHIN THE FDA COA QUALIFICATION PROGRAM**

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**OBJECTIVES:** Patient-reported outcomes (PROs) are increasingly important in drug development, HTA and patient care. FDA guidance on PROs was issued in 2009 and PROs were included in the FDA January 2016 Pilot Clinical Outcome Assessment (COA) Compendium. The objective of this analysis was to characterize the PROs in the Compendium to add to our understanding of which PROs are more likely to achieve regulatory acceptance. METHODS: The Compendium reports outcomes by FDA review division from COA Qualification Program submissions and approved NME labeling from 2003 to 2014; including outcome of interest, outcome assessment(s) and assessment type [PRO, observer-reported (ORO), clinician-reported (CRO), and all data considered]. RESULTS: 2016 economic evaluations published in the period 1989-2015. The FDA approved 114 BLAs in the study period. There were a total of 882 labeling changes for BLAs in the study period, representing 29% of the FDA-approved indications and 8% of the off-label indications had at least one economic evaluation published in an indexed journal. Most PRO assessments measured signs and symptoms of disease. Pain and less frequently fatigue were measured in multiple disease states. Patient satisfaction with treatment was reported once, as was the SF-36. CONCLUSIONS: Within the FDA Pilot Clinical Outcome Assessment Compendium, patient-reported outcome assessments were frequent; however they were generally disease specific. A health-related quality of life instrument that could be used to compare outcomes across disease states was only listed once.

**PHP219**

**EVALUATION OF IMPACT OF EDUCATIONAL INTERVENTION ON ADVERSE DRUG REACTION REPORTING BEHAVIOUR OF COMMUNITY PHARMACISTS IN SOUTH INDIA**

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**OBJECTIVES:** To assess the impact of educational intervention on ADR reporting behaviour of the community pharmacists in selected practice settings of south India. METHODS: A cross sectional study was conducted after educational intervention to assess the impact of intervention on knowledge, attitude and practice of community pharmacists towards ADR reporting. A series of training programs were conducted to improve the awareness and to provide education to community pharmacists on ADR detection and reporting. Training program included basic concepts of ADRs, importance and implementation of ADR reporting, safety reporting methods, ADR reporting and documentation process as per national requirements, management of common ADRs, possible barriers in reporting. The impact of educational intervention was measured by number of reports and quality of ADRs reported. Quality of ADR was assessed using prepared checklist. Barrier Assessment Questionnaire (BAQ) was administered to assess the barriers if any in ADR reporting. RESULTS: About 68 community pharmacists with mean age of 39.1 ± 6.5 years, with a practicing experience of 15 years (range 3–46 years) had participated in this study. During the 6 month regular follow-up, 82 ADR reports received from 23 (28%) trained pharmacists. Quality of ADRs were satisfactorily only for 68% of the reports. However, remaining reports were not of satisfactory quality. Major barriers identified for under reporting were lack of time (83%), forgetfulness (68%), and shortage of time from patients (46%). CONCLUSIONS: The study findings suggest that educational intervention improved the ADR reporting culture among community pharmacists. However, quality of reported cases should be routinely reviewed to further strengthen reporting culture.

**PHP220**

**PERCEPTION OF YOUNG ADULTS TOWARDS PREMARITAL MEDICAL SCREENING IN QUETTA CITY, PAKISTAN**

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**OBJECTIVES:** The aim of this study was to investigate the perception of young adults toward premartial medical screening in Quetta city,
Pakistan. METHODS: A cross sectional, descriptive study design was adopted. Perception of young adults towards premarital medical screening was assessed through a pre-validated questionnaire. The questionnaire was distributed to 1260 respondents of both genders. Descriptive and inferential statistics were used for data analysis. All analyses were performed by SPSS v. 20 and p < 0.05 was taken as significant. RESULTS: Twelve hundred and twelve young adults participated in the study with a response rate of 99.4%. Seven hundred and eighty (57.0%) respondents were males and 924 (73.3%) belonged to age group of 18-23 years. Nine hundred and sixty-four (76.5%) had no family history of hereditary diseases. Although 1074 (85.2%) of the respondents had information about genetic diseases, 65% had little idea about premarital blood screening. Interestingly, while premarital screening was perceived as a good practice (996, 79.0%) and a method to save generations from genetic diseases (1152, 91.4%), 927 (73.6%) of the respondents still reported that they will not opt for premarital blood screening before their marriage. However, 828 (65.7%) were in favor of premarital screening only if a law is approved by the healthcare authorities. The Chi square test was used for cross tabulation and no significant association was reported. CONCLUSIONS: The current study concluded that majority of the participants had little idea about premarital blood screening and were not perceived as an important procedure before marriages. This reflects the lack of information towards premarital screening and the need of providing health education in order to improve the perception towards premarital screening among young adults in Quetta city, Pakistan.

PHP221
WILLINGNESS TO PAY FOR HEALTH CARE IN THE US: WHOSE PERSPECTIVE IS IT ANYWAY?
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OBJECTIVES: There is substantial attention on value in health care. The value of a health technology may vary depending on the perspective used. We reviewed and analyzed 437 participants and the perspectives used for eliciting the value of health care. METHODS: We searched PubMed for English-language articles related to WTP for health technologies in the US published from 2006 to 2016. We extracted key features of studies, including type of health technologies, disease category, and importantly, methodological differences including perspectives, elicitation methods, and mode of administration. RESULTS: Of 4,810 articles identified by our search, 104 relevant WTP studies were included. Ninety-five included a monetary value of treatment, 48 included overall health status, physical health and mental health, and 48 self-rated diagnostic, and 53 investigated others including technologies, vaccines, and health programs/policies. Seventeen looked at infectious diseases, 16 focused on oncology and 71 investigated other conditions including neurology and musculoskeletal diseases. Fifty-two studies surveyed patients, 13 included family members, and 25 studied the general population to assess WTP out-of-pocket for a health intervention from an individual perspective. Seventeen studies used payment card method, 11 used discrete choice, and 14 used bidding game approach. Ninety-five studies estimated WTP from the individual perspective and nine from the societal perspective. CONCLUSIONS: There has been substantial variability with respect to the type of technologies and diseases assessed and respondent characteristics. Almost all studies assessed technologies from the individual perspective. As perspectives influence the perceived value of the technologies, it is important to conduct WTP from both the societal and the individual perspectives.

PHP222
IS REDDIT A USEFUL SOCIAL MEDIA DATA SOURCE FOR DRUG OVERDOSE DISCUSSIONS AND OUTCOMES?
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OBJECTIVES: To identify the strengths and limitations of Social Media for toxicovigilance, and to establish the extent to which relevant overdose discussions can provide safety-related outcomes. METHODS: To identify the strengths and limitations of Social Media for toxicovigilance activities. We searched PubMed for English-language articles related to toxicovigilance from 2006-2016. We extracted key features of studies, including type of toxicovigilance activities, methods, and outcome measures. RESULTS: Of 4,810 articles identified by our search, 104 relevant toxicovigilance studies were included. Ninety-five included a monetary value of treatment, 48 included overall health status, physical health and mental health, and 48 self-rated diagnostic, and 53 investigated others including technologies, vaccines, and health programs/policies. Seventeen looked at infectious diseases, 16 focused on oncology and 71 investigated other conditions including neurology and musculoskeletal diseases. Fifty-two studies surveyed patients, 13 included family members, and 25 studied the general population to assess WTP out-of-pocket for a health intervention from an individual perspective. Seventeen studies used payment card method, 11 used discrete choice, and 14 used bidding game approach. Ninety-five studies estimated WTP from the individual perspective and nine from the societal perspective. CONCLUSIONS: There has been substantial variability with respect to the type of technologies and diseases assessed and respondent characteristics. Almost all studies assessed technologies from the individual perspective. As perspectives influence the perceived value of the technologies, it is important to conduct WTP from both the societal and the individual perspectives.

PHP223
DIGITAL TRACKERS SHOW THAT HIGH INTENSITY EXERCISING AND CONSISTENT SLEEP PATTERNS ARE ASSOCIATED WITH POSITIVE SELF-REPORTED HEALTH STATUS
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OBJECTIVES: Behavioral data (e.g., steps and sleep patterns) from activity trackers can provide valuable insights into an individual’s overall health and wellness. However, the relationship between behavioral characteristics and perceived health and quality of life (Qol) in the general population has not been quantified. In this study, we examined the association between behavioral traits inferred from passive trackers and self-reported overall health, physical health, mental health and Qol. METHODS: Members of an online health community were invited to participate in a survey that included ratings of perceived health status, physical health, mental health and Qol on a 5-point Likert scale, as well as characteristics such as age and gender. We used their activity information recorded from health trackers and apps over the past five months to compute per-patient daily mean and standard deviation of step and sleep metrics such as step count, sleep duration, maximum steps taken in a continuous 30-minute interval per day, and sleep efficiency. Weight was also collected from connected scales. For 2,761 individuals, we used the various computed behavioral characteristics as explanatory variables in standard regression models to predict perceived overall health, physical health, mental health and Qol while controlling for age and gender. RESULTS: On average, the study population took 10,588 steps per day and slept 6.6 hours per night. Weight was negatively associated with perceived overall health status, physical health and Qol. High intensity exercise and consistent sleep had statistically significant associations with positive perception of overall health, physical health and mental health, and high self-reported Qol. CONCLUSIONS: Our results indicate that individuals who frequently engage in rigorous exercising and sleep a consistent amount nightly also have positive perceptions of their health status and Qol. Further research should be conducted to determine if these relationships hold true among disease-specific populations.

PHP224
PATIENTS CONSIDER TRAINING A NECESSARY PART OF CLINICAL TRIALS, PREFERING READILY-ACCESSIBLE INTERACTIVE ELECTRONIC TRAINING
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OBJECTIVES: As patient-reported outcomes (PROs) are often primary or secondary endpoints in clinical trials, regulatory PRO guidance recommend patient training to improve data quality and reduce variability. This study explored patients’ views on the importance of training and their preferred mode for training. METHODS: 437 Participants reported on an online survey their opinions regarding 1) the necessity of training during clinical trials, 2) preferred training material format, and 3) accessibility of materials for the duration of the trial. Participants were also asked how they would handle questions that may arise when completing questionnaires. Demographic information, including age, education level, and household income were recorded. RESULTS: 95.4% of participants indicated that educational materials and training were “definitely needed” (75.5%) or “somewhat needed” (19.9%). With modes of training, 71.6% of participants reported they preferred completing interactive training on mobile electronic devices or the internet as opposed to 27% who preferred paper guides to take home. 89.9% of respondents considered accessibility to training to be important during the trial “definitely needed” (58.2%) or “somewhat needed” (31.7%). Should they have questions completing a questionnaire, 46.2% stated they would ask the trial doctor, 40.5% would look up information online or in reference materials, and 12.3% would consult people to pick the best answer. CONCLUSIONS: Our study found that the vast majority of participants considered educational materials and training a necessary part of clinical trial participation. Moreover, most participants preferred electronic modes of training and the ability to refresh on training materials. Less than half of the respondent would ask site staff to clarify questions, which may introduce inconsistency in PRO measures unless training is used to provide standardization instructions and key definitions. Our findings are consistent with regulatory PRO guidance and suggest that electronic interactive training could be used as an approach to improve data quality.

PHP225
ASSESSMENT OF PATIENT SATISFACTION AND PERCEPTION TOWARDS PHARMACIST AND PHARMACY SERVICES IN TERTIARY CARE HOSPITALS
Quetta, Balochistan
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OBJECTIVES: The objective of the study was to assess patient satisfaction and perception towards pharmacist and pharmacy services in tertiary care hospitals Quetta, Balochistan. METHODS: Cross sectional study was conducted in tertiary care hospitals of Quetta, Pakistan. Patient satisfaction and perception in the general perception - therapy - pharmacist and pharmacy services. The research instrument is designed and validated by Pakistani Institute of Medical Sciences and translated into Urdu by using standard translating procedure, comprises of 19 questions. Data collected from 1013 patients from 9 hospitals Quetta, Pakistan. All analyses were done with cross validated SPSSv20. RESULTS: Result showed that mean age of respondents were 43.95 years. 1013 respondents do not know about pharmacist. Majority of respondents (n=556, 54.9%) were male. Majority of respondents (n=179, 17.7%) lacked in education. Most
of respondents (n=637, 62.9%) were have no income. Majority of respondents (n=837, 82.6%) were married. Majority were (n=647, 63.9%) lived in their own house and 30.7% of respondents (n=50) were also prescribed 6 medicines and large number of respondents (n=188, 18.6%) were dispensed 2 medicines. Maximum patients (n=693, 68.4%) showed poor satisfaction towards Pharmacy services in clinic and from urban locality. Majority of respondents (n=188, 18.6%) were 63 years old. Overall satisfaction was found to be significantly associated with patients’ work place (p<0.001) except to job place (p>0.05). Majority of respondents (n=188, 18.6%) showed poor satisfaction towards Pharmacy services in clinic and from urban locality.

**RESULTS:**

1. The majority of the respondents were female (71.7%). The average age of the respondents was 66 years.
2. The majority of respondents (n=188, 18.6%) were 63 years old. Overall satisfaction was found to be significantly associated with patients’ work place (p<0.001) except to job place (p>0.05).
3. The majority of respondents (n=188, 18.6%) were 63 years old. Overall satisfaction was found to be significantly associated with patients’ work place (p<0.001) except to job place (p>0.05).

**CONCLUSIONS:**

In this study, we found that female patients had significantly higher overall satisfaction compared to male patients. The primary reasons for poor satisfaction included delays in obtaining medications, lack of communication with the pharmacist, and dissatisfaction with the pharmacist’s knowledge and attitude. These findings highlight the need for improved patient-pharmacist communication and better management of medication-related issues. Future research should focus on developing interventions to improve patient satisfaction with pharmacy services.
OBJECTIVES: To provide advice about the best use of medication in patients with phlegm syndrome. We aimed to evaluate the relationship between the primary phlegm symptoms and the disease severity in patients with phlegm syndrome. We also aimed to explore the impact of socio-economic status (SES) on the quality of life in patients with phlegm syndrome.

METHODS: A cross-sectional study was conducted among patients with phlegm syndrome who were registered in the Chinese Traditional Medicine Electronic Medical Record System (CTMER). The study included 572 respondents, and the data were collected using the PRS-PS scale, which is a validated instrument for assessing the severity of phlegm syndrome. The respondents were stratified into four SES groups based on the Community Survey to assign area-level SES variables to each patient.

RESULTS: The mean age of the respondents was 55.8 years, and 51% were female. Most respondents were employed (92.6%) and had a college education (46.3%). The prevalence of phlegm syndrome was 34.8%, and the most common symptoms were cough, phlegm, and wheezing. The mean PRS-PS score was 1.95, ranging from 0.49 to 3.53. The mean SESZC score was 58.98, ranging from 25.20 to 84.98. The correlation between PRS-PS and SESZC was 0.79, indicating a strong association.

CONCLUSIONS: The prevalence of phlegm syndrome is high among Chinese patients, and the severity of the disease is significantly influenced by socio-economic status. Further research is needed to explore the underlying mechanisms and develop targeted interventions to improve the quality of life in patients with phlegm syndrome.
better health as compared to female in all age groups except elder age group where females have better health as compared to males. Comparison of mean score and univariate statistics shown in all demographics were significantly associated (P < 0.01) with mean EQ5D score and VAS. CONCLUSIONS: This study showed federal territory population HRQOL data measured by the EQ-5D tool. Current study concluded that 18% of female lived by the age of 65 years, with more researchers realizing the importance and necessity of using cost-utility analysis (2.43% in 2012-2014 vs. 0.26% in 1997-2001) and of using cost-utility analysis (45.69% vs. 19.07%). In addition, small number of studies were starting to apply modeling. CONCLUSIONS: The quality of economic evaluation literature had improved in recent years. Among all four diseases, existing disease, probes and catheters and environmental noises. There was also evidence that patients consider how their symptoms affect their activities of daily living (8.4%). That is, in depression subjects, limitations due to it causing them to be less productive (17.8%) and that it negatively affected some aspect of their life. This implies that patients consider how their symptoms bother them in terms of impacts, and the impact of the disease matters to patients, rather than the symptom itself.

**PHP238**

**ASSESSMENT OF THE QUALITY OF PHARMACOECONOMIC EVALUATION LITERATURE IN CHINA**

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OBJECTIVES: To evaluate the quality of Chinese pharmacoeconomic evaluation literatures published between 2012 to 2014 retrieved from the Chinese National Knowledge Infrastructure (CNKI) to assess their adherence to the recommendations of the Chinese Pharmacoeconomic Guidelines. METHODS: Identified literature was screened according to pre-specific criteria to access legibility for inclusion. Each included literature was systematically compared against the recommendations of the Chinese Pharmacoeconomic Guidelines. RESULTS: After culling, 259 literatures were included in the comparative analysis. When compared to a previous study evaluating the quality of similar literature published between 1997 and 2007, our results showed improvements in certain technical aspects over the years. Particularly, the improvement was seen in more diverse evaluation methods being used, increased use of cost-utility analysis (2.43% in 2012-2014 vs. 0.26% in 1997-2001) and use of cost-utility analysis (45.69% vs. 19.07%). In addition, small number of studies were starting to apply modeling. CONCLUSIONS: The quality of economic evaluation literature had improved in recent years. Among all four diseases, existing disease, probes and catheters and environmental noises. There was also evidence that patients consider how their symptoms affect their activities of daily living (8.4%). That is, in depression subjects, limitations due to it causing them to be less productive (17.8%) and that it negatively affected some aspect of their life. This implies that patients consider how their symptoms bother them in terms of impacts, and the impact of the disease matters to patients, rather than the symptom itself.

**PHP240**

**SOCIOECONOMIC DISPARITIES IN MEDICATION ADHERENCE AMONG PRIVATELY INSURED PATIENTS IN THE UNITED STATES**

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OBJECTIVES: Socioeconomic Disparities in Medication Adherence Among Privately Insured Patients in the United States. METHODS: This study analyzed the drug prescription history of patients enrolled in healthcare plans provided by a large private insurance provider from 2011 to 2013. We identified patients younger than 65 years old by the end of 2013, who were prescribed an oral diabetic (N=57,133), antihypertensive (N=159,227), or antihyperlipidemic (N=144,761) medication and filled it at least twice. We followed these patients for at least a year after their first fill and measured patients’ adherence using proportion of days covered (PDC). We then studied the relationship between patients’ adherence and their income, education and race using regression analysis to understand how much patients’ characteristics (age, gender, geographic area of residence, and comorbidity), copy, income and education explains the racial disparity in medication adherence by type of medication. RESULTS: In Neuouelle, Callaham, NSW, prevalent medications studied showed racial disparities in medication adherence by socioeconomic status of the patients. White patients were more adherent than non-White (Asian, Black and Hispanic) patients. Medication adherence improves with patients’ education attainment and income level. Socioeconomic disparities were largest for those on antihyperlipidemic medica- tions. Our regression analysis on racial disparities shows that racial disparities persist, after we control for patients’ characteristics, copy, education and income. We were able to show more of the black-white and gap in adherence compared with that between Hispanic and white beneficiaries. CONCLUSIONS: Privately insured patients from lower socioeconomic backgrounds are less likely to adhere to their medications. Reducing copy and improving patient’s education could potentially reduce these disparities. However, more research and efforts should be made to understand their reasons for nonadherence and effective intervention mechanisms.

**PHP241**

**MULTIPLE CHRONIC CONDITIONS IN OLDER PEOPLE AND THEIR EFFECTS ON HEALTH CARE UTILIZATION: A NETWORK ANALYSIS APPROACH USING SHARE DATA**

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OBJECTIVES: The presence of multiple coexisting chronic diseases in individuals and the expected rise in chronic diseases over the coming years are increasingly recognized as major challenges to health care systems, and, also, very seldom before in the analysis using SHARE data. To appropriately model the presence of multiple chronic diseases we also use tools from multi-variate analysis. To verify the effects of multiple diseases on the rates of health care utilization we construct several different health care utilization variables and model effects of different combinations of most common diseases on the health care utilization using econometric models from causal inference (controlling for endogeneity). RESULTS: Preliminary results confirm that a) the method of network analysis can be used for this purpose and provides a set of 6 main groupings/clusters of diseases with common prevalence among the elderly; b) the groupings have strongly statistically significant effects on the health care utilization. CONCLUSIONS: The analysis provides a new statistical method and model with extensive applications for the analysis of multiple coexisting diseases in health economics and medical sciences in general in future.
how the assumed time horizon influences results. METHODS: We systematically reviewed the Tufts Medical Center Cost-Effectiveness Analysis (CEA) Registry. We included all US-based studies that used a healthcare payer perspective, which were published during 2005-2014, and received a Registry quality score of 4 or better on a seven-point scale. We classified the identified CEs as short-term (time horizon ≤ 5 years) and long-term (> 5 years). We analyzed associations between study characteristics (e.g., intervention type, prevention stage, and funding sources) and the specified time horizon. Finally, we developed case studies with selected interventions to illustrate the association between the time horizon and the cost-effectiveness estimates.

RESULTS: The literature review identified 782 articles that met our inclusion criteria. Among the identified studies, 552 studies (74%) utilized a long-term time horizon while 198 studies (25%) used a short-term horizon. Of 32 studies that employed multiple time horizons, we reviewed 23 intervention-specific incremental cost-effectiveness ratios (ICERs). The extension of the time horizon yielded more favorable ICERs in 19 cases, and less favorable ICERs in 4 cases. In our case studies, the use of a longer time horizon also yielded more favorable ICERs.

CONCLUSIONS: The extension of the time horizon can substantially influence the value assessments of medical interventions. To capture broad societal impacts on costs and health effects, we encourage the use of time horizons that extend sufficiently into the future.

PHP243 EVALUATION OF MEDICATION ADMINISTRATION ERRORS BY PHARMACIST IN PEDIATRIC INPATIENTS
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1University of Balochistan, Quetta, Pakistan, 2Bolan Medical Complex Hospital, Quetta, Pakistan, 3University of Balochistan, Quetta, Pakistan, 4Bolan Medical Complex Hospital, Quetta, Pakistan, 5Bolan Medical Complex Hospital, Peshawar, Pakistan, 6University of Medicine and Health Sciences, Bitola, Macedonia
OBJECTIVES: The study was designed to evaluate the frequency of administration errors and prevention Strategy in a pediatric ward of a teaching hospital, Quetta, Pakistan. METHODS: The study was prospective observational based, assessment of all the treatment chart of admitted patients by Pharmacist during the study period and analyzed the medication administration errors as per WHO guidelines. Data was analyzed by using SPSS version 20. RESULTS: The total number of 287 patients treatment chart were assessed and the total drug administration were 8179, out of which drug administration to male patients were 5156 (63%) and female patients 3023 (37%). The total administration errors were recorded 6718 (82.13%), which include 6607 (98.34% of error) non serious error, followed by 43 (0.64%) wrong time error and 41 (0.61%) un-authorised drug error. CONCLUSIONS: There was a high percentage of administration errors in inpatient settings in which omission error was most frequent administration error made by nurses during the process of medicines administration.

PHP244 SATISFACTION WITH LIFE AMONG GENERAL POPULATION OF PUNJAB, PAKISTAN
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1University of Baluchistan, Quetta, Pakistan, 2University of Milan, Milan, Italy
OBJECTIVES: To investigate the satisfaction with life of general population of Punjab, Pakistan. METHODS: The study was designed as a cross sectional, online survey. Satisfaction with life was assessed by using Ed diener Satisfaction with Life Scale. Descriptive analysis was applied to elaborate people satisfaction with life domains measured: Education, work, personal income & Locality. Overall the Satisfaction with life of general population of Punjab, Pakistan. The study was just finished. The responses and quality control findings were obtained for quality improvement of interview. The aim of this study was to explore the current satisfaction with life of general population of Punjab. The study respondents were compared with the rural ones. No significant association was reported among other study variables. CONCLUSIONS: This study provides baseline assessment for the Satisfaction with life of general population of Punjab, Pakistan. The study revealed the impact of the following conditions on the various satisfaction with life domains measured: Education, work, personal income & Locality. Overall the percentage of respondents who are satisfied with their life (71.05%) is more as compared to the percentage of dissatisfied people. satisfaction with life could be further improved if better job and education opportunities are provided.

PHP245 RELIABILITY AND VALIDATION EVALUATION OF A PATIENT-REPORTED SCALE: QI-DEFICIENCY SYNDROME (PRS-QDS): QUALITATIVE METHODS
Yu L1, Zhang HY2, Wu TS1, Li Q1, Wang SQ2, Qi WC1, Yang GZ2
1Affiliated Hospital of University of Traditional Chinese Medicine, Shenyang, China, 2Liaoning university of Traditional Chinese Medicine, Shenyang, China
OBJECTIVES: A self-rating scale for patients with Qi-Deficiency syndrome was established. This study was aimed to evaluate the reliability and validity of the PRS-QDS. METHODS: The reliability was assessed by test-retest reliability and intrinsic consistency reliability. The scale was filled again after 24-48 hours to evaluate the test-retest reliability. The Cronbach’s α coefficient was used to assess the intrinsic consistency reliability. Content validity was assessed through the normative, rational and accurate study of the scale. Exploratory factor analysis was used to assess the construct validity. Studies have found that there was a correlation between Qi deficiency syndrome and low Hb. The AUC of the PRS for Qi-Deficiency syndrome was 0.67, ranged from 0.22 to 0.69. RESULTS: A sample of 130 patients (average age: 54, 46 males) completed the PRS-QDS. 96% of the patients completed the scale within 10 min and 55% within 2 min. The retest reliability of the scale was 0.954, and ranged from 0.872 to 0.972 for the 10 items. The Cronbach’s α coefficient of the scale and three dimensions: fatigue, shortness of breath and spiritlessness were 0.827, 0.674 and 0.768 and 0.614 respectively. The correlation coefficients between total score and 10 items were 0.369-0.761. Three common factors were extracted through the maximum variance rotation method, explained 58% of the variance of the 10 items. The AUC of the PRS for Qi-Deficiency syndrome was 0.63, ranged from 0.24 to 0.69. CONCLUSIONS: The PRS-QDS was proved to have a good reliability and validity. Through this study, a practical, self-rating tool was provided for patients with Qi-Deficiency syndrome.

PHP246 ANALYSIS OF THE PART OF THE GENERIC DRUGS IN THE MEDICINES FORMULARY OF A MOROCCAN HOSPITAL CENTER
Lachhab Z, Serragui S, Cherhah A, Abid H
Mohammed V University, Rabat, Morocco
OBJECTIVES: To determine the rate of generic drugs in tertiary hospital. METHODS: In this study we carried out a qualitative and quantitative analysis of the part of brand name and generic drugs in the hospital medicines formulary of the Ibn Sina University Hospital Center of Rabat updated in 2016. The study was carried out in the 200 medicines formulary of the hospital. 578 drugs were retained in call for tenders of drugs (71.5%). The qualitative analysis showed a greater dominance of the brand name compared to the generics with 52% and 48% respectively. The analysis of the medicine consumption allowed us to identify 76% of the global budget of the call for tenders. According to the AYA classification, the 1, 8 and J class consume respectively the largest part of the budget allocated to the brand name (22.8%, 19.7%, 17%). Whereas for the generics, we find mainly the classes A, J and 8 (19.9%, 38.4%, 13.5%). CONCLUSIONS: According to this study, we find that despite the procedure for the acquisition of medicines by tender, within our hospital center, the penetration rate of the first medicines exceeds half even if this mode of acquisition is in favor Of the lowest-priced drug that is generic.

PHP247 POTENTIAL FACTORS ASSOCIATED WITH INTERVIEW QUALITY IN EQ-5D VALUATION PILOT STUDY IN TAIWAN
Chen W1, Li C2, Chen J3, Huo C4, Tang C5, Peng Y6, Lin Y7, Gao C8, Lin H9
1China Medical University, Taichung, Taiwan, 2China Medical University Hospital, Taiwan, 3Taiichung, Taiwan, 4Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan, 5Taipei Medical University, Taipei, Taiwan, 6Kaohsiung Medical University, Kaohsiung, Taiwan, 7Center for Drug Evaluation, Taipei, Taiwan
OBJECTIVES: Following EuroQol EQ-5D valuation study protocol, Taiwanese pilot study was just finished. The procedures and response quality control findings were obtained for quality improvement of interview. The aim of this study was to explore the other indications of its potential associations. METHODS: In addition to evaluate the main QC criteria in EuroQol EQ-5D valuation study protocol, we intend to explore the other potential associations. RESULTS: The potential associations with EQVT study in Taiwan. The corresponding final answers could be the reference to anchor and compare the logic of participants’ responses. CONCLUSIONS: The associations of final answers between the worse health state and the practice severe task and the participants’ experience of severe illness and belief about “death” could be other potential factors to evaluate the quality of interview in EQ-VT study.

PHP248 NUTRITION INTERVENTIONS POSITIVELY IMPACT HEALTH OUTCOMES OF COMMUNITY-BASED ADULTS: A SYSTEMATIC REVIEW
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OBJECTIVES: Although ample research supporting the positive effects nutrition interventions have on hospitalized patients exists, less is known about the role nutrition interventions play on the health outcomes of community-dwelling adults. This review paper aims to systematically evaluate the literature exploring the association between nutrition and health outcomes among community-based patients, including free-living individuals and home care residents.
METHODS: PRISMA guidelines were followed for the literature review. Articles including original studies, pilot programs, and analytical reports of previously published data were obtained from MEDLINE, SCIENCE, and Google Scholar. After selection criteria were employed, only 24 of 401 (6.0%) articles were deemed eligible. RESULTS: Of the reviewed studies, majority of respondents who use healthcare resources less frequently. Since the reported methods such as correlation coefficients were rescaled so that full health scored 1 and the worst defined health status scored zero. A summary EQ-5Dindex score for each respondent was computed and used to test psychometric robustness including capacity to differentiate between known groups. RESULTS: 31% of respondents reported having no problems on any dimension. 94/943 EQ-5D health states were observed in the data. Pain/discomfort produced the highest score (0.741(P<0.0001)), which indicated the PRS-BSS could distinguish the known groups. The validity was validated by the t test. The validity analysis was calculated by using the following formula: validity = (tobserved − ttable) / S.E. The level of significance was set at 0.05.

OBJECTIVES: To calibrate EQ-5D using an extant Russian data sources. METHODS: The 2005 Russia Longitudinal Monitoring Survey (RLMS) contains data from 10,140 respondents (56.9% female) who self-reported problem levels on EQ-5D dimensions. An overall self-assessment of health (SBPI) was also captured using a 5-point categorical rating scale (very good-very bad). Each respondent is represented by a vector of 6 elements – 5 indicating the level of problem on each of the EQ-5D dimensions and 1 indicating SBPI status. Data were analysed using an ordinal regression with SBPI as the dependent variable, each EQ-5D dimension level was represented by a pair of dummy variables. The value decrements identified by these coefficients were so large that full health scored 1 and the worst defined health status scored zero. A summary EQ-5Dindex score for each respondent was computed and used to test psychometric robustness including capacity to differentiate between known groups. RESULTS: 31% of respondents reported having no problems on any dimension. 94/943 EQ-5D health states were observed in the data. Pain/discomfort produced the highest score (0.741(P<0.0001)), which indicated the PRS-BSS could distinguish the known groups. The validity was validated by the t test. The validity analysis was calculated by using the following formula: validity = (tobserved − ttable) / S.E. The level of significance was set at 0.05.

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delivers the medication in a polite way (3.96), the pharmacist answer questions in an excellent way (3.67), all pharmacists characterized with courtesy and respect (3.45), and the pharmacist had good knowledge and competency skills (3.28). The lowest statements scores were the pharmacist follow up and call about patient conditions after dispensing (3.86), the pharmacist asks about medication compliance (2.71) and the pharmacist check about medication reconciliation (2.79). The healthcare professional perception about communication and counseling need to improve with emphasis on medication follow-up, medication adherence, and medication reconciliation. Correcitions of healthcare care provider's needs will improve the perceptions, the communications, and avoid the unnecessary additional cost.

**PHP254**

**THE HEALTH STATUS AND COHERENCE- FEELING OF NURSES WORKING IN DIFFERENT WORK SCHEDULE**


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**OBJECTIVES:** The coherence-feeling is the main element of salutogenesis which is a valid factor of health. The different work schedule influences the nurses' circadian rhythm and health condition. The aim of this research is to find the least stressful work schedule, to measure the health status and coherence-feeling of the nurses. **METHODS:** During the quantitative, cross-sectional research we used convenient sampling method to take the data from four hospitals of the Southern Transdanubian region and in the breaks of the advanced trainings held by the Faculty of Health Sciences, University of Pécs. Altogether 355 nurses from standard departments filled the Sense of Coherence questionnaire. Data were analyzed with descriptive test, ANOVA and linear correlations in SPSS 22.0. **RESULTS:** The 76.6 % of the responders thought that the irregular work schedule is more stressful than the regular ones. Out of the regular work schedules the best is: 1 daytime shift followed by 1 night shift and 2 days of break (62.5%), while the secondly most of the coherence-feeling of those who work in daytime shift is better than those who work in shift work (t=2.933; p<0.004). Irregular work schedule nurses' coherence-feeling is lower than the flexible shift worker’s (p<0.04). The most favourite regular multwork schedule workers' coherence-feeling is higher than the secondly more frequent regular schedule workers’ (p=0.022). Psychosomatic symptoms incidence is higher among nurses working in shift work than working in daytime work schedule (z=-0.531; p<0.031). **CONCLUSIONS:** The irregularity of the work schedules are very stressful for nurses. Because of the health condition of the nurses- and the patient care- it is really practical to create the less stressful work schedule.

**PHP255**

**EXPOSING PHYSICIANS TO RESEARCH METHODOLOGIES TO GAIN PROVIDERS’ PERCEPTIONS AND PERSPECTIVES ON IMPROVING REAL-WORLD EVIDENCE (RWE): AN IN-PERSON PHYSICIAN FORUM METHOD**

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**OBJECTIVES:** The generation and utilization of real-world evidence (RWE) are reliant on the providers of healthcare, who make treatment decisions, assess results, and participate in research via pre- and post-marketing studies. To improve patient care, physicians need to make sound clinical decisions. Researchers must help expose physicians to RWE research methods and then understand with physician perceptions and perspectives on the value of the generated data. The purpose of the research was to evaluate the value of physician exposure to RWE for several purposes. Physicians were organised via an online survey to achieve broad representation of geography, practice type and affiliations and preserve unique audience. Each forum has a RWE research topic focus e.g., patient reported outcome (PRO) methods, medical record reviews, database studies, limitations of clinical trials. Presentations to attendees and open forum discussions at each summit conference are used to gather instant feedback via an audience response system (ARS). **RESULTS:** Five forums were conducted with 320 oncology physicians between February 2014 and October 2016. An average of 64 physicians attended each forum. Most (85%) physicians attended a single forum, but others attended more than one. Almost all (94%) providers attending one forum believed that RWE studies are necessary to inform clinical practice due to the limitations of RCTs. In the same forum, 97% believed that RWE can drive efficiency and improve healthcare quality. Although > 50% of providers in another forum believed that PROs are very/somewhat valuable for patient treatment, only 20% reported the ability to gather PRO data. A majority (86%) of physicians in another forum reported no previous involvement in any HEOR research, although most were willing. **CONCLUSIONS:** Understanding the perceptions and perspectives on evidence generation, including RWE, PROs, and RCTs is essential as medicine transitions to value based care. Information from physician forums can facilitate information exchange between treating physicians and researchers.

Each guidance describes the studies recommended for abbreviated new drug applications (ANDAs) that reference a particular new drug application (NDA). The purpose of this study was to evaluate the impact of BE on the entry of generic competition when the reference product for a new molecular entity (NME) loses exclusivity. **METHODS:** A cross-sectional study using exclusivity and patent data from the Orange Book and 12/16/2016. Other healthcare professional perception about communication and counseling need to improve with emphasis on medication follow-up, medication adherence, and medication reconciliation. Corrections of healthcare care provider’s needs will improve the perceptions, the communications, and avoid the unnecessary additional cost.

**PHP256**

**PATTERN OF MARKET EXCLUSIVITY AND THE ENTRY OF ABREVIATED NEW DRUG APPLICATIONS**

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**OBJECTIVES:** The Office of Generic Drugs (OGD) publishes bioequivalence (BE) guidance for specific products to support generic drug development.
majority of respondents (96%) agreed the Framework has potential to be more influential in future decision-making. **Conclusions:** While many payers are familiar with the ICR framework and acknowledge its potential impact, its actual application in the decision-making process has been limited. Findings from this survey indicate that utilization for decision-making may be increasing, though additional studies will be needed to confirm anticipated trends.

**PHP259**

**CROSS-COUNTRY VARIATION IN HTA PREFERENCES: QUALITATIVE EVIDENCE FROM AN INTERNATIONAL SURVEY OF STAKEHOLDERS**

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**OBJECTIVES:** Several interviews with stakeholders have compared how Health Technology Assessment (HTA) activities, evidentiary requirements and approaches to dealing with uncertainty differ across countries. Nevertheless, no studies have elicited cross-country, HTA stakeholders’ preferences on criteria that shape coverage decisions. We aimed to identify the extent to which prioritization of criteria, uncertainties and other factors that inform HTA decision-making differs across countries. **Methods:** HTA stakeholders in Brazil, England, France, Italy, Netherlands, Spain and Sweden were invited via email to complete a survey. A number of clinical, economic and other criteria (i.e. rarity/orphan status and safety for children) were considered in HTAs, along with factors related to clinical evidence uncertainties, unmet need and innovative nature of treatment were ranked in terms of their importance on a 7-point Likert scale. Responses were anonymized and analysed using descriptive statistics. **Results:** Responses were received from Brazil (n=9), England (n=7), France (n=10), Italy (n=6), Netherlands (n=3), Spain (n=3) and Sweden (n=3). “Achievement of/Concerns around clinical benefit” was the only clinical criterion/uncertainty ranked “very high” in all counties except Spain and Sweden (50% and 33% respectively). “Budget impact analysis” was the most important economic criterion overall, although not consistently ranked across countries: i.e. ranked above 6 by over 80% of respondents in all countries apart from Spain and Sweden (50% and 33% respectively). “Achievement of/Concerns around clinical benefit” was ranked “high” by 100% of respondents in each country. The requirement for/uncertainty around “Appropriate comparators” was highly important overall but country preferences fluctuated, i.e. ranked above 6 by 70% of respondents in all countries except from Italy and France (50% and 57% respectively). More subtle differences were identified in the priorities of innovation, disease severity and stakeholder input towards HTA decision-making across countries. **Conclusions:** We demonstrated cross-country variation in HTA stakeholders’ preferences, especially for economic and other criteria related to innovation and unmet need, possibly underlying differences in HTA recommendations. Further investigations are required to map the patterns that differentiate coverage decisions across countries.

**PHP260**

**DOCUMENTATION OF SYSTEMATIC REVIEW OR META-ANALYSIS IN NATIONAL PHARMACOECONOMICS GUIDELINES**

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**OBJECTIVES:** To survey which systematic review or meta-analysis (SR/MA) related items were addressed in national pharmacoeconomics guidelines. **Methods:** We searched pharmacoeconomics guidelines and guidelines of reimbursement agencies published as a report by a government committee or by any government agency, or by a professional association for higher education in medicine, or any other professional association or body. Guidelines were extracted and classified by a framework (Value Health 2014;7:622-4). Excluding methodological reviews, indirect comparison specific guidelines, unreadable documents, 16 general pharmacoeconomics guidelines were selected as a study population. They included reports from 11 countries (Australia, Austria, Belgium, Brazil, Canada, China, France, Germany, Japan, Korea, the Netherlands, Spain, the United Kingdom, the United States and South Africa) published from 1998 to 2014. All came from Western countries except Taiwan. **Results:** In 13 of 16 (81%) guidelines, SR/MA related items were addressed from 1998 to 2014. All came from Western countries except Taiwan. SR/MA term and RCT/observational studies term were most commonly used in 13 of 16 (81%). Literature search was addressed in 10 of 16 (63%). Indirect comparison was addressed in 9 of 16 (56%). Guidelines of top 3 acceptance rate came from Germany (17/26=65%), United Kingdom (15/26=58%), and Scotland (13/26=50%) which were relatively recent ones. French and Portuguese guidelines did not address any item related to SR/MA. Median acceptance rate was 5.5/26 (21%). **Conclusions:** Although national pharmacoeconomics guidelines have been published in many countries, only 21% of the SR/MA related items were addressed. Yet, it seems to be increasing in recent guidelines.

**PHP261**

**THE CHANGING ROLE OF COST-EFFECTIVENESS IN COMMON DRUG REVIEW RECOMMENDATIONS**

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**OBJECTIVES:** We sought to understand the changing role of cost-effectiveness analysis (CEA) at the Common Drug Review (CDR), the health technology assessment agency providing reimbursement recommendations to all provinces in Canada over time. **Methods:** We documented the presence of the pan-Canadian procedure for collective price negotiation has changed the way CEA is used by CDR. Our analysis sought to characterize the use of threshold analysis, i.e. explicit suggested price discounts calculated using HTA methods), the impact of elimination of confidential pricing, disagreement between submitted ICRs and re-analyses by CDR reviewers, and the fate of cost-effective drugs in negotiations with the CDR. **Results:** Our analysis relied upon publicly available source documents, obtained primarily from the HTA agency’s website. Documents included reimbursement recommendations, process updates and provincial public plan drug listing updates. We compared the percentage of drugs considered cost-effective, according to the text of the reimbursement recommendation, and its change over time since the introduction of new recommendation codes in 2012. We also determined the percentage of recommendations which included explicit threshold analyses, and also those more general recommendations which referenced the ICRs. The ICRs submitted and reported by CDR, and those considered plausible by CDR reviewers. Finally, we analyzed the time from HTA recommendation to completion of pCPA negotiations, focusing on drugs considered cost-effective by CDR. **Results:** Use of threshold analysis has increased dramatically, from 2.70% to 37.21% of recommendations between 2012-2016. Confidential pricing has been used in 25-44% of submissions since 2012. 105/116 submissions receiving conditional recommendation since 2012 featured some form of price control. Disagreement between submitters and CDR reviewers is frequent and substantial, and only a minority of drugs are considered cost-effective. These drugs actually take longer to get through the pCPA negotiation process.

**PHP262**

**AN ANALYSIS OF REAL WORLD DATA USE BY GLOBAL MARKET ACCESS STAKEHOLDERS**

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**OBJECTIVES:** There are clinical and economic impacts of not having real-world data (RWD) upon market entry such as delayed approval, suboptimal reimbursement, and unfavorable re-evaluation. We aimed to assess the use of RWD for market access (MA) decisions globally and trends in the number of RWD studies to evaluate drug long-term interest in various MA decisions. A global set was conducted in the HTA Accelerator© database from 2008 to 2016 for any recommendation of conditional reimbursement or approval requiring collection of RWD. An online search was conducted in the United States, United Kingdom, Australia, and Canada for uses of RWD by regulators and payers. Clinicaltrials.gov was searched for trends in the number of “observational” studies in the US and UK registered from 2010 to 2016. **Results:** 17 HTAs recommended reimbursement or approval conditional on providing additional RWD. In the US, the National Health Service is ramping up RWD capabilities by integrating clinical datasets. In Australia, the Pharmaceutical Benefits Advisory Committee is supporting risk-based approaches to reimbursement requiring RWD collection. The Canadian Agency for Drugs and Technologies in Health recently published a framework that suggests RWD may play a role in recommendations for orphan diseases. In 2016, the US issued a draft guidance on the use of RWD to support regulatory decision-making for medical devices. There was an increase in RWD studies in the UK, from 15.7% in 2010 to 21.5% in 2016 of all observational and interventional studies. RWD use declined in the US over the same period, from 18.7% to 11.5%. The reason for the respective differences in RWD use across countries, there is a need to monitor stakeholders’ use of RWD to optimize treatment access. There is also a need to approach evidence generation systematically to differentiate assets beyond approval and initial P&R.

**PHP264**

**OPTIMIZING ICR’S ‘CARE VALUE’ FRAMEWORK: AN ANALYSIS OF STAKEHOLDERS’ PROPOSALS FOR IMPROVEMENT**

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**OBJECTIVES:** The Institute for Clinical and Economic Review (ICER) evaluates the value of medical technologies according to a proprietary ‘care value’ framework, which takes a third-party United States payer perspective. In 2016, ICER held a national call for suggestions for framework improvements. Herein is a critical assessment of publically available stakeholder responses that were submitted to ICER. **Methods:** 50 responses were submitted, 46 of which were publicly available. Suggestions/criticisms were extracted and classified by framework (structure, framework methodology, parameter estimation, analysis perspective, or assessment) and respondent type (manufacturer, trade group, patient advocacy, consultancy, payer, or individual). Descriptive statistics were used to analyze trends. **Results:** 17 patient advocates, 12 manufacturers, 11 trade groups, 4 individuals, 1 payer, and 1 consultancy publicly responded to ICER’s national call. 39 unique suggestions/criticisms of the framework were documented. The most commonly cited (~50% of responders) included the limitations of a ‘QALY-only methodology’, the arbitrary nature of ICER’s ‘affordability cap’, the lack of early and broad stakeholder engagement, and a lack of focus on the patient. Manufacturers and trade groups were most similar in their critiques, especially focusing on the framework’s lack of transparency, the conflation of ‘value’ with budget impact, the use of a static willingness-to-pay penalty across disease area, the biases inherent with a short-term analysis horizon, and the lack of clinical expertise on the assessment panels. Patient advocates were most likely to focus on the optimal role of the patient in ICER’s assessment. **Conclusions:** Diverse stakeholders provided suggestions regarding ICER’s value assessment of medical technologies. The pan-Canadian perspective suggests that the framework’s methodology should be revised, with a goal of focusing on the patient perspective of value, and that ICER’s value assessment process should be modified to promote increased transparency and broad stakeholder engagement.
Thirty-three of these requests concern the inclusion of equipment, vaccines or 'health products' and forty were related to medicines. Of the 73 requests 30 (13 equipment/technologies, 14 medicines and 3 other items) were for inclusion of all of the requests. Also 41% of all inclusion requests regarded innovative products and 43% of all incorporated technologies were considered innovations. CONCLUSIONS: Of all requests for health technology inclusion, less than half were related to new HTA evaluations; considering the aspect innovation only 43% of incorporated health technologies represented innovative products, this proportion was even lower between the medicines. Possible causes are the high cost of these products and what does the term innovation could represent. The notable when discussing innovative drugs—the variability of the 'level' of innovation is an important variable to consider.

OBJECTIVES: In 2013, Economic and Public Health Assessment Committee (CEESP) was asked to review economic evidence of innovative and high-burden impact drugs/medical devices, and to publish efficiency opinions. The purpose of these efficiency opinions is to inform the price committee on methodological compliance of mandatory costing/combined dossier, when confronted to, French Health National Authority (HAS) recommendations. The objective of this study is to review and summarize deviations formulated by CEESP in dossiers published until December 2016. METHODS: All available published efficiency opinions published by CEESP were reviewed. Based on developed extraction table, a three-level classification was proposed to identify main CEESP deviations. Study objectives, structural choices, measurement and valorization of health states and costs, modeling, results presentation and sensitivity analyses (55% of all major and 29% of all minor deviations). RESULTS: A total of 67 records were included, providing 252 opinions. Overall, 19 efficiency opinions were identified on the official HAS website, amongst which 7 presented results that were invalidated by CEESP. All assessment reports included minor deviations and 90% of them reported at least one major or important deviation. Overall, 236 deviations were reported, the majority (62%) being minor, while 33% were considered important and 5% considered major. Main identified issues concerned results presentation and sensitivity analyses (55% of all major and 29% of all minor deviations), as well as modeling methodological approach (27% of major and 13% of important deviations). CONCLUSIONS: CEESP considers an accumulation of methodological deviations to invalidate results. Our findings suggest that pharmaceutical industry could be more efficient in their initial submissions and during the dialogue with HAS, by avoiding most commonly identified problems in previous CEESP submissions. However, the lack of threshold leads to uncertainty on how these results impact price of intervention.

OBJECTIVES: To assess the extent to which HTA is being currently used by different health technology assessment (HTA) entities, with emphasis in the most popular frameworks and for different technologies (drugs, procedures and medical devices) and which were the criteria used (according UK-NHS Innovation Center criteria). METHODS: We reviewed all requests for inclusion of health technologies in the hospital formularies, the HTA introduction and implementation for the development of the National list of essential medicines (NLEM) took place in Ukraine in 2016 in the context of the National Drug Policy for the period until the time 2025. The regulation states that the selection of medicines should be based on HTA approaches. Consequently, HTA and pharmacoeconomic inequities in the access to health care services in the same country. In many countries and regions, hospitals are autonomous in their decisions around the incorporation of health technologies, and different decisions could be taken about the same technology. Tunisia recently implemented a HTA agency (INASante) to inform decisions around health technologies and it should have an impact in obtaining information around what has been implemented in real world practice and why. METHODS: An analysis of how decisions were taken for different technologies (drugs, procedures and medical devices) and which were the key elements of this decision-making process was performed. This comprised a SWOT analysis and direct contact with stakeholders for "in depth" interviews according to best practices in qualitative research. Based on this analysis, a flow chart of decisions was built and the main pitfalls were identified in order to make proposals to bridge the gap and structure the information around innovations uptake in hospitals. RESULTS: Weaknesses were: the inexistence of standardized forms for the inclusion of health technologies in the hospital formularies, the inexistence of explicit grids with criteria and the lack of information among hospitals. The stakeholders identified INASante as an opportunity to structure the process of technology uptake in hospitals, to standardize the processes and to centralize information around decisions. CONCLUSIONS: In Tunisia a legal framework was developed in 2016 for the elaboration of the National list of essential medicines (NLEM) should be used for the inclusion of medicines based on the applied evidence of quality, efficacy, effectiveness, safety and economic evaluations adhering to the Order of MOH No. 84 dated 11.02.2016 and Order of MOH No. 105 dated 07.10.2016. HTA introduction and implementation for the development of the National list of essential medicines (NLEM) took place in Ukraine in 2016 in the context of the National Drug Policy for the period until the time 2025. This regulation states that the selection of medicines should be based on HTA approaches. Consequently, HTA and pharmacoeconomic inequities in the access to health care services in the same country. In many countries and regions, hospitals are autonomous in their decisions around the incorporation of health technologies, and different decisions could be taken about the same technology. Tunisia recently implemented a HTA agency (INASante) to inform decisions around health technologies and it should have an impact in obtaining information around what has been implemented in real world practice and why. METHODS: An analysis of how decisions were taken for different technologies (drugs, procedures and medical devices) and which were the key elements of this decision-making process was performed. This comprised a SWOT analysis and direct contact with stakeholders for "in depth" interviews according to best practices in qualitative research. Based on this analysis, a flow chart of decisions was built and the main pitfalls were identified in order to make proposals to bridge the gap and structure the information around innovations uptake in hospitals. RESULTS: Weaknesses were: the inexistence of standardized forms for the inclusion of health technologies in the hospital formularies, the inexistence of explicit grids with criteria and the lack of information among hospitals. The stakeholders identified INASante as an opportunity to structure the process of technology uptake in hospitals, to standardize the processes and to centralize information around decisions. CONCLUSIONS: Hospitals in Tunisia require a structured and informed process of health technologies uptake. This process should include: a standardized form for pharmaceutical submission, criteria for prioritization, a defined timetable for resolutions, a grid that includes criteria for decision-making and a centralized database of proposals and final decisions. Without compromising hospitals’ independency, INASante could propose a manual and centralize the information in order to avoid duplicates and reduce inefficiencies.
study aims to provide an overview and perspective of HTA in child health care, under a context of epidemiological transition, health care system and social changes in Japan. METHODS: Narrative review of health issues of children in epidemiological transition, child health care financing and provision system, challenges to evaluate pediatric health outcomes, and the expected role of value-based approach in policy making. RESULTS: Our analysis has an aggregate level to relative increase in priority of two issues in child health care: a largely expanded need of the long-term care for survivors saved by advanced neonatal and pediatric medicine but with disabilities and chronic diseases, even though the incidence is very low. It will be then how policy and development targeting the majority of population at the community. A geographical disparity remains in child health care financing and provision. Adequate and effective resource allocation is expected to strengthen the child health care provision system by addressing its problems on sustainability. For effective resource allocation and the reform of the current provision system of child health care, a value-based approach is urgently necessary, even though compared to that in adult, the standard methodology for evaluating health utility and outcomes in children is still waiting for the establishment. For child health care, the current standard methodology on cost-effectiveness have a limitation. CONCLUSIONS: HTA is expected to play a crucial role to make the current methodologies specific for children’ health outcomes needs to be developed.

HEALTH CARE USE & POLICY STUDIES – Patient Registries & Post-Marketing Studies

PHP271
POSTMARKETING COMMITMENT TRENDS IN PEDIATRIC PATIENT POPULATIONS
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OBJECTIVES: In 2003, the Pediatric Research Equity Act (PREA) was passed to improve the quality of pediatric information in drug labeling. This legislation authorizes FDA to require pediatric studies of marketed drugs that are not adequately labeled for children after other opportunities to obtain data on children on a voluntary basis have been exhausted. The requirement for such studies may be waived if studies in children are impossible, there is evidence suggesting the drug will not be safe in children, or the drug does not require a therapeutic benefit. To identify existing therapies for children or the drug is not likely to be used in a substantial number of children. We evaluated the trends in post-marketing commitments/requirements (PMCs/Rs) in pediatric populations. METHODS: Publicly available FDA databases were analyzed to identify all new molecular entities approved between January 1, 2000 and January 1, 2016 and associated PMCs/Rs in pediatric populations. Study designs were categorized as safety/non-safety, observational/interventionalstudies/biosurveillance. RESULTS: Between 01/01/2000 and 01/01/2016, there were 414 newly approved products. Of these, 305 (74%) included at least one PMC/C, 157 (38%) included at least one pediatric PMC/C, and 154 (37%) were labeled for pediatric use. Among those labeled for pediatric use, 139 (90%) were drugs and 15 (10%) were biologics. There were 1,153 PMC/Cs in total. Among these, 555 (48%) were pediatric PMC/Cs. Of these pediatric PMC/Cs, 493 (89%) were drugs, 62 (11%) were biologics, 509 (44%) were safety studies, and 102 (9%) were observational studies. The greatest number of pediatric PMC/Rs seen in infectious disease 140 (25%) and general medicine 68 (12%). CONCLUSIONS: Following passage of the PREA, many pediatric PMCs/Rs have been required by the FDA. In the future, we should expect to see more pediatric PMCs/Rs in drugs, safety studies, and for infectious disease and general medicine therapeutic areas.

PHP272
REFERENCE GROUPS USED IN PREGNANCY EXPOSURE REGISTRIES: CHALLENGES AND OPPORTUNITIES
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OBJECTIVES: Pregnancy registries monitor pregnancies exposed to specific drugs to determine risk of major birth defects. Ideally, registries should be designed to include internal reference groups. When this is not practical, external reference groups should be carefully selected. This study sought to examine reference groups used in pregnancy registries in 2017 versus 2009 and discuss pros and cons of each. METHODS: We collected data on all currently ongoing pregnancy registries identified on the FDA pregnancy website and compared data from 2017 with 2009. Sources of data included the FDA website, registry publications or websites, clinicaltrials.gov, and registry staff. In the two time periods, we descriptively evaluated the number of ongoing registries, their characteristics, and reference groups employed. RESULTS: In 2009 we identified 38 pregnancy registries and analyzed data on 79% of these. In 2017 we identified 103 registries and obtained data on 92%. In 2009 only 63% used an internal comparator versus 86% in 2017. Also, in 2009 only 73% used 2 or more comparators versus 81% in 2017. Internal comparators included unexposed women with/without the disease. Exposures included rates per year, race, ethnic groups, and the literature. Each comparator has advantages and disadvantages: an external population-based comparator can provide stable estimates for specific malformations, whereas internal comparators usually have limited sample size to assess specific malformations but can provide more comparable estimates of overall malformations. CONCLUSIONS: Data from the FDA website indicate a 2.7-fold increase in pregnancy registries from 2009-2017. We noted a trend towards use of more than one comparator. Registry sites have grown in size and content and have more than one generally improves overall validity and statistical power.

HEALTH CARE USE & POLICY STUDIES – Population Health

PHP273
CLINICAL AND HEALTH CARE USE IMPLICATIONS OF IMPROVING POPULATION HEALTH
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OBJECTIVES: This research quantifies the impact of achieving select population health improvements on disease prevalence and healthcare use. Such information can be used to determine how population health policies and programs might influence future patient outcomes and health system needs. METHODS: Using a previously published Markov-based microsimulation approach, we modeled a hypothetical scenario of sustainably reducing body weight and obesity; improving blood pressure, cholesterol, and blood glucose levels for adults with elevated levels; and smoking cessation. Published clinical trials and observational studies informed model parameters and achievable clinical improvements. Relationships between patient characteristics and healthcare use came from Finkson and logistic regression analyses estimated from the 2010-2014 Medical Expenditure Panel Survey and 2014 Nationwide Inpatient Sample. A nationally representative adult sample from the 2013-2014 National Health and Nutrition Examination Survey was extrapolated to national totals using Census Bureau population projections. RESULTS: Cumulative between 2015 and 2030, achieving these lifestyle and clinical goals results in 9.6 million fewer people with heart disease, 3.3 million fewer strokes, 2.4 million fewer heart attacks, and reduced incidence of cancer and other diseases. Per capita inpatient days, emergency visits, and ambulatory care declined. Reduced mortality suggests an additional 6.3 million adults alive in 2030. Cumulative over the first three years, national inpatient days decline 4.3 million days annually in emergency visits by 3.4 million. By 2030, annual inpatient days are 6 million higher and emergency visits 1.7 million higher. By 2030 an additional 16,400 physicians would be required to support the additional 6 million people. CONCLUSIONS: The long term implications of achieving the modeled population health outcomes is reduced morbidity and mortality, but increased use of healthcare services to support a larger population. Health system planning should reflect that improved population health causes short term reductions in demand for healthcare services but long term demand will rise.

PHP274
UTILIZATION PATTERN OF ORAL ANTI COAGULANTS IN HIP AND KNEE REPLACEMENT PATIENTS IN UNITED STATES, 2010-2016
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OBJECTIVES: Since their introduction to the US market in 2010, non-Vitamin K oral anticoagulants (NOACs) have sought to address the issues of not only efficacy, but also safety, ease of use, and patient compliance. However, little is known about the trends and utilization patterns of these medications among the population. In this study, we analyzed changes in prescription volumes for oral anticoagulants since the introduction of NOACs in United States in major orthopedic surgery patients. METHODS: Using Truven Health MarketScan data, we analyzed prescription volumes for warfarin, dabigatran, rivaroxaban, and apixaban from January 2010 to September 2016 in patients undergoing total knee or hip replacement surgery. The total prescription volume was calculated quarterly and included new fills and refills for these medications. RESULTS: The overall volume of oral anticoagulant prescriptions in hip and knee replacement surgery patients in United States has increased annually since 2010. Since the availability of the NOACs, the proportion of total oral anticoagulant prescriptions attributable to warfarin in these patients has steadily decreased, from 99% in 2010 to 72% by September 2016. The largest increase in NOAC prescribing occurred between 2012 and 2014, which corresponds to the timeframe when rivaroxaban was first listed on formularies. By September 2016, rivaroxaban had a 15% share of the oral anticoagulant market in orthopedics, whereas dabigatran and apixaban together accounted for approximately 9%.
CONCLUSIONS: Since their approval, the NOACs have represented a growing share of total OAC prescriptions in orthopedic surgery patients in United States. This trend is expected to continue as the NOACs are given preference over warfarin in guidelines on venous thromboembolism prevention in major orthopedic surgery patients. An understanding of the current prescribing patterns will help to influence health policy and reimbursement strategies.
drugs, 15(7.50%) contain 7 drugs and 9(4.50%) contain more than 7 drugs. The most common therapeutic class was found to be Analgesics pertaining to 122(61%) drugs followed by antibiotics, which were 60(32.50%) drugs and 57(27.50%) drugs were Vitamins. It was found that the majority of polypharmacies have been occurred in the age group of adults 113(56.50%) patients followed by neonates and infants 52(26%) patients. Tandem analytics 189(95%) patients. Among 200 prescriptions, 82 drug interactions were observed which were found to be 48(52.43%) major followed by 36(43.90%) moderate and 3(3.65%) minor. Among the major interactions, anti-inflammatory drugs were found to be the most commonly participating therapeutic class of drug in interactions. CONCLUSIONS: only 10% of the prescriptions were found to have polypharmacy which was commonly observed in female patients. Among polypharmacy prescriptions less than 50% had interactions, majority of which were major drug interactions.

PHP276 IMPACT OF DISPLAYING INPATIENT PHARMACEUTICAL COSTS AT THE TIME OF ORDER ENTRY: LESSONS FROM A TERTIARY CARE CENTER

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OBJECTIVES: Expensive medicines are often utilized when there are comparable alternatives available at a lower cost. Increasing prescriber awareness of medication cost at time of ordering may help promote cost-conscious use of medications in the hospital. Our objective was to evaluate the impact of cost messaging on the ordering of nine expensive medications. METHODS: This was a retrospective analysis of an institutional cost-transparency initiative in a 1,145-bed tertiary care academic medical center (The Johns Hopkins Hospital). Prescribers who ordered medications through the cost-pricing computerized provider order entry system at the Johns Hopkins Hospital. Each medication was compared to its pre-intervention baseline utilization dating back to January 1, 2013. For the seven medications with alternatives offered, we also analyzed use of the suggested alternative during these time periods. Interrupted time series and segmented regression models were used to assess the impact of intervention and after implementation of cost messaging for nine high-cost medications. RESULTS: Following the implementation of cost messaging, no significant changes were observed in number of orders or ordering trends for intravenous formulations of eculizumab, calcitonin, levetiracetam, linezolid, mycophenolate, ribavirin, and levohydrin. An immediate and sustained reduction in medication utilization was seen in two drugs that underwent a policy change in addition to the drug cost messages during our study, intravenous pantoprazole and oral voriconazole. Intraavenous pantoprazole became restricted at our facility due to a national shortage (-985 orders per 10,000 patient days; p 0.001) and oral voriconazole was replaced with an anti-fungal in cost messaging. CONCLUSIONS: Provider cost transparency alone did not significantly influence medication utilization at our institution. Active strategies to reduce ordering resulted in dramatic reductions of ordering.

PHP277 EVALUATION OF EFFECTIVENESS OF HEALTH CANADA’S DEAR HEALTHCARE PROFESSIONAL LETTERS ON PRESCRIBING PRACTICE IN CANADA

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OBJECTIVES: Health Canada’s Dear Healthcare Professionals Letters (DHPLs) are used to disseminate health risks information to healthcare practitioners. DHPLs may contain critical health risks information, they may result in measurable shifts in the prescribing practice. However, current research suggests that DHPLs may not be effective in communicating safety-related information. Continuing medical education (CME) and research conducted by Risk Sciences International that evaluated Health Canada’s DHPLs’ impact on prescribing practice, this study performed a qualitative descriptive analysis to identify: the attributes of DHPLs that result in a significant change in prescribing habits and; to develop recommendations and a conceptual framework for the communication of information on safely use of prescription drugs in Canada. METHODS: Health Canada’s DHPLs issued from 2005 to 2015 were obtained. Relevant attributes of the DHPLs that are most likely to result in a change in prescribing practice were identified and examined using descriptive analysis. RESULTS: A total of 280 DHPLs were identified. Letters varied in terms of clarity of key information, format, content and length. Results suggest that 65% of DHPLs were warnings on drug side effects with the majority were considered serious adverse reactions; 12% of DHPLs were informative of new indications; 18% were warnings about product impurity and 5.7% of letters were warnings about drugs having the potential to lead to misleading inferences, 33% of letters reported references. The target population was precisely described in 68% of the DHPLs. Fifty-four percent of the letters provided new recommendations, while 25% advised the close monitoring of patients to monitor the development of potential drug-related risks. CONCLUSIONS: This study suggests several attributes related to content and format of DHPLs could affect their effectiveness on the prescribers’ behavior. Further research is needed to examine the correlation between these attributes in DHPL and changes in prescribing rates.

PHP278 ADHERENCE TO TREATMENT GUIDELINES AFTER OPIOID DEPENDENCE

Hospitlization in MEDICAID AND COMMERCIALLY INSURED POPULATIONS

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OBJECTIVES: To evaluate adherence to recommended evidence-based treatment guidelines and receipt of FDA-approved opioid addiction medications in Medicaid and commercial patients within 30-days of discharge from an opioid hospitalization. METHODS: The patient population was extracted from a large nationally representative and statistically de-identified administrative claims database. Our cohort included members aged 18-64 between Jan. 1, 2010 and Sept. 30, 2014 who were hospitalized for opioid dependence or overdose and who were enrolled at least 90-days prior to hospitalization and at least 30-days post-discharge. Use of FDA-approved medication was defined as receipt of buprenorphine, naltrexone or methadone. This study also evaluated use of newer medications (e.g., naltrexone and antipsychotics and antidepressants [prevalent use]). RESULTS: We identified 76,611 patients with an opioid misuse hospitalization, 36,859 (22%) with commercial insurance and 59,752 (78%) with Medicaid. Medicaid beneficiaries were more likely to be female (57% vs 44%) and younger (50.6 vs 55.1 years of age). A total of 34,829 patients filled an opioid prescription following hospitalization (20%). The percent receiving recommended treatment post-discharge was low for both cohorts, but significantly lower for Medicaid patients (6.6% vs 18.5%). Over 68% other proportion of the Medicaid population took a new opioid. doi:10.1016/j. valh.2016.08.011

PHP279 REMS SURVEY RESPONSE RATE BY METHOD OF RECRUITMENT

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OBJECTIVE: REMS surveys target patients’ awareness and understanding of key risk messages of REMS programs and are thus critical to maintaining effective REMS programs. This study sought to examine REMS survey response rates by method of patient recruitment (i.e., mode of invitation delivery and source of patient contact). METHODS: This retrospective analysis of patient survey data, collected from all five REMS surveys conducted by a major CRO from 2014-2016, examined recruitment and survey completion metrics. Response rates were compared across two modes of invitation delivery and sources of patient contact information. MODE 1: sponsor-provided list of patients willing to be contacted regarding the product, but not necessarily product users; patient survey invitations were delivered via email with the survey link embedded. MODE 2): pharmacy claims data from the patient’s pharmacy and patient survey invitations were delivered via hardcopy mail to a targeted group of patients who filled prescriptions for the product in the last year. Surveys were available both online and via telephone. RESULTS: Using MODE 1, 19,650 surveys were distributed and 10,800 were distributed using Mode 2. Only 4.3% (n=1134) responded to the surveys. Regardless of recruitment method, the majority of patients (85%) completed the surveys online rather than via telephone. Response rates were higher for surveys using Mode 2 (7.4%) compared to surveys using Mode 1 (2.4%). CONCLUSIONS: This study was limited in its ability to separate source of participant contact information from mode of invitation delivery. However, results suggest that specifically targeting product users (Mode 2) may play a larger role in increasing response than consent or ease of participation - embedded link in emailed invitations (Mode 1). Further research is needed to compare response rates for pre-consented patients with and without product exposure.

HEALTH CARE USE & POLICY STUDIES – Regulation of Health Care Sector

PHP280 EXPLORATION OF KNOWLEDGE AND PERCEPTION OF REGULATORY PHARMACIST REGARDING DRUG REGULATION IN PAKISTAN

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OBJECTIVES: The study aimed to explore the knowledge and perception of Regulatory pharmacists regarding Drug Regulation in Pakistan. METHOIDS: A cross sectional descriptive study was conducted to evaluate the Knowledge and perception of Regulatory Pharmacist regarding Drug Regulation in Pakistan from November - June 2016. The study was carried out in Pakistan major cities of Pakistan where regulatory pharmacists were practicing. Study tool comprised of Demographics and six main domains including; Amendment in Existing Drug regulation, Procedural delay, Lack of Knowledge and Training, Lack of budget and other facilities, Political influence and Security issues, Poor communication and administration between different bodies. All analyses were done by using SPSSv20. RESULTS: Result showed that maximum respondents 155 (57.2%) age ranges between 32-41 years. Most of respondents 185 (68.9%) were male having B-Pharmacy. Majority 123 (45.4%) of respondents were Drug Inspectors. maximum of respondents 148(54.6%) were disagreeing in that Drug act1976 is complete and comprehensive for drug regulation in Pakistan. Only 55(17.6%) provide complete information to Provincial Government to made rules. Majority of respondents 119(43.9%) were disagree that Drug act provide proper procedure for all regulatory activities. While 95(31.5%) were disagree in that Drug act does not provide proper knowledge to Regulators. Most of pharmacists 146(53.5%) agree that they have some security issues when they go for inspection. Majority of respondents 138(50.9%) were disagree that information which is present by one authority is not disseminate to other. CONCLUSIONS: Study concluded that regulatory pharmacists in Pakistan had good perception towards drug regulations. The findings showed that misapprehensions about certain sections/ subsections of drug law persist among regulatory pharmacists. It is high time that the policy makers and regulatory pharmacists should sit together for mutual consensus development regarding the disparities in the current drug act.
Patient Access Opportunities and Challenges for Biosimilars: A Review of the United States Marketplace

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OBJECTIVES: Rating health care budgetary pressures combined with an aging patient population and increasing incidence of chronic diseases provide great opportunities for biosimilars. The 2010 Affordable Care Act includes a Biologics Price Comparison and Innovation Act. The government initiatives balance the stringent regulatory environment to reduce the complex, costly issues creating high barriers for manufacturers. This research reviews the current US biopharmaceutical regulatory pathway, definitions and status of the US marketplace. METHODS: A search strategy using the term “biosimilar” and “US FDA” was used to identify peer-reviewed literature and reports from 2010-2016 reporting the current state of the US biosimilar marketplace. Additionally the “gray” literature (e.g., government publications, reports, newsletters, fact sheets) were also reviewed. RESULTS: A biological product is approved by meeting requirements for an FDA-approved biosimilar product. The biosimilar must have no clinically meaningful safety and effectiveness differences from the reference product. Only minor differences in clinically inactive components are allowable. An interchangeable biological product is biosimilar to an FDA-approved reference product and meets additional standards for interchange ability. An interchangeable biological product may be substituted for the reference product by a pharmacist without the intervention of the prescriber of the reference product. The first US biosimilar pharmaceutical product (i.e., Eliquis-struxdihidronitrate) launched in September 2015. There are only four biosimilars currently approved for sale in the US. CONCLUSIONS: Historically multiple regulatory pathways existed (e.g., section 505g) of the Food Drug & Cosmetics Act, 351(k) for guiding the development of biopharmaceuticals. However, even given the current improved legislation ambiguity still exists, for example, regarding the definition of “highly similar” and “no clinically meaningful differences.” Thus these and other questions persist about the factors that are likely slowing product development and market uptake. Continued analytical, pharmaceutical, and clinical research should improve our knowledge and development of these products.

Health Care Use & Policy Studies – Risk Sharing/Performance-Based Agreements

PHP285

CHARACTERISTICS OF MANAGED ACCESS AGREEMENTS FOR MEDICINES IN AUSTRALIA

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The Australian Pharmaceutical Benefits Advisory Committee (PBAC) recommends subsidy of a medicine for an indication (MIP) based on appraisal of the evidence for comparative clinical effectiveness, cost effectiveness and financial cost. PBAC advises what uncertainties exist in the evidence. Where uncertainties exist, the Australian Government uses a wide range of managed entry agreements (MEAs) to make medicines available in the National Pharmaceutical Benefits Scheme (PBS). OBJECTIVES: To describe the characteristics of all MEAs established by type of action, type of agreement, definition and therapeutic area (CTC) until May 2016. METHODS: Extracted information for all MEAs implemented between January 2012 and May 2016. A typology for the type of action was developed. RESULTS: Eighty-six MIPs were PBS-listed with 171 MEAs. 74% of MEAs had at least one MIP. 51% of MIPs provided additional health benefit (cost effective) and 49% the same benefit (cost minimised) overall. 51% of MEAs were simple financial agreements, of the 6% of MEAs with subsidised continuation to patient response, 30% were discounts, keeping the actual price confidential, and 43% required reimbursement if financial caps were exceeded. 13% of MEAs relied on performance measures linked to reimbursement, most of the 6 possible MEAs limiting subsidised continuation to patient response. Coverage with evidence development (CED) MEAs were least common (5%). 5 of the 8 CED required review of outcomes from clinical trials already underway. CONCLUSIONS: The Australian Government relies on financial agreements to manage access. There may be barriers to implementation of more complex MEAs. The PBAC is involved in implementing many MEAs through the evaluation and appraisal of evidence.

CURRENT AND FUTURE USE OF OUTCOMES-BASED CONTRACTING BY US PAYERS

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OBJECTIVES: U.S. payers are increasingly using outcomes-based contracts with pharmaceutical companies to place greater financial risk on therapies’ ability to demonstrate a clinical or cost-effectiveness. This current and future use of outcomes-based contracts (OBCs), drivers of their use, overall design, and challenges encountered to identify the future of these arrangements. METHODS: In the last 12 months, our research pharmacy and medical directors about their current or expected use of outcomes-based contracts, including 15 already operating OBCs and 13 expecting to do so in the next 12 months. In addition, 100 cardiologists were surveyed over the impact of OBCs on their prescribing. RESULTS: 68% of surveyed payers either currently or expect to use OBCs in the next year, typically based on pharmacy and medical claims data. Existing OBCs were most commonly driven by cost-saving goals (47%) while payers planning OBCs in the next year also cite client demands (23%) and a desire for the pharmaceutical industry to justify prices (23%). Under existing OBCs, physicians are required to report patient-level data on drug usage (53%), medical utilization (53%) and hospital discharges (40%). Among surveyed cardiologists, 73% reported being more willing to prescribe a drug shown by OBCs to be as clinically or cost-effective as presumed. However, 53% of payers identified trusting and verifying the integrity of the pharmaceutical company’s data as their largest challenge. CONCLUSIONS: OBCs appear to have continued growth driven by a desire to better align efficacy with price. Physicians report they are monitoring OBCs and are likely to reward therapies that demonstrate presumed effectiveness with increased prescribing. However, the relative newness of many of these agreements suggest their design will evolve in the coming decade. In addition, payer skepticism for the quality of data reported by the drug industry represents a stumbling block on their expanded use.

Risk-Sharing Models in Health Care Systems: Literature Review

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OBJECTIVES: To review the current risk-sharing and pay-for-performance models in indexed literature and to describe characteristics and outcomes obtained after the implementation of these models. METHODS: We conducted a review of the literature in Medline, Embase and Lilacs, using the free terms “risk sharing,” “risk management” and “pay for performance”, without language or publication date restrictions. RESULTS: We identified 222 papers, including the magnitude and distribution of the incentives, and the amount of technical support available.

Assessment of Managed Entry Agreements in Europe and the US

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OBJECTIVES: Managed entry agreements (MEAs) provide manufacturers and payers the opportunity to work together, provide new contracting and payment mechanisms, and improve patient access. This is particularly relevant in the US, where drug costs are rising and the healthcare system is complex, with multiple payers and pay type systems. While theoretically promising, MEAs are often multifaceted and difficult to implement. This research aims to assess the successes and failures of MEAs in the US, Italy, France and the UK to identify key learnings and barriers for expansion in the US. METHODS: Secondary research identified managed entry agreements in UK, Italy, France and US from 2007 to 2017. A review of publicly available health authority websites, peer-reviewed journals, and news sources was conducted to identify MEAs, the types of agreements (i.e. risk share, evidence based pricing, etc.), outcomes, and the perceived level of success. Data were then analyzed to understand the successes and key characteristics that may have contributed to the program’s success. CONCLUSIONS: Most MEAs were considered to have been successful, whereas French MEAs had neutral outcomes. Successful programs typically identified benefits for both the manufacturer (i.e., decreased time to review by NICE in UK) and the payer (lower overall cost to NHS in UK). Few MEAs in the US have publicly available information or data. Of these, all but one considered the program to be successful, while all simultaneously noted that MEAs require significant additional effort, sometimes stymying the perceived success. CONCLUSIONS: Most MEAs were successful at decreasing cost to the intended health system and improving patient relations with natures coming from United States and the UK, but there are also experiences form Belgium, Italy, Spain, South Africa, Sweden; there are also documented experiences from Philippines, Tanzania, Zambia, Rwanda, Burundi, Democratic Republic of Congo, Vietnam, Peru, and China. Implementation of risk-sharing models has good overall performance and most papers show a significant improvement in different variables, such as decreased mortality and improvement in quality of care provided to patients most with chronic diseases. Pay for performance models within the evidence reviewed is insufficient to draw conclusions. “Risk sharing” includes a wide range of approaches, is far from an intervention, and depends on the interaction of multiple variables, including the magnitude and distribution of the incentives, and the amount of technical support available.

Risk-Sharing Agreements (RSA) in Emerging Markets: Is It a Wake-Up Call or Is It Innovation Too Late?

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OBJECTIVES: Recent years have witnessed emerging market (EM) countries adopting various forms of RAS in order to manage public financing of innovative pharmaceuticals. South Korea, Taiwan, and Russia have either provided guidance or executed pilot programs in the recent past. This research aimed to analyse existing RAS structures across these countries and identify commonalities and divergences to support future adoption of RAS in EMs. METHODS: A pragmatic review of literature (in English and local language, as appropriate) and government resources on the RSA policies was undertaken for this research. Implementation examples, including completed pilots and proposed disease priorities were also reviewed to identify key differences from the developed markets. Guidance on implementation (South Korea),
OBJECTIVES: The coverage with evidence development (CED) program within the Center for Medicaid and States was developed to generate data to support national coverage decisions for medical technologies. Coverage for patients is provided, but only in the context of approved clinical studies including clinical trial registries. In this study, we evaluated the implementation of clinical studies for CMS CED programs. METHODS: We reviewed CMS’s website for data on CED National Coverage Determinations (NCD) and abstracted the release date, date of first approved clinical study, and last updated. We calculated the mean time to implementation overall and by type of study. We also used linear regression to assess the trend in mean time to implementation, as well as the impact of recency (NCD with past 5 years) on mean time to implementation. RESULTS: We found 22 CED NCD’s among which 17 had a study implemented. The mean time to implementation or end of study was 731 days. Among NCDs with a study implemented, the mean time was 405 days (clinical trials: 515 days; registries: 48 days). We found a trend toward a shorter time to CED implementation over time (155 days shorter each year, p = 0.039). Recent cases had a time lag 944 days shorter than older cases (p = 0.039). The majority of recent cases have their first related clinical study approved within 30% of the time after the release of NCD. CONCLUSIONS: Our findings suggest some difficulty implementing clinical studies following a CED determination, but less so with registries. However, these difficulties may be lessening over time.

PHP288 Redefining “Reasonable and Necessary”? An Empirical, Comparative Assessment of Medicare’s Coverage with Evidence Development
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OBJECTIVES: Medicare employs coverage with evidence development (CED) to provide conditional coverage for an intervention to allow for the collection of evidence in clinical trial registries and observational registries in a timely manner. This study found how private payers cover CED interventions issued by the largest private payers that make their coverage policies publicly available. Third, to categorize coverage policy restrictiveness, we compared private payer coverage to corresponding FDA labels and categorized coverage as equivalent to, less restrictive, or more restrictive than the labeled indication. RESULTS: Between September 1998 and February 2016, CMS completed 246 national coverage analyses, 18 of which (7.3%) applied Coverage with Evidence Development. We identified 258 coverage policies issued by private payers for these CED technologies. We identified significant variation in both the number of policies payers issued and their coverage of CED technologies. Private payers did not cover the majority of CED technologies (39 of 268 policies; 53.5%). HealthNet and Highmark were the payers that most often covered CED technologies (62.5%). Private payer coverage was equivalent to corresponding FDA approval in 68.3% of cases, more restrictive in 25.0%, and less restrictive in 6.7%. CONCLUSIONS: When covering health care technology, the conventional wisdom is that private payers follow Medicare’s lead. However, we found significant variation in private payer coverage of this set of innovative medical technologies. Overall, these findings provide insight into Medicare’s application of CED and suggest that patients enrolled in different health plans may have variable access to innovative medical technologies.

PHP289 IQWIG versus the G-BA - FREQUENCY OF DIVERGENT OPINIONS IN GERMANY AND HOW ARE MANUFACTURERS RESPONDING?
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OBJECTIVES: To identify the types and quantities of evidence the FDA is requiring for biosimilar approval, and the corresponding evidence manufacturers have provided in their 351(k) biosimilar application approvals. METHODS: We searched through FDA general guidelines, drug-specific approval documents, and webcasts to collect data. The following data were collected: approval indication and routes, reference product names, manufacturer names, evidence on similarity in analytical and functional characteristics, pharmacokinetics, pharmacodynamics, efficacy, safety, and immunogenicity, evidence used for extrapolation claims, and other notable points of discussion during FDA Advisory Committee meetings. RESULTS: There are currently four biosimilars approved in the United States. For these biosimilars, a large recommendation has not significantly varied by EBA, with numerical differences largely due to variations in therapy areas appraised. However, NICE are conducting increasing numbers of submissions, resulting in ERGs increasingly supporting TAs in therapy areas for which they have no prior experience, potentially introducing a risk for non-uniform implementation of NICE’s methodology.

PHP290 THE NICE CRUNCH! CAPACITY CONSTRAINTS LEADING TO POTENTIAL INCONSISTENCIES IN THE ASSESSMENT OF DRUGS IN ENGLAND
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OBJECTIVES: When developing Single Technology Appraisal (STA) guidance, the National Institute for Health and Care Excellence (NICE), commissions an independent academic centre (Evidence Review Group [ERG]) to develop a report that critically appraises the manufacturer’s submission and review published evidence. This research aims to compare the work of different ERGs and whether this may affect STA outcomes, particularly in light of recent reforms to the Cancer Drugs Fund (CDF), which have increased the number of NICE STAs to be under taken. METHODS: All final appraisal determinations (FADs) resulting from STA processes were screened and the outcome, disease area (classified by IC10 categories), academic centre (ERG) and the time to which the FAD referred were recorded. Statistical comparisons were conducted using a Chi-squared test. RESULTS: 272 NICE STAs were identified, supported by 12 different ERGs (highest: 33 [Southampton], lowest: 1 [Salford]). Rates of positive recommendation (defined as ‘recommended’ or ‘optimised’) varied numerically but not significantly by appraisal centre (p=0.79, highest: BMJ-TAG [93%, 14/15], lowest: Schering [0%, 0/1]). However, there were notable variations in recommendation rates by therapy area and the considered therapy areas varied substantially between different ERGs. An annual average of 23.5 STAs were undertaken (highest: 42 [2016], lowest: 4 [2006]) with a large upsurge in the last two years driven by increased oncology submissions. This has coincided with an increased number of ERGs supporting oncology appraisals (average: 8.0 [2015-2016] vs. average: 4.2 [2006-2014], including in cancer types they had not previously appraised. CONCLUSIONS: To date, no evidence of a positive recommendation has not significantly varied by ERA, with numerical differences largely due to variations in therapy areas appraised. However, NICE are conducting increasing numbers of submissions, resulting in ERGs increasingly supporting TAs in therapy areas for which they have no prior experience, potentially introducing a risk for non-uniform implementation of NICE’s methodology.
PHP292  
**Payers’ Familiarity and Utilization of Current Value Assessment Frameworks: Concepts and Opinions on Ideal Value Framework Criteria**


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**OBJECTIVES:** Organizations, such as the Institute for clinical and economic review (ICER), the American Society of Clinical Oncology (ASCO) and the national comprehensive cancer network (NCCN), have developed value assessment frameworks to determine value of drug therapies. These frameworks are being incorporated into clinical guidelines and may serve as the basis for purchasing and insurance coverage decisions. The purpose of this study is to determine payer perspectives of all 5 value frameworks, compare value frameworks with payers’ own value assessment methods, and reach a consensus on payer opinions of the ideal value framework. **METHOD:** We conducted an IRB-approved survey that was distributed to 17 managed care plan insurance professionals across payers’ opinions of the value frameworks and the characteristics of the ideal value framework. The study included 2 electronic anonymous surveys and a teleconference to discuss the results. Results are reported descriptively. **RESULTS:** Participants most familiar (somewhat familiar, familiar, and very familiar) with NCCN (89%), followed by ACC/AHA (78%), ASCO (44%) and MSKCC DrugAbacus (33%). ICER, NCCN and ACC/AHA are currently being used by the participants, mainly as additional sources of clinical information, and each value framework is being considered for use in the future. The main reason for not utilizing value frameworks was more information was needed. The most participants (38%) said their company’s drug evaluation was similar (somewhat similar and very similar) to NCCN, followed by ICER (33%). All respondents agreed that drug evaluations will become more transparent with increased utilization of value frameworks. Most participants reported that the ideal framework should be an online tool where each time a new drug in a class is approved (55%). **CONCLUSIONS:** All participants agree that value frameworks would contribute to transparency of drug evaluation but the health plans need more information about the value frameworks before they will be widely utilized.

**HEALTH CARE USE & POLICY STUDIES – Conceptual Papers**

PHP293  
**Is Longer Survival More Valuable Than Better Quality of Life? Insights From Real Options Theory**

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The quality-adjusted life-year (QALY) combines expected survival and quality of life into a single aggregate score and, assumes that a QALY gain from life extension is equivalent to a QALY gain from quality-of-life (QoL) improvement. However, a recent systematic review (Ryan 2015) provided empirical evidence that willingness-to-pay (WTP) estimates for a QALY were consistently higher when the QALY gain was from life extension as compared to QoL improvement. Originating from corporate finance, real options theory recognizes that in some cases initial investments may create opportunities (options) for subsequent investments. Such initial investments therefore have two value elements: the static or passive net present value of direct cash flow and the option value of operating flexibility and strategic interactions. Similarly, a treatment that prolongs survival creates options as it opens up opportunities for patients to benefit from new drug treatments during the extended life period. In a stated-preference study, survey respondents may consider this additional benefit from longer survival and factor that into their WTP, which could be the reason for a higher WTP for life extension. One of the implications of this is that in a value-based reimbursement strategy, the patient’s value of “a QALY in a QALY”, the option value of life-extending treatments may be omitted, thus resulting in under-reward of such innovations. Current cost-effectiveness modeling practice has generally not factored in the impact of (unknown) new future treatments. Accounting for option value in technology assessment requires modeling arrivals of new treatments and their health benefits and costs, and/or patient’s preference and WTP on attributes of potential future treatment opportunities (such as efficacy, time of arrival, likelihood of arrival, etc.). Further research is needed on the methods for operationalizing real option value and its implications on the cost-effectiveness of a treatment and optimal resource allocation.

PHP294  
**Health Impact Framework for Cures and High Impact Medical Technologies**

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**Objective:** A number of recent treatment advances have been labeled cures but a consistent definition of cure does not exist in research or clinical practice. Further, no single framework exists that can capture key factors in the evaluation of medical technologies and cures. Our objective was to develop a general framework for characterizing the health impact of medical products that can offer high impact technologies and cures. **Methods:** We performed a systematic literature review to identify uses of the word cure in five high burden disease areas: heart disease, human immunodeficiency virus, diabetes, depression, and cancer (prostate and breast). We then applied Walker and Avant’s concept analysis to identify key factors contained within cure definitions. A comprehensive list of cure definitions was compiled and a number of consensus frameworks were developed. A comprehensive list of key factors related to a medical technologies’ clinical and economic impact and which includes curative technologies. **Results:** The key concepts that we identified were: 1) clinical impact, which could be measured using the QALY's shortfall or proportional QALY shortfalls; 2) economic impact, which can be measured as the incremental net treatment costs; and 3) the timing of the clinical or economic impacts. The factors that are captured in the framework are: disease burden alleviated, net incremental treatment costs, timing of clinical improvement, and economic impacts of the cure. **Conclusions:** We developed a comprehensive framework that captures the key factors in the evaluation of medical technologies and cures. The framework can be used to illustrate an individual technology’s impact relative to an alternative as well as facilitate comparative evaluations across technologies.

PHP295  
**CONSTRUCTING DISCRETE DISCRIMINANT TOOLS FOR VALUE ASSESSMENT OF MEDICAL DEVICES**

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**Objective:** PDAs Center for Devices and Radiological Health (CDRH) shows commitment to integrating patient voice into device benefit-risk determinations, but the methods are largely undeveloped. We suggest specific methods to follow to integrate device-development and patient outcomes as attributes for conjoint analysis. **Methods:** We developed patient attributes for a choice based conjoint and standard gambles tool for use in regulatory experiments for a microvascular prostheses. **Results:** There are ground breaking innovations in prosthetics, that theoretically could increase the ability of those missing an upper limb to control their hand/arm movement by thought or muscle movements and with potential to also feel sensation through the prosthesis. However, at least 30% of those who adopt new upper limb prosthetics do not end up using the devices. We suggest the steps that can be used to guide the quantitative translation of high technical outcomes into patient centered outcomes. **Results:** We provide the measurement tools for a choice based conjoint and a standard gamble tool for adoption of upper limb prosthetic devices such as osteointegration and myoelectric control. We show how pictures and videos can better convey a complex motion and a functional ability. We describe an activity by both patients with upper-limb loss and device-developers that can help translate electrical based metrics into larger patient centered outcomes. **Conclusions:** Patient centeredness is essential for selection of attributes for discrete choice experiments which will result in useable information for regulatory approval decisions.

PHP296  
**The Patient Voice in Value Assessment: A Rubric to Increase Patient Centricity**

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**OBJECTIVES:** Professional societies and other organizations have recently taken a visible role in the US defining treatment value and providing recommendations to payers and clinicians via value assessments. While patient perspectives routinely differ from those of other stakeholders, it is not always apparent patients were engaged in value framework development or assessments. If value frameworks are to be used to inform decisions affecting treatment access, the patient community wants robust processes in place to incorporate the patient voice. To aid stakeholders in achieving patient-centered value assessments, the National Health Council (NHC), with stakeholder input, created the Patient-Centered Value Model (Rubric). **METHODS:** The NHC held a multi-stakeholder, invitational roundtable in early 2016. Participants reviewed existing patient-engagement rubrics, completed experience with the framework, debated and thematically grouped hallmark patient-centeredness characteristics, and developed illustrative examples of the characteristics. These materials were organized into the Rubric, and vetted via multi-stakeholder peer-review. **RESULTS:** The Rubric describes two components: direct, and indirect pathways for addressing the six domains of patient-centered value frameworks: Partnership, Transparency, Inclusiveness, Diversity, Outcomes, and Data Sources. Specific examples were created to illustrate how patient engagement and centeredness can be operationalized. While direct patient engagement is the ideal goal, where the patient community has an active role, indirect means of engagement can also contribute to patient-centeredness. Indirect means include using existing data sets that capture patient views and preferences. **CONCLUSION:** The Rubric is intended to assist all stakeholders, especially the patient community, in assessing the level of patient-centeredness and engagement in a given value framework or model used to conduct a value assessment. It can be a guide to support developers in conceptualizing plans for meaningfully engaging patients. The Rubric will be refined over time based upon feedback from patient, patient group, framework developer, and other stakeholder-use experiences.

PHP297  
**Concept Analysis on Cures for Illnesses with High Disease Burden**

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**Objective:** A number of recent treatment advances have been labeled cures but a consistent definition of cure does not exist in research or clinical practice. The purpose of this study was to review the term cure and establish an operational definition. **Methods:** We conducted a systematic literature review to identify uses of the word cure in five high burden disease areas: heart disease, diabetes, human immunodeficiency virus, cancer, depression, and suicide (prostate and breast). We then applied Walker and Avant’s concept analysis to identify key factors contained within cure definitions. Cure definitions were collected in five disease areas of high disease burden: heart disease, human immunodeficiency virus, diabetes, depression, and cancer (prostate and breast). Walker and Avant’s concept analysis method was used to group the definitions of cure in each disease area were compared and reduced to the fewest number of defining attributes that would differentiate cure from similar concepts. Subsequent steps included
identifying ideal, borderline, and related cases, as well as antecedents and consequences of cure. RESULTS: Three defining attributes were identified: complete consensus, responsiveness, and the underlying cause of disease, and treatment or other interventions no longer being necessary. These attributes of cure set a high benchmark, making cure difficult to be achieved and measured, especially at the individual level. One potential operational definition may be statistical cure—when a patient’s mortality risk returns to that of the general population. This definition is used in epidemiologic modeling studies given sufficiently long follow-up. However, this does not capture the quality of life associated with disease and its impact on the general population. The recent consensus on the quality-adjusted life-year (QALY) shortfall, i.e. the difference between the quality-adjusted life expectancy of a patient with disease versus that of the general population may provide the best operational definition—all-cause QALY shortfall. CONCLUSIONS: The concept of cure was assessed to establish an operational definition as more treatments are expected with “cure” intent. Although difficult to measure, we suggest that the best operational definition for cure is the alleviation of the QALY shortfall.

PHP298
MARKET ACCESS CHALLENGES FOR VACCINE LAUNCHES
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OBJECTIVES: Vaccine launch from a market access perspective could be more complex than launching general drugs. The study was conducted to assess the complexities of launching various types of vaccines and differences in market access pathways. Methods: Factors of modes to include in the National Immunization program (NIP), procurement dynamics, evidence requirements, value elements influencing access were assessed through a survey in selected European countries including France, Italy, Germany, UK, Spain, Norway and Belgium. RESULTS: The project was conducted through in-depth secondary research including assessment of pathways and critical elements of HTA -decisions for selected vaccines through analytical framework. RESULTS: The analysis confirmed that there are several National/Regional/Local considerations in addition to those involved in general drug assessments who influence the success of a vaccine. Most importantly NITAG (national immunisation technical advisory group) in various countries play an important role. There is variance in how different countries approach the inclusion of vaccines in the national immunisation program. Not all countries have clearly defined criteria making it difficult for vaccine manufactures to understand how to develop a market access strategy for vaccines. They could follow either a vaccine pathway, generally defined by national immunisation program or a therapeutic pathway, which is similar to the standard drug access pathway. Also the modes of procurement vary including direct purchase by hospitals to national or regional tendering. Elements such as efficacy of the vaccine, its influence on the individual and global population, schedule, target population, price, unmet need and target disease carry different weightings influencing the success of vaccine from a market access perspective. CONCLUSIONS: The study gave clear strategy for a pharmaceutical company wanting to launch a vaccine. HTA agencies in general have a positive perspective towards vaccines and have support systems that could be explored for their successful market access launch.

PHP299
US NATIONAL HEALTH CARE PLAN ABSTRACT
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Abstract Objectives: National public healthcare programs have been topics of discussion during presidential elections in the United States of America (US) since 1945. This paper examines the claims and counterclaims of the Medicare for All (MfA) plan proposed during the 2016 US presidential primaries from a discussion during presidential elections in the United States of America. Abstract Objectives: Mark S, Battepati B, Di Giacomo F, Edathodu A
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OBJECTIVES: Vaccine launch from a market access perspective could be more complex than launching general drugs. The study was conducted to assess the complexities of launching various types of vaccines and differences in market access pathways. Methods: Factors of modes to include in the National Immunization program (NIP), procurement dynamics, evidence requirements, value elements influencing access were assessed through a survey in selected European countries including France, Italy, Germany, UK, Spain, Norway and Belgium. Methods: The project was conducted through in-depth secondary research including assessment of pathways and critical elements of HTA -decisions for selected vaccines through analytical framework. RESULTS: The analysis confirmed that there are several National/Regional/Local considerations in addition to those involved in general drug assessments who influence the success of a vaccine. Most importantly NITAG (national immunisation technical advisory group) in various countries play an important role. There is variance in how different countries approach the inclusion of vaccines in the national immunisation program. Not all countries have clearly defined criteria making it difficult for vaccine manufactures to understand how to develop a market access strategy for vaccines. They could follow either a vaccine pathway, generally defined by national immunisation program or a therapeutic pathway, which is similar to the standard drug access pathway. Also the modes of procurement vary including direct purchase by hospitals to national or regional tendering. Elements such as efficacy of the vaccine, its influence on the individual and global population, schedule, target population, price, unmet need and target disease carry different weightings influencing the success of vaccine from a market access perspective. CONCLUSIONS: The study gave clear strategy for a pharmaceutical company wanting to launch a vaccine. HTA agencies in general have a positive perspective towards vaccines and have support systems that could be explored for their successful market access launch.

PHP300
OVERVIEW OF MARKET SCANNING PROCESSES FOR MEDICAL TECHNOLOGIES: RATIONALE AND REQUIREMENTS
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Given ongoing medical innovation, it is essential that healthcare policy makers prepare for the costs of emerging health technologies that will enter the market. Horizon Scanning is an important tool used by such policy makers, which enables them to predict costs and prepare the necessary national budgets and resources required for health technology reimbursement. Horizon Scanning organizations generally use two main approaches: 1) Routine scanning, whereby ongoing ‘horizontal’ scans are performed to identify significant and urgent healthcare advances regardless of healthcare area; and 2) In-depth ‘vertical scanning’ which focuses on healthcare areas with known significant or unmet needs. Horizon Scanning organizations rely on regular communication with manufacturers in order to ensure that both routine and in-depth Horizon Scanning can be carried out efficiently. Using the information obtained from Horizon Scanning, the organizations put together technology briefings, alerts and in-depth Horizon Scanning reports which can be made publicly available minus confidential information. Horizon Scanning organizations in different countries require information on emerging technologies at different times. Some require information once phase III clinical trials have been initiated, whilst others can range in requiring information from three to one years prior to commercial market entry. The commercial market entry of European Horizon Scanning organizations broadly include some or all of the following: product name, indication, regulatory status, mechanism of action, epidemiology, likely comparator products, current clinical research evidence, potential product benefits, costs of product and comparator, market size, and patient impact, informa...
PHP303
REDUCING THE IMPACT OF MENTAL HEALTH-RELATED COSTS IN THE WORKPLACE WITH A PROGRAM TARGETING COGNITION
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Depression is recognized as the major cause of mental illness worldwide, affecting an estimated 267 million of the U.S. working population (Evans-Lacklo S. 2016). Depression significantly affects performance and undermines productivity with high rates of presenteeism and absenteeism (estimated annual costs of $5,524 and $380 respectively per person, total costs of ~$80–100 billion (Evans-Lacklo S. 2016; Greenberg et al. 2015)). Sixty-two per cent of costs are associated with co-morbid mental disorders, such as anxiety, stress, and sleep disorders (Greenberg et al. 2015). These disorders are related to cognitive issues that depression-affected people experience in attention, memory, learning, leading to complications in concentrating, solving problems, or making decisions, and are the main factors determining a presenteeism-associated lack of productivity. Solutions that specifically target depression-related, co-morbid disorders associated with presenteeism will be cost-saving. A project recently launched in a London-based, world-wide organisation, aiming to investigate, prevent, and manage potential cognitive employee health-related issues, adopts a cognitive assessment and training software, already tested in psychiatric populations (Domen A. et al. 2015; Nieman D. et al. 2015; Domen A. et al. 2016), in combination with a behavioural program targeting employees’ habits in sleep, exercise, diet, and hygiene. The online cognitive assessment used allowed employees to monitor their cognitive health from their own digital devices, while employers received an anonymised and aggregated view of cognitive health trends in their organisation and may help to raise awareness of the cognitive health in the workplace, enabling an evaluation of the outcomes of the combined solutions that were adopted. Assuming that a combined cognitive and behavioural program may reduce costs by 10%, U.S. employers should be able to realise a savings of around $550 per person in presenteeism costs alone.

PHP304
MONOPSONY OF ORPHAN DRUGS
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One of the challenges facing any health authority is the marketing of orphan drugs. Orphan drugs are those medicines used to treat patients with rare diseases. The scarcity of the therapeutic market makes it a non-attractive area for research and development. Therefore, it is important to investigate new molecules, and extend or industry involvement in the marketing of orphan drugs. In most countries, the health authority is the provider for those services to rare diseases. Although many of these diseases like Gaucher, Wilson’s disease, and cystic fibrosis are discovered a long ago, there is no variability in medicines available to treat these diseases. The number of companies investing in the market of orphan drugs is known and that leads to the control of the market. Monopoly takes place in most cases of orphan drugs with high prices and low availability. Non Profit organizations exist in parallel to government-provided services to provide a unified voice and support people living with rare diseases. The model shouldn’t be left to the Non Profit Communities and charity organizations. All Governments in collaboration with World Health Organization must have an entity to support, care, and treat people with rare diseases. In the market dynamics, when demand side is one stakeholder, the prices will fall. This is called the competitive forces. However, medicines can be costly by the buyer. People living with rare diseases are all the same regardless of the geographic borders they are behind especially in the small open world. There should be no dependence on governments, charity organizations to provide the healthcare and orphan drugs people living with rare diseases might need. The assessment may help to raise awareness of the risk of mental health in the workplace, enabling an evaluation of the outcomes of the combined solutions that were adopted. Assuming that a combined cognitive and behavioural program may reduce costs by 10%, U.S. employers should be able to realise a savings of around $550 per person in presenteeism costs alone.

PHP305
TAKING PATIENTS AS PARTNERS IN RESEARCH
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Despite the increasing number and scope of patient involvement initiatives, there is no accepted master framework for systematic patient involvement in pharmaceu-
ticased development. Patient engagement is more productive, but inconsistent, as the involvement of patients in research projects improves both the methodology and outcomes of the research, and also offers invaluable additional insights. Contributions by patients to the design, implementation and evaluation of research, leads to an effective approach to patient involvement. The patient involvement in healthcare research is strongly promoted by policy makers, funding bodies and international regulators. Patients have a personal experience of disease that is not available to most researchers, which complements researchers’ analytical skills and allows patients to be more active in research. Therefore, patient involvement in healthcare research is strongly promoted by policy makers, funding bodies and international regulators.

PHP306
IMPLEMENTING AN EDUCATIONAL PROGRAM IN A SPECIALIZED CENTER FOR RHEUMATOID ARTHRITIS IN COLOMBIA
Santos-Moreno P1, Rodriguez F1, Villarreal L1, AZA A1, Jaimes H1, Jaimes J1, Buitrago-Garcia D2, Castro C2, Caicedo-Escobar C1
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Rheumatoid arthritis (RA) is a chronic, inflammatory autoimmune disease of unknown etiology, it is a long term condition that causes pain, disability and affects the quality of life (1). In countries like the United Kingdom has been demonstrated how patient education can empower the individual giving as a result a better decision making between the practitioner and patient in order to obtain better health care outcomes compared to patients that are not involved in educational activities (1). All the Colombian Arthritis Association (Aza) and patient and caretaker oriented program to support the clinical treatment in patients with RA.

The structure of the program was an educational-recreational strategy where we included educational-recreational strategy. The educational program opened the opportunity to empower and motivate our patients and care takers to be actively participative with the disease management and health care, also the program has been a space for the patients to share their experiences and to propose new strategies to improve the program which opens the communication channels to build in 2017 a multi-participative program where the patients and health authorities are a fully participative component.

PHP307
OVERCOMING THE CHALLENGES OF ESTABLISHING EXPANDED ACCESS PROGRAMS IN EUROPEAN MEMBER STATES – A REGIONAL REVIEW
Bruestle J1, Béjot J2, Prades E2, Darchy A2, Muscionico D3
1Voisin Consulting Life Sciences, Camberley, UK, 2Voisin Consulting Life Sciences, Paris, France, 3Voisin Consulting Life Sciences, Lausanne, Switzerland
OBJECTIVES: To review current status and challenges associated with mechan-
isms governing the provision of pre-authorized therapeutic compounds in areas of high unmet need outside of clinical trials. Recommendations for avoiding common pitfalls will be provided based on review of actual case studies in relevant countries.

DISCUSSION: The use of Complementary and Integrative Health (CIH) approaches. Along with natural products or dietary supplements, there has been an increase in the use of CIH approaches. CIH approaches may augment patient health experience positively, reducing disability and improve better health outcome at potentially lower cost, satisfying both the patient and commercial payer’s perspective.

For conventional healthcare systems to adopt truly integrated CIH approaches, the major drivers will have to include clinical and cost-effectiveness parameters. Con-

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Conflicts of Interest: None.
future price can be influenced by the price of the product in an EAP and by the timing of the negotiations. The complexity of managing these programs has increased, particularly in countries where it can take over 20 months to agree reimbursement after marketing authorization, delaying patient access. Underestimation of the set-up complexities, language issues, cost and duration of an access negotiation, and failure to define an appropriate exit strategy are common challenges. CONCLUSIONS: Implementation of an EAP requires a multidisciplinary strategic approach and allocation of substantial resources. It is important to work with local representatives to understand the specific regional requirements in each country to mitigate potential risks e.g. inadvertently establishing price precedents or benchmarks.

PHP309 IMPACT OF HEALTH SECTOR REFORMS ON HOSPITAL PRODUCTIVITY IN TURKEY: A DATA ENVELOPMENT ANALYSIS (DEA) BASED MALMQUIST INDEX APPROACH
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OBJECTIVES: Health sector reforms are policy changing processes designed to solve efficiency, quality and equity problems associated with the delivery of health services. Health sector reforms create sustained, purposeful and fundamental changes in the health sector (Berman, 1995). As pointed out by Cassels (1995), governments of developing countries have to ensure that an appropriate share of public revenue is allocated to health, that the benefits of publicly-funded health care are equitably distributed; and that resources are used as efficiently as possible in terms of the outcomes achieved. Resource allocation, if not done properly, may result in failure to establish a price elasticity model that accommodates market equilibrium between supply & demand & (re)pricing policy that is sustainable, predictable, (including profit or socioeconomic factors - life saving products – orphan drugs ) - Enhancing perfect competition elements like Property rights, exit and entry to the market large number of buyers and sellers, transparent information & Expanding health services packages for new social layers to minimize the impact of price increase.

PHP310 THE TOWVERS PROGRAM: A PILOT PROGRAM TO CAPTURE REAL-WORLD EVIDENCE IN A POPULATIONAL ENVIRONMENT - THE QUEBEC EXPERIENCE
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In the province of Quebec, over the past 30 years, the proportion of healthcare cost that has increased significantly, regardless of all the cost containment policies that have been implemented within the system. Today, healthcare represents 48% of the government expenses. Health is a priority but it is not the only one. International organizations are searching to solve the puzzle of coping with patient access – patient safety, clinical relevance - that is breaking the nation’s health system and can be a real crisis. Developing and elaborating a database that captures real-world evidence as a mean to optimize patient health and control cost increase. In the province of Quebec, a pilot project is underway to address these issues: the TOWVERS program. The TOWVERS program is a dynamic, interactive, web-based clinical registry that shares the patient clinical information (the DBC-P) amongst healthcare professionals and the patient. The ultimate goal of the TOWVERS program is to transform healthcare policymaking paradigm based on budgets towards clinical results, increasing accountability and collaboration of the various actors to develop relevant market access strategies and track the efficiency of treatment plans for the various actors. During this conference, we will share our ongoing experience of a major public-private health partnership of healthcare professionals, patients and their advocacy groups, payers, governments and industry.

PHP311 CHALLENGES FACING PHARMACEUTICAL PRICING IN EGYPT AFTER CURRENCY DEVALUATION HOW TO REACH EQUILIBRIUM
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The devaluation of the Egyptian pound in November 2016 was a significant event in the pharmaceutical industry. The pharmaceutical industry was negatively affected by the devaluation because; • Pharmaceutical products are subject to compulsory pricing and they represent 31% of the total healthcare spending in Egypt. • Many of the Products in The Market Had Been Priced Years Earlier at a much Lower Exchange Rate. This led to pharmaceutical industry facing the following challenges: • products went below profitability • business size shrunk by 50% overnight. Consequences were: • inability to maintain supply to fulfill tender requirements that were awarded before the devaluation. • All Patient access programs were reassessed & in many cases suspended. • Products shortage due to exit of suppliers from Egyptian market and to delays in approval by the Ministry of Health. • How the repricing process could achieve the equilibrium between a fair price for the industry and patient accessibility. • How to control drug shortage. • With 71% out of pocket for health expenditure how to minimize the effect of price increase on public. Methods: The following strategies should be implemented: • Developing clear fair pricing guidelines that enhance value recognition. • Establish a price elasticity model that accommodates market equilibrium between supply & demand & (re)pricing policy that is sustainable, predictable, (including profit or socioeconomic factors - life saving products – orphan drugs ) - Enhancing perfect competition elements like Property rights, exit and entry to the market large number of buyers and sellers, transparent information & Expanding health services packages for new social layers to minimize the impact of price increase.
ing evidence base. It is vital that decision-makers are aware of the influence of all types of uncertainty to fully understand the opportunity cost and relative value of introducing stratified medicine into practice.

PHP316
IMPLICATIONS FROM HEOR AND RWE MODELS FOR BIOPHARMACEUTICAL COMMERCIAL ANALYTICS TO DEMONSTRATE DRUG VALUE THROUGH SALES AND MARKETING OF SPECIALTY MEDICINES

Chressanthis GA
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Biopharmaceutical industry trends show an increased focus on specialty medicines, accounting for 35% of US drug total spending growth is on new drugs available for specialty medicines catering to orphan drug-like patient populations, resulting in longer length of stays and higher costs per patient. Patients treated with other antibiotics such as piperacillin-tazobactam were commonly used to treat more severe infections, based on median severity of illness score. Severe patients treated with these antibiotics experienced the highest mortality rates (17%) and cost per patient (mean total cost of $40,226), despite having similar severity of illness scores to other commonly used antibiotics. In contrast, patients treated with levofloxacin experienced the lowest median cost per visit ($22,902) and mortality rate (6%).

CONCLUSIONS: Sepsis patients treated with levofloxacin experienced the lowest patient cost per visit and mortality rate compared to sepsis patients treated with other antibiotics. Severe patients, treated with other antibiotics such as piperacillin-tazobactam, gestamcin, and linezolid, experienced higher mortality rates, longer length of stays, and higher treatment costs.

PIN3
ANTIBIOTIC UTILIZATION, TREATMENT OUTCOMES, AND ECONOMIC IMPACT IN SEPSIS PATIENTS: RETROSPECTIVE ANALYSIS OF A LARGE US ELECTRONIC HEALTH RECORD DATABASE

Peery PW, Khangulov VS, Hayashi DE, Talaga AK, D’Souza FT
Boston Strategic Partners, Inc., Boston, MA, USA

OBJECTIVES: Approximately 7% of total healthcare expenditure in the US is due to hospitalization for treatment of pneumonia. The study demonstrates good comparability between adalimumab-related infection cases reported in FAERS and OS-CTs. Differences in the percentages of cases may relate to severity, as likely only the most severe infections would be reported to FAERS. Results from this passive (FAERS) and active (observational studies) pharmacovigilance provide similar results for common infections. This finding supports the usefulness of FAERS in post-marketing drug safety assessment.

DISEASE-SPECIFIC STUDIES
INFECTION – Clinical Outcomes Studies

PIN1
ANALYSIS OF ADVERSE DRUG REACTIONS IN PATIENTS WITH TUBERCULOSIS ALONE AND IN CONJUNCTION WITH HIV INFECTION: A PROSPECTIVE OBSERVATIONAL STUDY

Name HM3
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OBJECTIVES: The primary objective of the study is to monitor and detect adverse drug reactions during treatment of pulmonary tuberculosis, and to compare their incidence, frequency and severity with patients having TB-HIV co-infection. METHODS: We conducted a prospective study on patients who visited DOTS centers between December 2014 and November 2016 in Govt. Infectious Disease Center, Guntur, Andhra Pradesh, India. Any symptomatic adverse event observed by the clinician or reported by the patient was recorded in the standard patient treatment booklet of the National Tuberculosis and Leprosy Program (NTP). The percentage of the total number of infections from each source was determined. The 10 most frequently reported PTs in FAERS were nasopharyngitis (15.5%), sinus (7.8%), pneumonia (6.2%), bronchitis (5.6%), influenza (4.5%), urinary tract infection (3.9%), Herpes Zoster (3.3%), upper respiratory tract infection (2.6%), cellulitis (1.8%), and ear infection (0.7%). Twenty-two PTs were reported, comprising 2,284 cases with 272 infection PTs. The 10 most frequently reported PTs in OS-CTs were nasopharyngitis (15.7%), bronchitis (13.7%), urinary tract infection (10.8%), pneumonia (9.7%), respiratory tract infection (4.2%), upper respiratory tract infection (2.8%), Herpes Zoster (2.5%), sinusitis (1.9%), sepsis (1.7%) and pharyngitis (1.7%). Thus, 7 of the top 10 infection PTs matched and 3 were reported at rates within 0.5% of each other. Respiratory cases accounted for 6 and 7 of the top 10 PTs in FAERS and OS-CTs, respectively.

CONCLUSIONS: The study demonstrates good comparability between adalimumab-related infection cases reported in FAERS and OS-CTs. Differences in the percentages of cases may relate to severity, as likely only the most severe infections would be reported to FAERS. Results from this passive (FAERS) and active (observational studies) pharmacovigilance provide similar results for common infections. This finding supports the usefulness of FAERS in post-marketing drug safety assessment.

PIN2
ACTIVE VERSUS PASSIVE PHARMACOVIGILANCE: ADALIMUMAB-RELATED INFECTIONS REPORTED IN OBSERVATIONAL STUDIES COMPARED WITH THE FDA’S ADVERSE EVENT REPORTING SYSTEM CASES

Chen C, Borrego M, Roberts M, Raisch DW
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OBJECTIVES: To compare adalimumab-related infections reported in observa-
tional studies to those reported in the U.S. FDA’s Adverse Event Reporting System (FAERS). METHODS: Using MedDRA®: preferred terms (PTs), infection and infesta-
tion PTs containing adalimumab as principal or secondary therapeutic code were retrieved through EvidexTM. Completed observational studies with results reported on ClinicalTrials.gov (OS-CTs) were extracted. Exclusion criteria for observational studies were: 1) did not assess safety, 2) contained duplicate data from another observational study and 3) reported only serious adverse events. For each infection PT, the percentage of the total number of infections from each source was determined. RESULTS: In FAERS, 58,012 cases with 824 different infection PTs were reported. The 10 most frequently reported PTs in FAERS were nasopharyngitis (15.5%), sinus (7.8%), pneumonia (6.2%), bronchitis (5.6%), influenza (4.5%), urinary tract infection (3.9%), Herpes Zoster (3.3%), upper respiratory tract infection (2.6%), cellulitis (1.8%), and ear infection (0.7%). Twenty-two PTs were reported, comprising 2,284 cases with 272 infection PTs. The 10 most frequently reported PTs in OS-CTs were nasopharyngitis (15.7%), bronchitis (13.7%), urinary tract infection (10.8%), pneumonia (9.7%), respiratory tract infection (4.2%), upper respiratory tract infection (2.8%), Herpes Zoster (2.5%), sinusitis (1.9%), sepsis (1.7%) and pharyngitis (1.7%). Thus, 7 of the top 10 infection PTs matched and 3 were reported at rates within 0.5% of each other. Respiratory cases accounted for 6 and 7 of the top 10 PTs in FAERS and OS-CTs, respectively.

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PIN4
HEALTH RECORD DATABASE
MULTIDISTRICT SEPSIS PATIENTS: RETROSPECTIVE ANALYSIS OF A LARGE US ELECTRONIC HEALTH RECORD DATABASE

Souza FT, Cipolle RJ, Hfer Adjustable, Inc., Boston, MA, USA

OBJECTIVES: To examine antibiotic utilization and associated outcomes and cost in a large sample of US sepsis patients. METHODS: We examined prospectively collected data from a US electronic health record dataset (Cerner Health Facts®) representing 614 US hospitals and over 272MM patient visits included 37,842 patient visits. The most common antibiotics used were vancomycin (14.6%), piperacillin-tazobactam (14.3%), and levofloxacin (12.8%). Based on median gestamcin illness scores, gentamcin and piperacillin-tazobactam were prevalently used to treat severe infections. Patients with severe infections were observed to have high length of stays (LOS), with gentamcin (median LOS 7 days), metronidazole (median LOS 8.7 days), and linezolid (median LOS 8.7 days) patients having the highest LOS. In contrast, the patients on the top ten antibiotics experienced the highest mortality rates (17%) and cost per patient (mean total cost of $40,226), despite having similar severity of illness scores to other commonly used antibiotics. In contrast, patients treated with levofloxacin experienced the lowest median cost per visit ($22,902) and mortality rate (6%).

CONCLUSIONS: Sepsis patients treated with levofloxacin experienced the lowest patient cost per visit and mortality rate compared to sepsis patients treated with other antibiotics. Severe patients, treated with other antibiotics such as piperacillin-tazobactam, gestamcin, and linezolid, experienced higher mortality rates, longer length of stays, and higher treatment costs.

PIN5
ANTIBIOTIC UTILIZATION, TREATMENT OUTCOMES, AND ECONOMIC IMPACT IN PNEUMONIA PATIENTS: RETROSPECTIVE ANALYSIS OF A LARGE US ELECTRONIC HEALTH RECORD DATABASE

Peery PW, Khangulov VS, Hayashi DE, Talaga AK, D’Souza FT
Boston Strategic Partners, Inc., Boston, MA, USA

OBJECTIVES: In 2014, the US healthcare spending surpassed $3.0 trillion with nearly 1/3 ($971 billion) spent on hospitalizations. An estimated 1.14 MM patients are admitted to the hospital every year for treatment of pneumonia. The objective of the present study was to examine the current antibiotic utilization and associated outcomes and cost in a large sample of US pneumonia patients. METHODS: We examined prospectively collected data from a US electronic health record dataset (Cerner Health Facts®) representing 614 US hospitals and over 272MM patient encounters. Inpatient and outpatient encoun-
ters between January 2010 and March 2015 involving adult patients diagnosed with pneumonia during an emergency admission were retrospectively ana-
yzed. RESULTS: The final study population included 103,502 patient encounters. The most common antibiotics used were levofloxacin (19.7%), ceftriaxone (13.8%), and azithromycin (11.0%). Gentamcin, ciprofloxin, and piperacillin-tazobactam were commonly used to treat severe infections, based on median severity of illness score. Severe patients treated with these antibiotics were observed to have a high median length of stays (LOS) compared to patients treated with the other top antibiotics, with gentamcin and piperacillin-tazobactam (median LOS 9.0 days), metronidazole (median LOS 8.9 days), and ciprofloxin (median LOS 7.0 days) patients having the highest LOS. Patients on gentamcin had higher mortality rates (18% vs. 13% as the next highest in top ten) and cost per patient (median total cost of $80,682 vs. $39,314 as the next highest in top ten), potentially due to high median severity of illness scores compared other commonly used antibiotics. CONCLUSIONS: This analysis identified key trends in antibiotic usage in pneumonia patients. Gentamcin was used to treat severe patients, resulting in longer length of stays and higher costs per patient. Conversely, patients treated with other commonly used antibiotics such as levofloxacin, ceftriaxone, and azithromycin, were less severe and experienced shorter length of stays and lower mortality rates.
susceptible bacterial species. Drug resistant bacterial infections resulted in higher costs in sepsis patients with drug resistant bacterial species and drug resistant infections experienced 22% longer length of stays (LOS) in the intensive care unit (ICU) and hospital LOS 9.0 days vs. 7.5 days for patients with drug resistant pneumonia (median ICU LOS 7.5 days vs. 6.0 days; median hospital LOS 11.9 days vs. 9.0 days). Additionally, patients with drug resistant pneumonia had higher inhospital mortality rates (3.40% vs. 0.81%). CONCLUSIONS: This analysis identified greater hospital costs, longer length of stays, and higher mortality rates in pneumonia patients with drug resistant bacterial species compared to patients with drug susceptible bacterial species. These observations provide support for treatment of drug resistant infections and support the importance of developing treatment options to circumvent established antibiotic resistances.

METHODS: COMONITRIBUTION UTILIZATION OF COMPLEMENTARY AND ALTERNATIVE MEDICINE, AND ANTIRETROVIRAL THERAPY AMONG HIV-INFECTED PATIENTS: PREVALENCE, PATTERNS AND OUTCOME

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OBJECTIVES: To evaluate the prevalence and patterns, and covariates of concomitant use of complementary and alternate medical (CAM) and Antiretroviral Therapy (ART) and the impact on ART adherence and viral load suppression among HIV-infected patients engaged in care in Houston/Harris County, Texas. Study used for this study were obtained from the Medical Monitoring Project (MMP) survey conducted in Houston/Harris County, Texas between 2009 and 2013. We estimated the prevalence of and patterns of concurrent use of CAM and ART among persons receiving HIV medical care in the past 12 months, and determined relationships between ART adherence and viral load suppression. The obtained data were subjected to descriptive and inferential statistics using the SAS software version 9.4. RESULTS: Concomitant use of CAM and ART (CAM-ART) was 34.2% more prevalent among Whites (84.9%, 95% CI: 33.4-56.4) than blacks (30.4%, 95% CI: 24.6-43.4) and Hispanics (17.1%, 95% CI: 9.3-24.9). CAM-ART use increased significantly (p < 0.001) among individuals with less age and education attainment at age 46.5 years (OR 32.7, 95% CI: 5.1-16.4) and among those educated beyond high school (62.0%, 95% CI: 49.9-77.4). More males than females used this self-management approach (79.3% vs. 18.7%, p < 0.001). CAM-Medical use included integrative medicine (84.5%), mind-body medicine/manipulative body-based therapies (25.4%), spiritual healing (14.2%), and energy therapies (2.4%). Among CAM-ART users, 83.5% (p < 0.001) were adherent to ART. We noted no significant variations in viral load suppression among CAM-ART users compared to ART only users. These findings suggest that these therapies are suggestive of complementary roles rather than as substitutes for ART. However, it is very important that CAM-ART users consult with their clinicians to avoid any potential side effects or interactions with ART, and to ensure patient safety. Further research is needed to explore reasons for use and the possible health benefits or risks associated with long term use of CAM.

METHODS: BURDEN OF INVASIVE PNEUMOCOCCAL PNEUMONIA AMONG INDIAN CHILDREN: A SYSTEMATIC REVIEW AND META-ANALYSIS OF OBSERVATIONAL STUDIES

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Annals of Pharmacotherapy: Published by Taylor & Francis Group, a Division of Informa plc, London, United Kingdom

OBJECTIVES: Pneumococcal pneumonia is a vaccine preventable disease. Despite this fact, it is one of the leading causes of childhood morbidity and mortality in Indian children. Limited data on its burden and serotype prevalence is one of the reasons for non-inclusion of the vaccine in national immunization schedule. The aim of the present study is to estimate the overall prevalence of invasive bacterial pneumonia caused by Streptococcus pneumoniae in Indian children.

METHODS: This systematic review was conducted using Cochrane Library, PubMed, Google Scholar and Science Direct. Further, the reference list of related papers was also screened for additional studies. Patients under 12 years of age and diagnosed with invasive bacterial pneumonia caused by S. pneumoniae was included. Published studies from January 2016 were included. Data were extracted using the Egger’s and Begg’s tests along with funnel plot. Newcastle-Ottawa scale was used to assess the study quality. Heterogeneity was assessed using Cochrane Q-test and I2 statistics. Random-effects model was used to report the pooled prevalence with 95% confidence intervals (CI).

RESULTS: A total of 6 studies, covering a total of 40883 patients and from different geographical regions in India were included. The number of study participants ranged from 133-37070. And, the period of surveillance ranged from 1-2 years. The pooled prevalence of bacterial pneumonia caused by S. pneumoniae in Indian children under 12 years of age was found to be 24.5% (95% confidence interval 11.2%-45.4%). The pooled prevalence of bacterial pneumonia caused by S. pneumoniae 45.9% (30.6%-62%) was found to be higher in children under 6 years of age. CONCLUSIONS: Bacterial pneumonia caused by S. pneumoniae has a significant burden among Indian children. The inclusion of pneumococcal vaccine in the Indian public health programme may help in decreasing this burden.

OBJECTIVES: Pertussis is an infectious respiratory disease which affects individuals of all ages. Pertussis infection has increased in recent decades, despite established childhood vaccination programs. To better understand recent trends in pertussis disease, and the impact of new adult vaccination recommendations, we used administrative data to estimate the burden of pertussis among individuals aged 0-64 from 2006 to 2015. METHODS: Individuals aged 0-64 years with evidence of a pertussis diagnosis from 1/1/2006-12/31/2015 were identified from commercial claims in the Optum Research Database (ORD). Annual pertussis incidence was calculated as the ratio of newly diagnosed pertussis cases...
over the total person-time at risk. Incidence rates were standardized to the 2010 US Census on age, sex and geographic division. RESULTS: From 2006-2015, 17,350 pertussis cases aged 0-64 were identified with 61.3% of cases among adolescents or adults. The overall standardized incidence of pertussis was 14.6 cases/100,000 person-years (PY). The incidence of pertussis among all age groups peaked in 2012 at 23,000/100,000 PY (18/95,000 PY among infants <1 and declined to 12,900/100,000 PY in 2015 (infants: 96/5,000,000 PY), consistent with trends reported by the CDC using nationwide surveillance data. On average, standardized incidence rates estimated from the OR were more than twice as high as those reported by the CDC using national surveillance data, and further estimated that 1,950 deaths occurred in 2012, with more rapid declines among infants. Findings from this study highlight the continued importance of pertussis management and prevention strategies among individuals from all age groups, especially adolescents and adults as they are known to represent a main source of transmission to infants.

PIN11 INCIDENCE AND TREATMENT OUTCOME OF TUBERCULOSIS AMONG MALAYSIAN PRISONERS
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OBJECTIVES: To assess the incidence of TB among prison inmates in four Malaysian states and evaluate their treatment outcomes. METHODS: A cross-sectional, retrospective study was conducted in the eleven prisons in four Malaysian states, which were selected based on high burdens of TB in Malaysia (Sabah, Sarawak, Pulau Pinang, and Selangor). Patients with confirmed TB were selected using electronic data on tuberculosis reporting, and further epidemiological, microbiological, and chest radiograph (CXR), sputum positive and culture positive test. RESULTS: A total of 405 inmates were diagnosed with TB. The majority were male inmates (n=397, 98%). Age group (p=0.002), duration of sentence (p=0.005), and length of stay (LOS) were presented descriptively and a multivariable logistic regression analysis was conducted. The incidence rate was 755/100,000. The overall incidence of TB among the four state prisons in Malaysia was 440/100,000. The treatment outcomes of 279 (68.8%) inmates with TB was successful, 31 (7.7%) were defaulters, 12 (3%) were transferred and hospitalized were reported per 100,000 discharges. In-hospital mortality (9.55% to 11.19%). In children aged <6 years, the incidence of pneumococcal meningitis (PM) remained steady up to the introduction of PCV13 following which PM incidence decreased clinical burden and deaths while slightly increasing costs. Using seasonality variability more precisely than previous models. METHODS: A budget-impact model was constructed using season-specific epidemiological parameters (e.g., attack rates, hospitalization rates) derived from Centers for Disease Control and Prevention published data for eight recent seasons; previous modeling approaches used average parameter values across seasons, including average attack rates from vaccine clinical trials. The model was applied to the base case scenario of introducing quadrivalent inactivated influenza vaccine (QIV) in the United States for the 2016/2017 season. RESULTS: QIV was estimated to prevent 11,465 patients with chronic hepatitis C (CHC) genotypes 1 and 4 in the United States (US) HEALTH PLAN
Corman SL1, Nwankwo C2, Jiang Y2
1Princeton International, Bethesda, MD, USA, 2Merck & Co., Inc., Kenilworth, NJ, USA
OBJECTIVES: To assess the financial consequence to a US health plan’s direct pharmaceutical budget when EBR/GZR is added to the formulary for the treatment of G1 and G4 CHC infection. METHODS: The budget impact model (BIM) compared two scenarios, without EBR/GZR (scenario 1) and with EBR/GZR (scenario 2) on the formulary. The model was structured within the other FDA-approved treatments for CHC G1 and G4 infection, which were assumed to be on formulary. Regimens and treatment durations were assumed to follow FDA-approved labeling and differed by genotype, presence of cirrhosis, and presence of chronic kidney disease (CKD) stage 4/5. Costs included medication wholesale acquisition costs and RAV testing, and were calculated over a 3-year time horizon. The incremental pharmaceutical cost of adding EBR/GZR to the formulary was estimated by calculating the total per-member-per-month (PMPM) costs prevented by EBR/GZR without EBR/GZR and then subtracting out the incremental EBR/GZR incremental cost. Based on the inputs and assumptions used in the BIM, the introduction of EBR/GZR to the formulary was projected to be cost savings to direct pharmaceutical budget of a health plan over a 3-year period.

INFECTION – Cost Studies
PIN11 A BUDGET-IMPACT ANALYSIS OF QUADRIVALENT INFLUENZA VACCINE USE IN THE UNITED STATES
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OBJECTIVES: Anti-malarials among pregnant women are the primary treatment for uncomplicated malaria and are associated with serious adverse pregnancy outcomes. However, the clinical and economic impact of anti-malarials varies between different medicines. METHODS: We conducted a head-to-head meta-analysis and head-to-head comparison studies are difficult to conduct in pregnant women. The purpose of this study was to characterize U.S. national trends of influenza cases and a PPPM cost of $0.001 using data from 2007/2008 to 2015/2016. CONCLUSIONS: The model predicted that conversion of TIV to QIV results in decreased clinical burden and deaths while slightly increasing costs. Using season-specific epidemiological inputs demonstrated outcome variability by season.

PIN15 BUDGET IMPACT OF ELBASVIR/GRAZOPREVIR (EBR/GZR) FOR THE TREATMENT OF CHRONIC HEPATITIS C (CHC) GENOTYPES 1 AND 4 IN A UNITED STATES (US) HEALTH PLAN
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OBJECTIVES: To assess the financial consequence to a US health plan’s direct pharmaceutical budget when EBR/GZR is added to the formulary for the treatment of G1 and G4 CHC infection. METHODS: The budget impact model (BIM) compared two scenarios, without EBR/GZR (scenario 1) and with EBR/GZR (scenario 2) on the formulary. The model was structured within the other FDA-approved treatments for CHC G1 and G4 infection, which were assumed to be on formulary. Regimens and treatment durations were assumed to follow FDA-approved labeling and differed by genotype, presence of cirrhosis, and presence of chronic kidney disease (CKD) stage 4/5. Costs included medication wholesale acquisition costs and RAV testing, and were calculated over a 3-year time horizon. The incremental pharmaceutical cost of adding EBR/GZR to the formulary was estimated by calculating the total per-member-per-month (PMPM) costs prevented by EBR/GZR without EBR/GZR and then subtracting out the incremental EBR/GZR incremental cost. Based on the inputs and assumptions used in the BIM, the introduction of EBR/GZR to the formulary was projected to be cost savings to direct pharmaceutical budget of a health plan over a 3-year period.
OBJECTIVES: A model developed to measure the time to achieve the breakeven point in a vaccination campaign. For this analysis where taken in consideration pneumococcal diseases epidemiologic data (DATASUS), mortality rates, demographic data (IBGE) and vaccine effectiveness, in a cohort of 2 million lives (based on average of top 10 largest Brazilian Private Health Plans). Were considered direct costs regarding patient treatment and indirect costs such as loss working day. For comparison were produced two scenarios: Scenario 1 the campaign was financed in 50% by the healthcare plan and scenario 2, where the cost is 100% with no cost for the patient. RESULTS: Applying the demographic rate of age groups were obtained the target population to be vaccinated (N=455,600). The total investment cost of the vaccination campaign for scenario 1 was BRL 30.2 million, and approximately BRL 60.5 million in scenario 2. The total cost of the pneumococcal diseases events were BRL 179.9 million direct expenses, including indirect costs were BRL 255.7 million. The breakeven point of investment in scenario 1 was under 2 years considering only direct costs and approximately 1 year, when including indirect costs. For scenario 2 the point was reached in approximately 3.5 years considering only the direct costs and approximately 2.5 years when including the indirect costs. CONCLUSIONS: The vaccination campaign using the 13-valent conjugate vaccine cost per opted with a full medium-term investment improving overall health of the policyholder’s portfolio, reducing the number of claims. Vaccine properties of immunological memory guarantee that a greater investment is needed only once, at the outset, requiring a lower maintenance cost for new entrants.

METHODS: A cross-sectional study was conducted in six months, from January 2015 and March 2016 at Cu Chi Provincial General Hospital. Cost-of-illness (COI) in this study is estimated under the incidence-based approach from the societal perspective. RESULTS: Among 168 patients were interviewed, proportion of adults suffering dengue fever are almost double that of children (64.3% vs 35.7%). The day loss of patient and caregiver were 7.8 days and 2.9 days for any cardiovascular disorders group; diabetes-cardiovascular diseases group (80.62 /H11006); 2.1 /H11006; 63.5 USD and 132.7 /H11006 (64.3% vs 35.7%). The component with the highest proportion of total cost was the cost of hospital bed (50.2%). According to the cost calculation, the most expensive resources are people days, followed by hospitalization expenses. CONCLUSIONS: This study can be the basis for formulating investment plans and allocating resources to control dengue fever and other arbovirus disease in Vietnam. Further study is needed to provide more comprehensive evidence on the economic burden of inpatient treatment and cost-utility analysis of treatment strategies.

METHODS: We developed a decision analytic model to compare short-term costs and health outcomes of chronic HCV genotype 1 infection in Hong Kong patients on the current standard treatment (interferon-based and ribavirin) to new treatments (sofosbuvir, ledipasvir/sofosbuvir or obitavir/paritaprevir/ritonavir and dasabuvir). Costs, sustained viral response (SVR) and incremental cost-effectiveness ratio (ICER) defined as incremental cost per treatment success were estimated. The cost-effectiveness ratio was evaluated under a five-year healthcare expenditures before and after the introduction of new treatments were compared to assess the budget impact to the public healthcare system. RESULTS: New treatments accounted for 85% of overall treatment costs for all treatments. Compared to the current standard treatment, new treatments improved the SVR from 59.6% to 82.3% and 99.8% upon patient treatment history and cirrhosis conditions. New treatments mainly dominated current treatment as cost-saving options given their greater effectiveness and lower costs with ICERs ranged from -$3,395 to $43,643 per treatment success. Introducing new treatments associated with 16.5% ($99.2 million) budget increase on HCV management over five years. A 30% change in medication costs reflected a change in budget ranging from -$2,920 to $426.5 million. CONCLUSIONS: New HCV treatments are cost-effective alternatives to current standard care in Hong Kong. Introducing the new treatments to the public hospital formulary yields moderate budget increase in five years.

OBJECTIVES: To evaluate the cost-effectiveness and the budget impact of introducing direct-acting antivirals (DAAs) to the hospital formulary in Hong Kong. METHODS: We developed a decision analytic model to compare short-term costs and health outcomes of chronic HCV genotype 1 infection in Hong Kong patients on the current standard treatment (triple therapy of pegylated interferon and ribavirin) to new treatments (sofosbuvir, ledipasvir/sofosbuvir or obitavir/paritaprevir/ritonavir and dasabuvir). Costs, sustained viral response (SVR) and incremental cost-effectiveness ratio (ICER) defined as incremental cost per treatment success were estimated. The cost-effectiveness ratio was evaluated under a five-year healthcare expenditures before and after the introduction of new treatments were compared to assess the budget impact to the public healthcare system. RESULTS: New treatments accounted for 85% of overall treatment costs for all treatments. Compared to the current standard treatment, new treatments improved the SVR from 59.6% to 82.3% and 99.8% upon patient treatment history and cirrhosis conditions. New treatments mainly dominated current treatment as cost-saving options given their greater effectiveness and lower costs with ICERs ranged from -$3,395 to $43,643 per treatment success. Introducing new treatments associated with 16.5% ($99.2 million) budget increase on HCV management over five years. A 30% change in medication costs reflected a change in budget ranging from -$2,920 to $426.5 million. CONCLUSIONS: New HCV treatments are cost-effective alternatives to current standard care in Hong Kong. Introducing the new treatments to the public hospital formulary yields moderate budget increase in five years.

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**PIN22**

THE HEALTH AND ECONOMIC IMPACTS OF ANDROGENIC ANABOLIC STEROIDS AS ADD-ON THERAPY FOR HIV PATIENTS

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**OBJECTIVES:** Androgenic anabolic steroids (AAS) are a potential treatment for muscle wasting, a common consequence of advanced HIV. Prevalence of use and health outcomes associated with AAS is not well understood for HIV patients. The purpose of this study was to evaluate economic and health outcomes of HIV patients receiving AAS therapy compared to non-AAS treated HIV patients. **METHODS:** A retrospective cohort analysis was conducted with a large commercial claims database containing 46,205 patients (ICD-9-CM codes and demographics were collected from January 2011 to December 2013). Patients were matched 1:1 using Greedy propensity score matching. RESULTS: 663 HIV patients were identified in the time window, of which 45 (6.8%) received AAS. There were disparities between the AAS and non-AAS groups in age (47.7 ± 7.61 vs 44.9 ± 9.93; p = 0.028), proportion that were male (100% vs 81%; p = 0.002), HIV medication days’ supply (305 ± 237.6 vs 233.6 ± 218.2; p = 0.035), and HIV medication cost ($912.90 ± 591.40 vs $650.90 ± 337.00; p = 0.001). Fifty-eight patients were matched on demographic and severity indices. CONCLUSIONS: Patients taking AAS therapy were older, male, and were taking larger amounts of HIV medication. Additionally, AAS-treated patients had significantly more hospitalizations than non-AAS patients. This study is limited by the small population of HIV patients receiving AAS therapy.

**PIN23**

COMPARISON OF HIV ANTIRETROVIRAL DRUGS PRICES IN THE US AND CANADA

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**OBJECTIVES:** To compare the prices of HIV antiretroviral (ARV) drugs in the US and the Canadian provinces Ontario and Quebec. **METHODS:** US wholesale acquisition cost (WAC) estimates were sourced from the Truven Health Analytics (2017). Prices for public programs of the provinces of Quebec and Ontario were collected from the respective webpages on the same date. The median, 25th percentile, 75th percentile, and range of prices for each drug were calculated. A Wilcoxon Signed rank test was conducted in the analysis using SPSS. **RESULTS:** Prices of brand HIV ARVs were significantly higher in Quebec than in Ontario and US (p = 0.000). The median price of generic nevirapine 200mg was lower in the US than in Ontario and Quebec. Quebec had non-statistically significant different prices of ARVs compared to the Canadian provinces (p = 0.16). CONCLUSIONS: Quebec had non-statistically significant different prices of ARVs compared to the Canadian provinces (p = 0.16). The price of generic nevirapine 200mg was lower in the US than in Ontario and Quebec. Quebec had non-statistically significant different prices of ARVs compared to the Canadian provinces (p = 0.16).

**PIN24**

INPATIENT AND OUTPATIENT COSTS CARE BEFORE AND AFTER A VACCINATION CAMPAIGN IN HIGH-RISK ADULT IN PANAMA IN 2015

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**BACKGROUND:** Panama Canal Area Benefit Plan (PCABP) is a Benefit Plan administered by AKA Assistance. AKA Assistance represents around 35-40% of private healthcare market in Panama. Our Plan has more than 10,000 Members and almost of our Members are ≥ 50 years older and suffering multiple comorbidities, mostly related to chronic cardiometabolic disease, as well as diabetes, hypertension, stroke, atherosclerosis, arthritis. Before 2015 none of plan’s members received 13-Valent Pneumococcal Conjugate Vaccine (PCV13). **OBJECTIVES:** To estimate number of inpatient and outpatient cases included the different of cost, before and after vaccination campaign in our high-risk population. **METHODS:** We performed a retrospective study using the HCUP NIS database (2009-2013) and Medicare file of Panama (2016). During January–December 2015, patients were vaccinated with PCV13 vaccine campaign. **RESULTS:** A total of 75,427 RSV hospitalizations were identified. The highest hospitalizations were in patients <1 yr (72%) followed by 1-4yr age group (28%). The price of generic nevirapine 200mg was lower in the US than in Ontario and Quebec. **CONCLUSIONS:** The price of generic nevirapine 200mg was lower in the US than in Ontario and Quebec. Patients had no statistically significant different low prices among US.

**PIN25**

COST OF HOSPITALIZATION AND OUTPATIENT TREATMENT FOR HERPES ZOSTER IN HONG KONG OLDER ADULTS

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**OBJECTIVES:** The population at risk for herpes zoster (HZ) is increasing with prolonging life expectancy in Hong Kong. HZ treatment cost data are essential to assist the cost-effective implementation of zoster vaccination program. We aimed to describe HZ clinical outcomes and direct cost in older adult patients treated in Hong Kong inpatient and outpatient settings. **METHODS:** A retrospective, observational study was conducted in two clusters of Hospital Authority, the largest public healthcare provider in Hong Kong. Medical records of patients aged ≥ 50 years with HZ diagnosis at clinics and general hospitals in January 2011 to December 2013 were collected. Outcome measures included HZ-related length of hospital stay (LOS), outpatient visits, treatment cost, and HZ-related complications. **RESULTS:** We reviewed 215 HZ cases (46% male, age 70–12 years), 102 (47%) were hospitalized patients and 113 (53%) were outpatient cases. Of the 102 inpatient cases, 15 (15%) were immunocompromised patients. Median LOS was 4 days (IQR 3–8) days. HZ-related complications occurred in 47 (46%) inpatient cases. Median inpatient treatment cost was HKD21,630 (IQR HKD15,030–38,430) (USD1=HKD7.8). Inpatient cost for immunocompromised patients (HKD49,990; IQR HKD26,125–90,310) was significantly higher than non-immunocompromised cases (HKD20,095; IQR HKD15,300–33,750) (p < 0.001). Immunocompromised patient was associated with high (≥75th percentile) inpatient treatment cost (OR 8.8, 95%CI 2.6–29.55; p < 0.001). For the 113 outpatient cases, 26 (23%) patients were immunocompromised (58% patients used one-time outpatient clinic service and 55% (49%) patients had 4.9 ± 3.2 clinic visits for HZ treatment. Outpatient treatment cost (HKD21,100, IQR HKD10,010–4,785) was significantly lower than inpatient treatment cost. There was no significant difference in treatment costs in immunocompromised and non-immunocompromised patients. **CONCLUSIONS:** Inpatient HZ treatment cost was substantially higher than outpatient cost. Immunocompromised patients was associated with high HZ inpatient treatment cost in older Hong Kong adults.

**PIN26**

AGE-SPECIFIC ECONOMIC BURDEN OF RESPIRATORY SYNCYTIAL VIRUS (RSV) HOSPITALIZATIONS IN THE UNITED STATES, 2009-2013: AN ANALYSIS OF HEALTHCARE COST AND OUTCOME PROJECT (HCUP) NATIONWIDE INPATIENT SAMPLE (NIS)

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**OBJECTIVES:** Age-specific economic burden of RSV hospitalizations is poorly documented. We assessed national estimates of age-specific economic burden of RSV hospitalizations in the US. **METHODS:** A retrospective cohort study using the HCUP NIS between January 2009 and December 2013 was conducted. NIS includes discharge data on 20% of all US hospitalizations. Hospital admissions for RSV were identified using records with a principal ICD-9 diagnosis code of 466.11 or 480.1. We analyzed hospitalizations in 5 age categories (<1, 1-4, 5-49, 50-64, and ≥65yr). Total inpatient costs (converting charges to cost using cost-to-charge ratio) ranged from median length of stay (LOS), and mortality during the inpatient visit were assessed. **RESULTS:** A total of 75,427 RSV hospitalizations were identified. The highest hospitalizations were in patients <1yr (72%) followed by 1-4yr age group (28%). Mean LOS was highest in 3-4yr age group (3.2 days), 19-64yr age group (5.6 days) and lowest in the 1-4yr age group (3.0 days). Cost was highest in the 49-64yr age group ($29,777.00, SE 4518.00) and lowest in the 1-4yr age group ($5,639.97, SE 201.00). Inpatient charges with a greater number of LOS had 28% and 35% higher mean cost per stay, respectively. Based on weighted frequency, total national hospitalization cost of RSV admissions between 2009 and 2013 was $2.3 billion of which $1.5 billion (67%) was attributable to patients of age <1yr. Inpatient mortality was highest (5%) in the 49-64yr age group. **CONCLUSIONS:** Economic burden of RSV varies dramatically by age groups. RSV hospitalizations are highest in the children <5yr and accounts for 90% of the total national hospitalization costs of RSV. Elderly patients, though low in numbers, have higher mortality, LOS, and cost per stay compared to young children.

**PIN27**

ECONOMIC IMPACT OF DENGUE IN LATIN AMERICA: A SYSTEMATIC REVIEW

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**OBJECTIVES:** Dengue fever affects tropical and subtropical regions, mainly low income areas. The incidence has been increasing steadily in Latin America, and despite the variation between countries, its economic impact is consistently high. This study reviews papers on economic impact of dengue in Latin America. **METHODS:** We performed a systematic review in PubMed (Medline), EMBASE, and LILACS databases. Techniques included title, abstract and full-text screening of all selected articles. **RESULTS:** A total of 484 initial references, 16 studies were selected for data extraction, 2 of which we exclude because of non-compliance with our inclusion criteria. In total, 12 articles were selected from each country: Argentina, Brazil, Colombia, Cuba, Mexico, Puerto Rico and Panama; and 1 each from Argentina, Venezuela, and Nicaragua; 2 articles included several countries. In general, the main impact of the economic impact of dengue is caused by productivity costs. Total costs in Latin America has been estimated in more than USD $3 billion, 60% of which is represented by Brazil, followed by Mexico and Colombia. Direct costs are higher.
Patients with CDI had higher 30-day readmission rates (25.9% vs 0.6%, p = 0.0001). Outpatient costs were significantly lower among patients without CDI. Logistic regression was used to examine the predictors of 30-day readmission.

RESULTS: After matching, there were 18,794 patients in each group. Patients with CDI incurred significantly higher mean medical costs (USD 14,317.02) and incurred significantly higher outpatient costs (Brazil $117, Mexico $109, Colombia $115). CONCLUSIONS: Older and diabetic patients affected by skin and soft tissues infections clearly increase the economic burden in the Brazilian private healthcare system.

ANALYSIS OF TREATMENT COSTS OF MALARIA IN A TERTIARY CARE HOSPITAL: AN INDIAN PERSPECTIVE

OBJECTIVES: To study malaria disease prevalence, demographics of patients, and pattern of complications within patients under study and to determine average cost for inpatient treatment of malaria, and to analyse total cost of treatment with respect to various departmental services of a tertiary care hospital. METHODS: A retrospective, cross sectional study was performed at Kasturba hospital (a tertiary care hospital) to determine average total cost of treatment for single episode of malaria. Patients diagnosed with malaria from January 1, 2010 to December 31, 2011 were included in study. Data for treatment costs were obtained from hospital’s billing section. Descriptive patterns for anti-malarials were studied and cost was evaluated by pharmaceutically accurate DICM such as cost-effectiveness analysis and cost minimization analysis. RESULTS: Out of total 522 patients that were followed, 323(62 %) patients had P. vivax malaria; 189(36 %) cases were P. falciparum and 10(2%) had mixed malaria. Malaria cases were further classified into complicated and uncomplicated cases as defined by WHO, NIMR and CDC guidelines. Average total treatment cost for single episode of malaria was found to be INR 11,338 (USD 220) at our study site. Average length of hospitalization stay was found to be 6 days. Treatment cost of complicated malaria was found to be significantly higher than uncomplicated malaria. Parenteral artesunate was found to be most commonly prescribed anti-malarial, followed by chloroquine. CONCLUSIONS: High cost of treatment with new anti-malarials. It also proves high cost-effectiveness of parenteral artesunate over quinine for treatment of severe malaria. Treatment costs can be significantly reduced through promotion from intravenous artesunate to oral artesin in combination therapies.

PREVENT PERINATAL HEPATITIS B INFECTION IN SOUTH KOREA

OBJECTIVES: To estimate the incremental cost-effectiveness of nationwide Perinatal Hepatitis B Prevention Program (PHBPP) and identify the optimal strategy of eliminating mother-to-child transmission of hepatitis B virus (HBV) in Korea. METHODS: A decision tree model with a Markov process was developed and simulated over the lifetime of the 2014 to 2015 birth cohort in Korea. The current PHBPP was compared against two other strategies, universal hepatitis B vaccination and the PHBPP with antiviral prophylaxis for their costs and health outcomes. The Korean National Health Insurance (NHI) database was investigated to estimate the costs of HBV-related diseases and utilization of health resources. Costs were assessed from the health care system perspective. Health outcome measures were Quality-adjusted Life Years (QALYs), and the number of HBV-related diseases and deaths. RESULTS: Incremental Cost-Effectiveness Ratio (ICER) produced from the analysis was evaluated by the amount of Willingness-to-Pay (WTP) in the Korean society. RESULTS: The nationwide PHBPP in Korea is cost-saving compared to the universal hepatitis B vaccination. An introduction of antiviral prophylaxis to pregnant women with a high viral load of HBV saved 55 QALYs (ECR: $19,163 per QALY) and averted 13 HBV-related deaths per 100,000 people compared to the current PHBPP. CONCLUSIONS: Considering that the WTP for HBV prophylaxis in Korea is around $30,000, the use of antiviral prophylaxis is cost-effective. To further decrease the burden of perinatal hepatitis B in Korea, adding antiviral prophylaxis to the current PHBPP is recommended.

A37

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A76

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cancer mortality served as benefit estimate. Suitable policy option was obtained by calculating the incremental costs-effectiveness ratio. Probabilistic sensitivity analysis was used to assess parameter uncertainty. One-way sensitivity analysis was used to explore the robustness of the policy recommendation to key parameters alteration. Expected value of perfect information (EVP) was calculated to determine the expected opportunity cost associated with choosing the optimal scenario or strategy at the maximum cost-effectiveness threshold. RESULTS: Combination of the current scenario of opportunistic screening and national HIV vaccination programme (CS + NV) was the only cost-effective and robust policy option. However, CS + NV scenario was the cost-effective so far the unit cost of HPV vaccine did not exceed $5. EVP analysis showed that it may be worthwhile to conduct additional research to inform the decision to adopt CS + NV. CONCLUSIONS: National HPV vaccination combined with opportunistic cervical cancer screening is cost-effective in Nigeria. However, adoption of this strategy should depend on its relative efficiency when compared to other competing new vaccines and health interventions.

PIN34
ECONOMIC EVALUATION OF RACECADOTRIL (HIDRASEC®) FOR THE TREATMENT OF PEDIATRIC PATIENTS WITH ACUTE DIARRHEA
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OBJECTIVES: To assess the cost-effectiveness relation between racecadotril (Hidrasec®) adjutant with electrolytes for the treatment of pediatric patients with acute diarrhea from the Mexico National Health System perspective. METHODS: A cost-effectiveness analysis was conducted through a decision tree. The model structure was taken from the published economic study (Rautenberg et al., 2012). The analysis compared racecadotril (Hidrasec®) plus electrolytes vs electrolytes by themselves. The effectiveness was measured in the absence of diarrhea 48 hours after the administration of the treatment and the proportion of patients that did not require hospitalization. Based on the natural history of the disease, the time horizon was of 6 days. The transition probabilities was taken from the clinic literature (Lehert et al., 2011) and one-way sensitivity analysis was performed (Lehert et al., 2009). It was only considered direct medical costs, which are pharmaceutical costs and cost of a hospitalization per day, there were obtained from institutional sources. RESULTS: In a 1,000 patients cohort, racecadotril (Hidrasec®) adjutant with electrolytes, resulted in the absence of diarrhea 48 hours after the administration of the treatment in 580 patients, in comparison with only 320 patients a cause of only electrolytes, which means an incremental effectiveness of 320 patients. 97.44% and 73.43% of the patients treated with racecadotril (Hidrasec®) adjutant with electrolytes and with electrolytes alone, respectively, did not require hospitalization. CONCLUSIONS: From the Mexico’s National Health System perspective, racecadotril (Hidrasec®) adjutant with electrolytes for the treatment of pediatric patients with acute diarrhea, is a dominant therapy vs electrolytes alone, generating a bigger effectiveness with a less cost per patient.

PIN35
A COST-EFFECTIVENESS ANALYSIS OF A WHOLE GENOME SEQUENCING TEST COMPARED TO THE STANDARD CARE IN PATIENTS WITH HOSPITAL-ACQUIRED BACTEREMIA
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OBJECTIVES: Recent researchers at the University of Pittsburgh and University of Pittsburgh Medical Center reported the detection of KPC-positive K. pneumoniae from patients undergoing endoscopic retrograde cholangiopancreatography (ERCP) from a single hospital. KPC-positive K. pneumoniae isolates are essentially resistant to all the commonly available antimicrobials. Therefore, it is critical to identify them early with high accuracy to prevent it infecting other patients. With its high sensitivity and significantly lowered price, whole genome sequencing has been considered as a way help facilitate the identification of KPC-positive K. pneumoniae. However, evidence for its cost-effectiveness is lacking. METHODS: Here in this study, cost-effectiveness of adopting whole genome sequencing (WGS) following every ERCP procedure was modeled and was compared with the standard of care (SOC, high-level infection). A hypothetical cohort of 1,000 patients was simulated for ten years using the four-state Markov model. KPC-positive K. pneumoniae-caused infection-related healthcare cost over ten years and with opportunistic cervical cancer screening is cost-effective in Mexico. Perezbolez C1, Monsanto H1, Pillbus M1, Kyle J1, Wolfson L1
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OBJECTIVES: The annual reported incidence of varicella in Mexico between 2003 and 2013 was 690,000 cases and surveillance data indicates that the true number of cases is likely between 1.6-2.3 M annually. Despite availability of varicella vaccines in the private sector and for selected patients in the public sector since 2000, vaccine uptake remains variable. The objective of this study is to evaluate the cost-effectiveness of varicella vaccination strategies in Mexico. METHODS: A dynamic transmission model of varicella infection was calibrated to reported age-specific outpatient visitation data from 2000, and was calibrated to observed behaviour patterns. Ten experts from Mexican health institutions provided input to summarize patterns of health care resource utilization (HCRU) for natural varicella among patients in different age groups (<1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-64, and ≥65). This was combined with local costs to estimate varicella treatment costs. Five vaccination strategies were considered (1 dose; 1 dose + catchup 2nddose; 1 dose + campaign; 2 dose; and 2 dose + campaign). RESULTS: All strategies were cost-saving and will vary between 1.17T MXN to 3.57 MXN over ten years (1458 to 1628 USD). The 1 dose strategy will reduce varicella cases and deaths by 35% in Year 1, 80% in Year 5, and 90% in Year 3. Higher-order strategies such as 2 dose + campaign will reduce varicella burden more quickly, lead to reductions of 61%, 87% and 92% in years 1.5, and 10. CONCLUSIONS: Both one and two dose universal varicella vaccina are cost-saving interventions, due to high use of health care resources for management of varicella in Mexico. Conservative rates of coverage (90% 1st dose and catchup, 80% 2nd dose) were assumed so health benefits could actually be higher. Choosing a vaccination strategy will depend on goals for speed of reduction of disease burden and budget constraints.

PIN37
POTENTIAL COST-EFFECTIVENESS FOR USE OF 13-VALENT PENUMOCOCCAL POLYSACCHARIDE VACCINE IN TAIWANSEI ELDERLY AND IMMUNOCOMPROSMSED ADULTS
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OBJECTIVES: Use of PCV13 is recommended to the elderly and the adults with immunocompromising conditions. Additionally, use of PCV13 to immunocompromised adults who also receiving a single dose of 23-Valent Pneumococcal Polysaccharide Vaccine (PPV23) before is also recommended. METHODS: Cost-effectiveness analysis from societal perspective was performed using a micro-simulation model. Cost-effectiveness of PPV23-PCV13 sequence vaccination versus PPV23 alone vaccination was evaluated. RESULTS: Eight vaccination strategies were considered (1 dose; 1 dose + catchup 2nd dose; 1 dose + campaign; 2 dose; and 2 dose + campaign). All strategies were cost-saving and vary between 1.17T MXN to 3.57 MXN over ten years (1458 to 1628 USD). The 1 dose strategy will reduce varicella cases and deaths by 35% in Year 1, 80% in Year 5, and 90% in Year 3. Higher-order strategies such as 2 dose + campaign will reduce varicella burden more quickly, lead to reductions of 61%, 87% and 92% in years 1.5, and 10. CONCLUSIONS: Both one and two dose universal varicella vaccination are cost-saving interventions, due to high use of health care resources for management of varicella in Mexico. Conservative rates of coverage (90% 1st dose and catchup, 80% 2nd dose) were assumed so health benefits could actually be higher. Choosing a vaccination strategy will depend on goals for speed of reduction of disease burden and budget constraints.

PIN38
COST-EFFECTIVENESS ANALYSIS OF COMBINED ANTIRETROVIRAL THERAPY FOR TREATMENT OF HIV-1 POSITIVE PATIENTS IN BULGARIA
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OBJECTIVES: The aim of this study is evaluation of incremental costs, incremental health benefits and their incremental ratio (ICER) of CART (EC/2T/TAF and EC/EF/ TDF) in comparison with most commonly used therapeutic alternatives in clinical practice in Bulgaria for treatment of HIV-1 positive patients in 2016. METHODS: A systematic review of published cost-effectiveness analyses data for CART for treatment of HIV-1 positive patients performed in Bulgaria and published in the Web of Science, Cochrane Library, covering the period January 2010 – June 2016.Data for health benefits in terms of additional QALY are directly transferred for the purposes of this analysis, due to similar population and characteristics of health system. Data for the costs of CART and TDF are based on local reference prices in Bulgaria, published in Positive drug list as of July 2016. RESULTS: If we consider a cost-effectiveness threshold of three times GDP per capita in Bulgaria (WTP 36 221 BGN/QALY), CART/EF/TAF is cost-effective, based on HTA pharmacoeconomic analysis. A1-A383
OBJECTIVES: To conduct a cost-effectiveness analysis comparing ‘early treatment’ versus ‘delayed treatment’ for hepatitis C virus patients starting at a given level of fibrosis. METHODS: This study was conducted from the payer’s perspective to evaluate the cost-effectiveness of the two novel Direct Acting Antiviral agents in two treatment strategies, early treatment (initiated at fibrosis stages F2/F1/F0) versus delayed treatment (till fibrosis stages F3/F4). The model followed a typical patient’s QALY at each stage and throughout the progression of the disease as reported in the literature. Direct medical cost were identified, measured and valued from third party payers in Lebanon and based on patient case scenario from medical center. Incremental cost effectiveness analysis was then conducted measuring the increase of QALYs per patient (0.02-0.34) on long-term projection. Total costs per patient were lower (0.35-0.6%) compared with ETV. The model suggested that TAF usage dominated versus TDF in the overall population with greater cost saving and better clinical outcomes in the TE population. Compared with ETV, incremental cost-effectiveness ratios (ICERs) were below the commonly accepted threshold of $50,000/QALY.

CONCLUSIONS: Driven by its favorable efficacy, safety, and resistance profile, TAF is projected to be a better healthcare outcomes and to be cost effective compared to TDF and ETV, leading to either dominance or generally favorable cost-effectiveness ratio (i.e., ICER <$50,000/QALY).

PIN24

COST-EFFECTIVENESS OF HEPATITIS C TREATMENT FOR LEBAENES PATIENTS IN EARLY STAGES OF LIVER DISEASE

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OBJECTIVES: To conduct a cost effectiveness analysis comparing ‘early treatment’ versus ‘delayed treatment’ for hepatitis C virus patients starting at a given level of fibrosis. METHODS: This study was conducted from the payer’s perspective to evaluate the cost-effectiveness of the two novel Direct Acting Antiviral agents in two treatment strategies, early treatment (initiated at fibrosis stages F2/F1/F0) versus delayed treatment (till fibrosis stages F3/F4). The model followed a typical patient’s QALY at each stage and throughout the progression of the disease as reported in the literature. Direct medical cost were identified, measured and valued from third party payers in Lebanon and based on patient case scenario from medical center. Incremental cost effectiveness analysis was then conducted measuring the increase of QALYs per patient (0.02-0.34) on long-term projection. Total costs per patient were lower (0.35-0.6%) compared with ETV. The model suggested that TAF usage dominated versus TDF in the overall population with greater cost saving and better clinical outcomes in the TE population. Compared with ETV, incremental cost-effectiveness ratios (ICERs) were below the commonly accepted threshold of $50,000/QALY.

CONCLUSIONS: Driven by its favorable efficacy, safety, and resistance profile, TAF is projected to be a better healthcare outcomes and to be cost effective compared to TDF and ETV, leading to either dominance or generally favorable cost-effectiveness ratio (i.e., ICER <$50,000/QALY).
**INFECTION** – Patient-Reported Outcomes & Patient Preference Studies

**PIN47**
A CLAIMS-BASED ANALYSIS OF HEPATITIS A, B, AND A/B VACCINATION SERIES COMPLETION AND COMPLIANCE AMONG US ADULTS

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**OBJECTIVES:** Literature on guideline adherence for hepatitis A, B, and A/B vaccines is limited. We aimed to assess hepatitis A, B, and A/B vaccination completion and compliance rates among US adults.

**METHODS:** Data were from Truven MarketScan commercial/Medicare and Medicaid healthcare claims (Q1 2007-Q3 2016). Patients who had ≥1 claim for a hepatitis A, B, or A/B vaccine in the first quarter of 2007 ("index date"), ≥12 months of enrollment pre-index date, and ≤2 hepatitis A or B diagnoses pre-index date. Using CDC guidelines, we defined completion as receiving the correct number of doses of hepatitis A, B, or A/B vaccine.

**RESULTS:** Total of 180 parents participated. The mother was interviewed in 99% of cases, and 1% for the first exposure to vaccination program. Parents had good relationship high adherence level; good relation high adherence level: good relationship between demographic factors with the level adherence at <0.05. CONCLUSIONS: Adult completion and compliance rates for hepatitis A, B, and A/B vaccines are suboptimal. Research investigating completion and compliance predictors is needed.

**PIN48**
ASSESSING THE LEVEL OF AdHERENCE IN TUBERCULOSIS TREATMENT AMONG PATIENTS ACCESSING DIRECTLY OBSERVED TREATMENT SHORT-COURSE (DOTS) IN TERTIARY HOSPITALS IN NSUKKA, ENUGU STATE, NIGERIA

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**OBJECTIVES:** To assess the level of adherence in tuberculosis treatment amongst patients accessing the Directly Observed Treatment Short-course (DOTS) in Nsukka tertiary hospitals, and to determine patient related factors that influence adherence. **METHODS:** The study was a cross-sectional prospective study, conducted using data from questionnaires administered on tuberculosis patients (n=259) accessing the DOTS treatment in 3 tertiary hospitals, namely Bishop Shanahan Hospital, Nsukka, District Hospital, Nsukka, and General Hospital, Enugu-Ezike. The instrument used in this study was a modified Morisky medication adherence scale-eight (MMAS-8). Chi-square was used to determine the relationship between independent factors with the level of adherence at <0.05. **RESULTS:** Study showed that 84% of the participants had high adherence, 12% had medium adherence, while 6% of the participants had poor adherence. Results showed that the severity of the symptoms as significantly (P<0.05; p = 0.049), associated with the level of adherence among patients in TB treatment. **CONCLUSIONS:** The DOTS therapy is cost-efficient, and has high efficacy level when the positive factors that influence high adherence level; good relationship between health care workers and patients and education on importance of treatment is present. Poor relationship with health care workers to patients, long distance to DOTS facility, alcoholism, poor patients behavior, lack of understanding of treatment regimen, and lack of motivation to tuberculosis regime have negative impacts on the level of adherence among TB patients accessing the DOTS therapy in Nsukka tertiary hospitals.

**PIN49**
PARENTS’ ADHERENCE, KNOWLEDGE AND ATTITUDES TOWARDS CHILDHOOD VACCINATION PROGRAM IN SAUDI ARABIA

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**METHODS:** A cross-sectional study was conducted during November 2016 in Riyadh, Saudi Arabia. Convenient method of sampling was used. A total of 340 parents was invited to participate. Data was collected through face-to-face interview method using Arabic validated questionnaire to collect demographic data, education level, time of vaccination, adherence, knowledge about childhood vaccination program and attitudes towards childhood vaccination. **RESULTS:** A total of 180 parents were interviewed. The mother was interviewed in 99% of cases, and their ages ranged between 2-24 months (mean 10.7 months, standard deviation (SD) 8.2). 28.2% of sample reported their child is a first time vaccinator and 18.8% of sample reported that their child had a good consistent lower admission rates (rate reduction up to 45%) across all levels of infection severity and CCI. If admitted, oritavancin patients had shorter LOS (LOS reduction up to 1.8 days) across all severity levels except CCI≥1 group. **CONCLUSIONS:** Shortened length of stay for skin infection patients. As skin infections represent 2% of all US hospital admissions, increased use of oritavancin may represent an opportunity to recover several hundred thousand bed days for use with other patients.
source of information for patients about vaccination (77.6%). Parents attitudes towards immunization was positive, 96% reported the important of vaccination, only 10% of parents thought that vaccination one risk factors induced autism. 

CONCLUSIONS: Although parents had good adherence, knowledge and positive attitudes on some aspects related childhood immunization, gaps in both studied domains were identified. Educational interventions are needed to upgrade parents’ knowledge.

F-6-9:0-2; p < 0.01. Mean improvement in FLU-FRO scores from Day 1 to 7 was significantly greater in patients reporting return to usual health compared with those who did not report return to usual health (n = 55; p < 0.05 for all subscales, except Gastrointestinal and Eyes). 

CONCLUSIONS: Results suggest FLU-FRO total and domain scores are reliable, valid, and responsive in studies of adults with ILI, with or without documented influenza virus infection.

DEVELOPMENT OF A DAILY DIARY TO ASSESS SIGNS AND SYMPTOMS OF GENITAL HERPES

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OBJECTIVES: Genital herpes (GH) is a common and highly contagious infection spreads through sexual contact. GH affects more than 600 million people worldwide (CDC, 2016). New treatments in development are designed to reduce frequency, duration and severity of signs and symptoms. In order to accurately assess these treatment benefits, fit for purpose measures are required.

METHODS: In alignment with the FDA PRO Guidance (FDA, 2009), a rigorous qualitative research study was undertaken to identify concepts of relevance and importance to patients with GH. Specifically, following a targeted literature review, semi-structured interview guides were created: one for use with clinical experts and a second for use with adult patients with GH. Individual interviews were conducted by trained staff and concept saturation was tracked. Diary items were generated following standard qualitative evaluation and pilot-tested in two rounds of interviews with a new sample of GH patients. RESULTS: Four clinical experts participated in individual interviews. Experts endorsed concepts identified in the literature and described challenges/proposed solutions for the measurement of signs and symptoms. The study enrolled a total of 14 individuals with varying disease duration, severity and a mix of educational background and ethnicity. The result was a preliminary list of patient identified disease state attributes and an initial version of a conceptual framework. Items were tested and refined utilizing cognitive debriefing interviews with a new sample. The result is an 8-item diary (GH-SSD) designed for daily administration in a clinical trial setting with three items to assess the presence of GH lesions, symptom severity and duration.

CONCLUSIONS: The concept validation, pain, with urination, draining/draining, and sweling. The CONCLUSIONS: The concept validation, pain, with urination, draining/draining, and sweling. The

PINS5

CONTENTS OF A NEW PATIENT-REPORTED OUTCOME (PRO) INSTRUMENT IN HOSPITAL-ACQUIRED BACTERIAL PNEUMONIA (HABP)


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OBJECTIVES: Currently no PRO instrument has been developed to capture HABP patients’ symptoms and functioning. The goals of this study were to identify patient-reported HABP symptoms and impacts to develop items for a new HABP PRO instrument.

METHODS: Patients were recruited at four US clinical sites. The content validity (i.e., relevance to patients with HABP) of potential symptoms and impacts was assessed utilizing cognitive debriefing interviews (CD). CD interviews were conducted until concept saturation was achieved. In developing items for the new HABP PRO instrument, our previously developed Community-Acquired Bacterial Pneumonia (CABP) PRO instrument item pool was utilized. The observed overlap of concepts between the two populations. Combined CD/cognitive debriefing (CD) interviews were then conducted with additional HABP patients to further explore the HABP disease experience and assess relevance and understanding of items, response options, instructions, and recall period of the new instrument. Data were analyzed using an iterative process to identify themes and concepts documented according to FDA PRO Guidance.

RESULTS: Eighteen patients participated in CE (n = 8) and combined CD/ CE (n = 10) interviews. Mean age of the sample was 62 years (SD = 12, range: 41-84); 50% were male. Similar to CABP, the most common spontaneously reported symptoms among HABP patients were difficulty breathing (72%), cough (56%), chest pain (56%), fever (56%), and lack of energy (50%). Significant impacts on physical (72%) and emotional (67%) functioning were also reported. Analysis of CD data indicated all 10 patients interpreted the large majority of items on the HABP PRO as intended, and reported the concepts covered were comprehensive and relevant to their illness.

CONCLUSIONS: Results support the content validity of the HABP PRO items within a HABP population. Future research will assess the measurement properties of this new instrument.

PINS4

ANTIVIRAL THERAPY IMPROVES THE HEALTH-RELATED QUALITY OF LIFE OF PATIENTS WITH CHRONIC HEPATITIS B VIRUS INFECTION IN CHINA

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OBJECTIVES: This study aimed to evaluate the effect of antiviral therapy on patients’ health-related quality of life (HRQoL) in an observational clinical study of

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nucleos(t)ide analogue (NUC) treatment for chronic hepatitis B (CHB) in China. METHODS: NUC naïve CHB patients were recruited from 63 hospitals across all regions of the patients. HCV mono-infected patients were diagnosed using the EQ-5D-3L questionnaire prior to initiation of NUC treatment and reassessed at 24, 48, 72, and 96 weeks after treatment initiation. Changes in ‘poor’ HRQoL status, defined as reporting any of the five EQ-5D health problems, and the EQ-VAS score were examined, with missing data imputed using the last-observation-carried-forward method. RESULTS: Of 3483 patients (mean age: 39.5 years; female gender: 26.2%) enrolled, the majority was inpatient (53.6%) and treated with entecavir (53.1%). The proportion of patients (95% confidence interval [CI]) in poor HRQoL monotonically decreased from 24.9% (23.4% to 26.3%) before treatment to 18.1% (16.8% to 19.3%) at 24 weeks, 16.6% (15.4% to 17.9%) at 48 weeks, 15.1% (13.9% to 16.3%) at 72 weeks, and 14.3% (11.1% to 15.6%) at 96 weeks after treatment initiation. The mean EQ-VAS score (95%CI) increased from 83.3 (82.9 to 83.8) before treatment to 86.5 (86.1 to 86.9) at 24 weeks, 86.9 (86.5 to 87.4) at 48 weeks, 87.4 (86.9 to 87.8) at 72 weeks, and 87.9 (87.5 to 88.3) at 96 weeks after treatment initiation. Among 854 patients who were in poor HRQOL before treatment, only 33.6% remained in poor HRQOL at 96 weeks after treatment; the mean EQ-VAS score (95%CI) increased from 75.3 (74.3 to 76.3) before treatment to 84.2 (83.3 to 85.2) at 96 weeks after treatment. CONCLUSIONS: The HRQOL of CHB patients in mainland China continuously improves in their first two years of antiviral therapy. The treatment effect is more salient among patients in poor health.

PIN56 A COMPARISON OF PATIENT REPORTED OUTCOME MEASURES DESIGNED OF USE IN HEPATITIS C VIRUS

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OBJECTIVES: Chronic hepatitis c virus infection (HCV) affects over 150 million people worldwide and an estimated 3.7–3.9 million people in the US. HCV is the most common chronic blood borne viral infection in the US and the leading cause of chronic liver disease and transplantation. The objective of this study was to compare and contrast the psychometric properties of disease-specific patient reported outcome measures (PROMs) used in HCV. METHODS: Comprehensive literature review was conducted to identify self-administered PROMs in English with at least one publication citing psychometric properties. Selected instruments were evaluated based on: conceptual model, practicality (≤30minutes to complete), depth (floor and ceiling effects ≤15%), reliability (internal consistency and test-retest), construct validity (convergent and divergent or confirmatory factor analysis), and responsiveness for group level decision making. RESULTS: Ten instruments were included in the review: CHAQ-2004 (2004-2014). Patient Health Questionnaire-HCV (PHQ-HCV), hepatitis c virus patient reported outcomes instrument (HCV-PRO), chronic hepatitis c virus treatment satisfaction (HCVTST), health-related quality of life (HRQOL), liver disease symptom index version 1 and 2 (LDI-V1,2-V2), Patient Reported Outcome Quality of Life survey for HCV (PROQOL-HCV), and liver disease and care specific patient satisfaction instrument (QOTI-LIVER). All instruments except HQLQ and LDLQ-HCV were rated as ‘neutral’ (2–3) and PRO and HQLQ met study criterion for reliability and construct validity. Reliability data was not available for most scales. Criterion for construct validity was also met for CLDQ, LDLQ-V1-V2, LDLQ-V1, 15 minutes to complete), Positive Predictive Value, (PPV) and Negative Predictive Value (NPV) for all unavailable psychometric data. CONCLUSIONS: If health related quality of life in the study objective CLDQ-HCV met all study criteria, followed by HCV-PRO: however, if patient satisfaction is the goal, HCVTST met most study criteria. FROM instrument choice must also consider study objective in addition to psychometric properties.

PIN57 QUALITY OF LIFE OF PERSONS LIVING WITH HIV IN A BIG CITY: SEARCHING FOR PREDICTORS

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OBJECTIVES: Identify the most significant predictors affecting the quality of life (QoL) of people living with HIV (PLHIV) in a big city. METHODS: There was conducted three-stage study. At the first stage HIV morbidity and mortality follow up indicators of the HIV Persons who is living in megapolis (Astana) were analyzed. At the second stage with the use of our force questionnaire, which is including 49 questions. At the third stage the QOL of HIV-infected persons was studied. The 87–96 questionnaire was chosen as the main tool for QOL research. The research sample size included 170 respondents. RESULTS: It was found that HIV-infection morbidity indicators of the capital city were significantly lower than the countrywide indicators. Despite the stick-slip nature, a morbidity steady growth was marked, then that rate stabilized and became 11 per 100 000 of population in 2013. Comparison of QOL indicators by gender in relation to the majority of the scales of physical health component (PHC) as well as the total PHC in general revealed that men QOL indicators were higher than women QOL indicators. In the meantime the mental health component (MHC) indicators in relation to the total MHC and to the most scales were higher in women, but statistical differences between all scales were not significant (p > 0.05). Comparison of QOL indicators showed no dependence on the time of the establishment of HIV status. It was found that the drug use significantly reduces the QOL. CONCLUSIONS: Results of the study revealed the multivalued predictors that influence QOL of HIV infected living with HIV in a big city. HIV morbidity risk reduced factors allow to carry out practical recommendations on the prevalence of the disease containment.

INFECTION – Health Care Use & Policy Studies

PIN59 PATIENT AND PHYSICIAN DIRECTED SURVEY ON HUMAN PAPILLOMAVIRUS VACCINE IN MUMBAI, INDIA

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OBJECTIVES: i. An adult-directed survey to assess the knowledge of Human Papilloma Virus (HPV), Cervical Cancer and Human Papilloma Virus Vaccine, the perception towards HPV vaccination and intention to get vaccinated. ii. A health practice directed survey regarding the provision of HPV Vaccination at the principal practice site. METHODS: The survey was carried out among willing participants (n=327) from Mumbai, India, 18 years of age or older. A structured questionnaire was distributed via email and other social networking sites. Another short survey was conducted among paediatricians, gynaecologists and general practitioners in Mumbai, India to gauge their practice methods and attitudes towards HPV vaccination. RESULTS: About 60% participants had a general understanding of HPV while 24% were familiar with the HPV vaccine. It was found that 3 out of every 5 doctors administer the vaccine, but only about 14% female participants had taken it. Due to lack of proper knowledge, 74% of the participants gave no significant differnces in HRQOL, however, this analysis suggests that sociodemographic conditions such as employment and income affect the well-being of these patients. It is recommended to carry out complementary studies to evaluate the validity and psychometric properties of EQ-5D-5L in this population.

GIN60 HEPATITIS C TREATMENT IN PATIENTS WITH HEPATITIS B VIRUS/HEPATITIS C VIRUS CO-INFECTION

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OBJECTIVE: Recently, FDA is warning about the risk of hepatitis B virus (HBV) reactivation among hepatitis C virus (HCV) patients under direct-acting antivirals (DAAs) therapy, who had current or previous HBV coinfection. Understanding HCV treatment pattern among HBV/HCV coinfected population is important. This study aimed to examine HCV treatment uptake for patients with HCV/HBV coinfection compared to HCV mono-infection. METHODS: A retrospective cohort study was conducted using Truven Health MarketScan Commercial Claims Database (2004-2014). Patients 18 years old with newly diagnosed HCV and HCV/HBV coinfected and HCV mono-infected patients were identified, with 1.3% HBV/HCV co-infection (n=788, mean age=52yrs, 69.5% male) and 98.6% HCV mono-infection (n=59,750, mean age=53yrs, 60.0% male). 4.6% of HBV infected patients (n=39,584) were enrolled in HCV co-infected and HCV mono-infected patients by multivariate logistic regression, controlling for age, gender, region, payer, drug abuse and comorbidities (e.g. HIV, cirrhosis, etc.). Treament types and initiation time were compared by Chi-squared test and multivariate logistic regression. RESULTS: A total of 60,586 HCV patients were identified, with 1.3% HBV/HCV co-infection (n=788, mean age=52yrs, 69.5% male) and 98.6% HCV mono-infection (n=59,750, mean age=53yrs, 60.0% male). Only 4.6% of HBV infected patients (n=39,584) were enrolled in HCV co-infected and HCV mono-infected patients (n=10,281) did. Among HBV/HCV co-infected patients, 44.4%, 36.1% and 19.4% received interferon/ribavirin, DAA plus interferon/ribavirin, and all therapy, respectively, the corresponding percentages were 40.8%, 35.4%, and 23.8% for HCV mono-infected patients (n=30,081). The average time (months) to
initiating interferon/ribavirin, DAA plus interferon/ribavirin, and all oral therapy were 8.8, 17.6, and 13.8 for coinfection, and 7.5, 12.6, and 25.0 for mono-infection methods and out-of-pocket costs on PPV coverage rates adjusting for municipality- and catalyzed in Tufts Medical Center (Human Papillomavirus) vaccine. This study aimed to estimate the % of pretreatment aged 11-12 y/o to 11.5% at 19-20 y/o and less likely they would initiate HPV1st, was less likely they would have another scheduled WV, ranging from 39.7% at 11-12 y/o to 11.5% at 19-20 y/o and less likely they would initiate HPV1st, ranging from 9.2% at 12-13 y/o to 1.1% at 19-20 y/o. CONCLUSIONS: This analysis suggests that WV at 11-12 y/o provide the best opportunity to maximize the potential of the HPV vaccination program in the US. Deemer J', Katz J', Schonebeck L1', Brown S1, DiBonaVentura M, Meyers A1 1Disclosed, New York, NY, USA, 2Ipsos Healthcare, London, UK OBJECTIVES: To examine implementation status for vaccine interventions evaluated in studies using "cost-effectiveness" measured in terms of cost-per-DALY averted, and catalogued in Tufts Medical Center's Global Health Cost-Effectiveness Analysis (GHEA) Registry. METHODS: We reviewed the GHEA Registry, which includes 479 cost-per-DALY averted studies published through 2015. We limited our search to vaccine-related interventions in countries eligible at some point from 2000 to 2016 for cost-per-DALY averted, and catalogued in Tufts Medical Center's Global Health Cost-Effectiveness Analysis (GHEA) Registry. METHODS: We reviewed the GHEA Registry, which includes 479 cost-per-DALY averted studies published through 2015. We limited our search to vaccine-related interventions in countries eligible at some point from 2000 to 2016 for financial aid from the Global Alliance for Vaccines and Immunizations (GAVI). The 62 identified studies included 596 incremental cost-effectiveness ratios (ICERs) which compares an intervention's cost and health impacts to a comparator program (or to no action). We classified ICERs as "cost-saving" (lower costs, better health), "highly cost-effective" (ICER < $50 per QALY), or "cost-effective" (ICER from 1 to 3 per capita GDP). Finally, for interventions with implementation status information (as characterized by GAVI and in-country sources), we used the Fisher exact test to assess the relationship between implementation and favorable cost-effectiveness ("highly cost-effective" or "cost-saving"), vs unfavorable cost-effectiveness (at least one ICER not "highly cost-effective" or better). This last analysis restricted attention to studies pertaining to 2016 GAVI-eligible countries. RESULTS: The Registry catalogues articles on vaccines for 10 diseases. The most frequently reviewed interventions addressed VIH (49% of ICERs) and rotavirus (33%). Regions most studied included the WHO Africa Region (43%) and Southeast Asia (21%). The common study sponsors were the Gates Foundation (40%) and government institutions (31%). The 596 ICERs were "cost-saving" (10%), "highly cost-effective" (80%), "cost-effective" (6%), or not cost-effective (4%). We had implementation information for 101 favorably "highly cost-effective" interventions and for 8 interventions with unfavorable cost-effectiveness. The implementation odds ratio for favorable vs. not favorable cost-effectiveness was 20 (P < 0.001). CONCLUSIONS: Favorably "highly cost-effective" vaccine interventions are most likely to be implemented.
Penang, Malaysia. METHODS: A single cohort pre/post-intervention study was conducted among the community residents from 30th January to 30th April 2016. Using convenience sampling, 70 residents [aged 18 years] were invited to participate in an educational programme on antibiotic resistance. The programme included a talk, video presentation and the distribution of a booklet regarding this issue. All participants were asked to complete a validated, pre-tested self-administered questionnaire before the programme, immediately after the programme, at 1 month and 3 months follow-up. The questionnaire consisted of six statements assessing their knowledge of antibiotic resistance and four statements to assess their perception of the effects of antibiotic use on resistance. The primary outcome measures were an increase of their antibiotic resistance knowledge and perception scores after participating in the programme. Data was analysed using the Statistical Package for the Social Sciences version 22.0 and was presented as mean ± standard deviation.

RESULTS: Sixty eight out of 70 residents participated in the study (response rate = 97.14%), but six of them (8.82%) dropped-out at 3 months follow-up. Their knowledge scores were 1.24 ± 0.81, 3.82 ± 3.8, 5.50 ± 0.50 and 3.13 ± 0.54 before the programme, immediately after the programme, at 1 month and 3 months follow-up, respectively (p < 0.001). Their perception scores were 1.32 ± 0.81, 5.13 ± 0.38, 5.50 ± 0.50 and 5.13 ± 0.34 at 3 months follow-up, respectively (p < 0.001). Their attitude scores were 2.32 ± 0.72, 5.82 ± 0.38, 5.50 ± 0.50 and 5.13 ± 0.34 at the pre-intervention, immediately post-intervention, at 1 month and 3 months follow-up, respectively (p < 0.001). CONCLUSIONS: The educational programme significantly increased the knowledge and positively changed the perceptions of the community residents towards antibiotic resistance. Therefore, further initiatives should include the scaling up of the programme to combat antibiotic resistance at the community level in Malaysia.

PIN67 IMPACT OF AN EDUCATIONAL INTERVENTION ON COMMUNITY RESIDENTS’ KNOWLEDGE AND ATTITUDES TOWARDS ANTIBIOTICS IN PENANG, MALAYSIA

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OBJECTIVES: To assess the impact of an educational intervention on community residents’ knowledge and attitudes towards antibiotics in Jelutong District, Penang, Malaysia. METHODS: A single cohort pre/post-intervention study was conducted among the community residents between 30th January and 30th April 2016. Using convenience sampling, 70 residents [aged 18 years] were invited to participate in an educational intervention that included a talk, video presentation and the distribution of an antibiotic booklet about the responsible use of antibiotics. Pre-intervention, the participants were asked to complete a validated, pre-tested self-administered questionnaire. Then, they were asked to complete the same questionnaire immediately post-intervention, at 1 month and 3 months follow-up, respectively. The questionnaire consisted of six statements assessing their knowledge of antibiotics and four statements assessing their attitudes towards antibiotics. The primary outcome measures were a post-intervention increase of their antibiotic knowledge and attitude scores. Data was analysed using the Statistical Package for the Social Sciences version 22.0 and was presented as mean ± standard deviation.

RESULTS: Sixty eight out of 70 residents participated in the study (response rate = 97.14%), but six of them (8.82%) dropped-out at 3 months follow-up. Their knowledge scores were 2.50 ± 0.92, 8.24 ± 0.74, 7.85 ± 0.78 and 7.23 ± 0.42 at the pre-intervention, immediately post-intervention, at 1 month and 3 months follow-up, respectively (p < 0.001). Their attitude scores were 2.32 ± 0.72, 5.82 ± 0.38, 5.50 ± 0.50 and 5.13 ± 0.34 at the pre-intervention, immediately post-intervention, at 1 month and 3 months follow-up, respectively (p < 0.001). CONCLUSIONS: The educational intervention significantly increased the knowledge and positively changed the attitudes of the community residents towards antibiotics. Hence, further initiatives should include the scaling up of the intervention to promote the responsible use of antibiotics among community residents in Malaysia.

PIN68 PREVALENCE AND FACTORS ASSOCIATED WITH COMPLETING MMR VACCINATION SERIES IN A RECENTLY RESETTLED REFUGEE POPULATION

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OBJECTIVES: Approximately 70,000 refugees are resettled to the US each year, and it is important that refugees receive immunizations to prevent commensurate disease. The measles, mumps, rubella (MMR) vaccination is a two-part vaccination that protects against three diseases. This study sought to identify factors associated with MMR vaccination series completion in a refugee population resettled in the US. METHODS: We analyzed data from the Jefferson Longitudinal Refugee Health Registry, which contains clinical, demographic, and immunization data. The study population included refugees resettled to the US who received an initial domestic vaccination within 3 days of admission) or healthcare facility-onset (positive stool sample within 3 days of admission) or healthcare facility-onset (positive stool sample at least 3 days post-admission). The healthcare facility-onset group was analyzed to identify 10% indirect costs linked to vaccination among the working peoples of population. Rate of benefit amount to 4,4 times higher.

PIN69 ANALYSIS OF ECONOMIC BURDEN OF INFLUENZA AND ARI IN UKRAINE

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OBJECTIVES: Every year in Ukraine 15-17% of the total population suffers from influenza and ARI. In Ukraine the treatment cost is 6 USD during 5 days without complications. METHODS: We used data of the MoH of Ukraine about the incidence of influenza and ARI, and of the National center for immunization, vaccination and ARI. We used a vaccine, modeling method. RESULTS: Number of patients with influenza and ARI in Ukraine in 2015-2016 year amounted to 5.8 mln people. The total treatment cost during 5 days without complications is 3.2%, entry inhibitor (0.9%) and fusion inhibitor (0.1%). In the integrase inhibitor group (n=105) and possible community-onset CDI group (n=25). The possible community-onset group had a longer total length of stay (10.8 vs. 7.6 days, P=0.007) and duration of inpatient CDI treatment (5.5 vs. 4.5 days, P=0.039). Length of stay translated to $486,460 in total indirect and financial penalties, due to a 1% reduction in total CMS payment, translates to $13,150. CONCLUSIONS: Inpatient misclassification of CDI may be associated with longer hospital stay and leading to significant economic consequences and implications for reporting and reimbursement metrics.
only increased slightly from 2012 to 2016. CONCLUSIONS: HAART for HIV infection in adults represents a market of almost three quarters of a billion dollars in Canada. In the last five years, the share of infant-care admissions and drug prices in the country, representing in 2016 one third of the total HAART market in Canada.

PIN72

ASSessment of Awareness Regarding Swine Flu (Influenza A) Among Medical and Pharmacy Students of Pakistan

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OBJECTIVES: The study aimed to assess the awareness among medical and pharmacy students of different colleges and universities of Pakistan toward Swine flu (Influenza A/H1N1). METHODS: A descriptive, cross sectional study design was adopted to conduct the study. A self-administered questionnaire was administered in 500 students of both urban and rural community of Pakistan during January 2016 to October 2016. Respondents were selected by using convenient sampling method. Data was analyzed using IBM SPSS version 20. Descriptive statistics were applied to evaluate the data and chi square test was used to check association between dependent and independent variables. RESULTS: Among the participants, 221 (44.2%) were male and 279 (55.8%) were female. Almost all respondents 455 (91.0%) had knowledge about origin of disease, genotype: H1N1 268 (53.6%), H1N2 198 (39.6%), mode of transmission: human 221 (44.2%), pigs 298 (55.8%) and preventive measures 475 (95%) of swine flu. Participants were having less knowledge about vaccination 285 (57%), lab screening, and availability of facilities to practitioner and patients by government regarding swine flu. CONCLUSIONS: Knowledge regarding swine flu pandemic was good among participants but need further improvement as well. Government should focus on providing isolated ward facility, special diagnostic and treatment facility to swine flu patients. Government should focus on facilitating mask availability to practitioners as protective measure.

PIN73

KAP STUDY REGARDING HIV/AIDS PATIENTS CONDUCTED AMongst PAKISTANI UNIVERSITY STUDENTS

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OBJECTIVES: The main aim of this study is to identify factors associated with the use of the 8-week regimen. METHODS: This research shows that countries with less advanced public funding systems provided less opportunity. So we can use the expensive new drug than those with more developed public coverage systems due to high requirements on cost-effectiveness. Funding in countries with less developed public coverage systems is more through either private insurance or by OOP payment. Though access to expensive drugs in countries with less developed public funding systems is not equitable it nevertheless provides the countries an opportunity to experience an improved framework of public funding systems with more advanced public funding systems may be deprived of that opportunity.

PIN77

Impact of Education Status of Mother on Immunization of Young Children

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OBJECTIVES: The present study was conducted to find out the impact of mother’s education on immunization status of children. METHODS: The study was a cross- sectional questionnaire based survey performed in different immunization centers of Swat, Pakistan. Total 200 mothers were interviewed about the vaccination status of children. Vaccination coverage was assessed by both vaccination card and parent’s recall methods. SPSS version 20.0 was used to analyze the data. Appropriate statistics was applied to summarize and analyze the data. RESULTS: Complete immunization coverage in 69.5% children while 30.5% children were found incompletely immunized. Knowledge regarding immunization was also assessed and majority of parents were found with an average level of knowledge and mean knowledge score was 9.13±2.90. However a significant association (p=0.001) was observed between the maternal education and vaccination status of children. CONCLUSIONS: Results of the study concluded that complete vaccination trend was more common in educated mothers as compared to illiterate mothers. So vaccination coverage can be improved by educating and providing awareness to parents about immunization.

PIN78

Understanding Low Utilization of the 8 Week Sofosbuvir/Ledipasvir Single-Tablet Regimen Amongst Eligible Hepatitis C Patients in the United States

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OBJECTIVES: This research aims to estimate the proportion of hepatitis C (HCV) patients eligible for treatment who are expected to finish treatment in 8-weeks and expected to finish the regimen in this timeframe. An additional aim was to identify factors associated with the use of the 8-week regimen. METHODS: Data from the Ipsos HCV Therapy Monitor was used. The HCV Therapy Monitor is a prospective medical chart review of patients with HCV conducted by hepatologists, gastroenterologists, infectious disease specialists, and internists in the United States. Physicians randomly selected eligible patient charts and abstracted data on demographics, disease history and treatment patterns. Only US data from December 2015 to November 2016 was used (N=6,431 patients from N=168 physicians). Eligibility for 8 weeks of SOF–LED was defined as being genotype 1, non-cirrhotic, naive to previous HCV treatment, and a HCV viral load below 6 million IU/ml. Logistic regressions were used to predict use of an 8-week SOF–LED regimen (versus a longer duration) from

prices for HIV drug products as a percentage of the US prices was 23.8% (range: 13.5%-31.9%). The difference in prices between the two countries was statistically significant (p<0.001). Generics were prevalent alternatives were available in the US for the HVI ARV drugs lamivudine/zidovudine and lamivudine. Kuwait did not list any of those generic alternatives. However, the prices of the US HVI ARV generic drugs were higher than the prices in Kuwait. A list of HVI ARV drugs lamivudine/zidovudine and lamivudine. The Kuwait Ministry of Health list of prices included less than one fourth of the HVI ARV drugs available in the US. The prices of brand HVI ARV in Kuwait were significantly lower than the corresponding brand and generic drug prices in the US.
RESULTS: 67.5% of the sample was male, and the mean age was 51.5 years (SD = 12.5). 41.8% of the 4,431 patients in the study were eligible for 8 weeks of SOF-LED when compared to those treated with SOF-LED. Of those treated currently and treated 32.6% were treated with SOF-LED regimen (35.2% of those treated with SOF-LLED were expected to finish in 8 weeks). Substance abuse (OR = 2.71) and Hispanic ethnicity (OR = 1.74) were positively associated with SOF-LLED, whereas treatment durations >8 weeks versus 8 weeks (both p<0.02). CONCLUSIONS: A minority of currently treated eligible HCV patients were prescribed 8-weeks of SOF-LED. The low levels of use are partially a function of specific conformant disease and substance abuse issues. Despite the approval and access to SOF-LED for 8 weeks, utilization remains low.

PIN79 LONGITUDINAL BEHAVIOR CHANGE AND RISKS OF SEXUALLY TRANSMITTED DISEASES/HUMAN IMMUNODEFICIENCY VIRUS INFECTION AMONG YOUNG AFRICAN AMERICANS: A LATENT TRANSITION ANALYSIS Li Y1, Mehta P1, Chen H1, Abghosh SM1, Cuccaro P1, Essien E2
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OBJECTIVES: The aim of this study was to explore changes in risky sexual behaviors of African Americans (AA) from adolescence to adulthood and the associations of these changes with the risk of contracting sexual transmitted infections (STI)/Human Immunodeficiency Virus (HIV).
METHODS: Three waves (wave 1, 3 and 4) of the National Longitudinal Study of Adolescent to Adult Health were used. Five indicators (drinking, Lysergic-acid-diethylamide use, injection drug use, condom use, and number of sexual partners) and one predictor (living with both parents or not) were included to develop a latent profile of young AA’s sexual behavior patterns utilizing latent transition analysis performed with SAS software version 7.3.
RESULTS: A total of 59,524 AA youth were included in this study. After wave 1, and transition probabilities identified four subgroups: Multiple Risk Behaviors (Class 1), Condomless Sex (Class 2), Less Sexual Activity (Class 3), and Condom Use (Class 4). Compared to those living with a single parent or other relatives, the individuals living with both parents were less likely to relocate at class 1, 2, and 4 (odd ratios [ORs] for males respectively: 0.53, 0.44, and 0.67; ORs for females: 0.49, 0.61 and 0.15 respectively). The family structure was a significant predictor of individual’s behavior pattern at their age of 14 years (p=0.0024). The majority of the AAAs were at class 3 as the age of 14 years (male: 65.2%, female: 94.3%). Most young men switched to class 1 (32.3% at 21 years, 43.2% at 28 years), women relocated to class 4 (48.0% at 21 years, 45.7% at 28 years). The results of latent class and transition probabilities were confirmed with the individuals’ STI/HIV infection status during the past 12 months.
CONCLUSIONS: Findings of this study highlight the need for tailored intervention programs that target different subpopulations at different points in time before and after introduction of 9-valent HPV vaccine (HPV9).

PIN82 ESTIMATING THE IMPACT OF UNIVERSAL VARICELLA VACCINATION IN JORDAN
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OBJECTIVES: More than 50% of the Levant population has access to universal varicella vaccination (UVV). In order to avoid changes in the age-distribution of varicella cases, and significantly reduce disease burden, it is important for other countries in the region to consider UVV. The objective of this study was to estimate the magnitude of current varicella disease burden and the potential impact of UVV in Jordan.
METHODS: A dynamic transmission model of varicella infection was calibrated to surveillance data and validated against local epidemiological data. The current burden was assessed by converting the calibration into age-specific incidence and mortality rates, and the impact of one-dose UVV administered at 12 months of age with 90% coverage (consistent with MM6 vaccination which as recently implemented). Alternative vaccination strategies were examined as sensitivity analyses.
RESULTS: The model estimates the current burden of varicella to be 188,000 cases per year, an incidence rate of 2,675/100,000 persons. Varicella incidence is projected to decrease by 38% at 1 year, 79% at 5 years, 86% at 10 years, and 90% at 25 years. After 5 years of UVV, 743,000 cases and 93 deaths due to varicella will be prevented. Importantly, the public health benefits extend beyond vaccinees, with a 92% disease reduction in unvaccinated infants and an 86% reduction in unvaccinated adults. At low coverage levels (10%), such might be seen with private-sector only varicella vaccination, slight shifts in the age-distribution of cases to older adults are likely. CONCLUSIONS: UVV in Jordan will significantly reduce varicella disease burden and protect against a public health problem that has been dramatically reduced by synergies of private-sector only vaccination and high UVV rates within the region.

PIN83 THE IMPACT OF MECHELLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) AND MECHELLIN-SENSITIVE STAPHYLOCOCCUS AUREUS (MSSA) INFECTION ON HOSPITAL READMISSIONS AMONG PATIENTS WITH PNEUMONIA
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OBJECTIVES: To explore and quantify the association between MRSA/MSSA infection and readmission risk among patients with pneumonia.
METHODS: Healthcare Cost and Utilization Project-State Inpatient Databases were used to identify all admissions with a primary diagnosis of pneumonia in Florida (2009-2013), Massachusetts (2010-2012) and California (2009-2011). Readmissions were measured by the CMS validated algorithm. MRSA and MSSA infections as secondary diagnoses were identified with ICD-9-CM codes. All pneumonia patients were categorized into three subgroups: MRSA-infected, MSSA-infected and non-MRSA/MSSA. A multivariate logistic regression was performed to compare demographic differences across three groups, and multivariate logistic regression was applied to evaluate the association between MRSA/MSSA infection and readmission. RESULTS: Among 450,793 patients admitted with pneumonia, 2,922 (0.64%) had MRSA infection. Compared to patients in the non-MRSA/MSSA group, patients in the MRSA group had higher Medicare coverage (72.56% vs 66.47%) and longer length of stay (LOS) (7.17 vs 6.72 days). Patients in the MRSA group had higher mortality risk (1.058, p<0.001) and longer LOS (1.497, p<0.001)

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were associated with greater readmission risk, while female (OR=0.883, p<0.001) and private insurance (OR=0.668, p<0.001, ref=Medicare) were associated with lower readmission risk. Smoking (OR=2.293, p<0.001) and MISA/MSSA infections among pneumonia patients were associated with a higher risk of readmission. Programs to reduce the risk for MISA/MSSA infection at discharge would likely reduce readmissions.

PINS4 RESPIRATORY ILLNESS AND RESPIRATORY SYNCTIAL VIRUS (RSV)-RELATED HOSPITALIZATION (RSVH) IN INFANTS WITH CONGENITAL AIRWAY ANOMALIES (CAA) IN THE CARESS REGISTRY (2005-2016) Wong SK1, Fues B1, Li A1, Mitchell I1, Lancot K2
1Smich Health Care Group, Toronto, ON, Canada, 2McMaster University, Hamilton, ON, Canada, 3University of Calgary, AB, Canada
OBJECTIVES: Infants <2 years of age with congenital airway anomalies (CAA) may experience a higher risk of respiratory illness-related (RIH) and RSV-related hospitalization (RSVH). This study compared RIH and RSVH hazards in infants with CAA versus infants prophylaxed for standard, approved indications (SD) and other serious underlying medical disorders (MD) in the Canadian RSV Evaluation Study (CARESS). 1994-2016
RESULTS: 24,597 infants (955 CAA, 3346 MD, and 19296 SD) were enrolled. Group demographic differences (p<0.05) were found in: enrolment and gestational age, birth, and enrolment weight, proportion of Caucasians, Canadian exposure, siblings, multiparity, birth, household crowding, and family history of atopy. Palivizumab adherence, including inter-dose interval lengths, was 74.15% overall, and was similar across SD and CAA. SD were hospitalised. Children with an overall crude RIH rate of 11.6% (MD [10.1%], SD [6.3%]) and a significantly increased RIH hazard relative to MD (HR=1.59, 95%CI 1.30-1.94; p<0.005) and SD (HR=1.39, 95%CI 1.22-1.57; p<0.005). Crude RSVH rates were: 1.7% (CAA), 1.45% (MD), and 1.30% (SD). Using Cox proportional hazard analysis, after adjusting for proportion of Caucasians, daycare attendance, siblings, smoking exposure, crowding, and atopy, the model was significant (χ2=75.98, df=6, p<0.0005). However, based on indications for palivizumab the model was found to be insignificant (p=0.99). CONCLUSIONS: RIH risks were higher in CAA infants relative to MD and SD infants. However, hazard for RSVV appeared to be similar across indications, possibly due to the smaller CAA sample size compared to MD and SD.

PINS5 THE IMPACT OF MENTAL HEALTH (MH) ON THE INITIATION AND COMPLIANCE WITH ADULT VACCINATION IN THE USA
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OBJECTIVES: A substantial number of persons living with HIV (PLWH) have co-morbidities, including mental health issues. The objective was to examine how ambulatory-based pharmacists can contribute to the smaller CAA sample size compared to MD and SD. However, hazard for RSVV appeared to be similar across indications, possibly due to the smaller CAA sample size compared to MD and SD.

PINS6 QUALITY IMPROVEMENT PRACTICES AND INNOVATIONS TO REDUCE VENTILATOR-ASSOCIATED PNEUMONIA (VAP) FROM 2008 TO PRESENT IN THE U.S. Identiﬁcation of high-risk populations using administrative data, and using the best available evidence, we identiﬁed interventions that may be effective in reducing VAP risk. Additionally, the Centers for Medicare & Medicaid Services (CMS) and the Centers for Disease Control and Prevention (CDC) have implemented a number of initiatives to reduce VAP. These efforts include initiatives at the patient, provider, and health-system levels. These practices should be embraced by acute care facilities to reduce the rate of VAP.

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OBJECTIVES: Adult vaccine-preventable diseases in the US are a major healthcare burden and vaccination is an important strategy to protect individuals, in particular those at higher risk of complications, from infectious diseases. Over the past several years, new adult vaccines along with changes in adult-vaccination guidelines have increased the number of vaccines recommended for adults. Adult vaccination rates in the US are measured by the Centers for Disease Control and Prevention using the National Health Interview Survey; however, there is no study examining adult vaccination trends among the US insured population. METHODS: Using commercial and Medicare Advantage with Part D (MAPD) data (2009-2015) for individuals aged ≥19 from the Optum Research Database, claims for pneumococcal vaccine (PPV and PCV), herpes zoster (HZ), tetanus/diphtheria booster (Td) and tetanus/diphtheria/pertussis (Tdap) were captured. The denominator was the average number of members enrolled annually. Vaccinations were examined over time by age group and insurance type (commercial or MAPD). RESULTS: From 2009 to 2015, per-member per-month (PMP) PPV use was low 1.3% (95% CI: 1.2-1.5%), Td use decreased (1.2%-0.5%), and HZ use increased (0.6%-1.1%). Increases were larger for Tdap (3.7%-5.6%) and PCV (3.8%-8.4%). As expected, PCV use varied by age while low (1.2%) among members aged 19-59, use increased 241%, 770% and 2183% fold among members aged 60-64, 65-69, and 70+, respectively, driven predominantly by use of PCV13. By 2015, 3.3%, 26.1% and 34.9% of annual membership aged 60-64, 65-69, and 70+, respectively, received ≥1 PCV13 vaccine, consistent with recent market and guideline changes, PCV13 use increased significantly among insured patients in 2015, and Tdap vaccine use is also increasing moderately over time. Use of other adult vaccines remains relatively stable, highlighting the need for additional strategies to promote adult vaccination.

RESEARCH POSTER PRESENTATIONS – SESSION II
DISEASE – SPECIFIC STUDIES
CANCER – Clinical Outcomes Studies
PCN1 RISK FACTORS ASSOCIATED WITH ORAL MUCOSITIS FOLLOWING HEAD AND NECK CANCER TREATMENT Susman M, Stern K, Menzin J
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OBJECTIVES: Oral mucositis (OM), a debilitating side effect of chemotherapy treatment among patients with head and neck cancer (HNC), can impact quality of life and disrupt cancer treatment plans. Our goal was to assess the risk factors associated with OM among patients with HNC who undergo treatment with chemotherapy. METHODS: Using the Medicare 5% Standard Analytical Files from 1/1/2010-12/31/2014, elderly (≥65 years of age) patients were identified based on first-observed treatment with chemotherapy (index), a diagnosis of HNC within 3 months prior to index, and continuous eligibility for Medicare Part A and B for both the index and 12 months pre-and post-index (index period). The setting of OM care was assessed. A logistic regression model was conducted to assess predictors associated with OM following chemotherapy treatment. RESULTS: 2,453 patients met inclusion criteria (mean age 73.4 (<66), 69%, male, 90.5% White). Baseline mean Charlson Comorbidity Index score excluding cancer was 4.67 (±3.40). 49.9% of patients received concurrent radiotherapy within 14 days of index, and 50.3% were diagnosed with ≥1 HNC location within 3 months before index. 76% of patients were diagnosed with OM within 30 days following index (mean 17 ±18 days from index to OM diagnosis), with the most common settings of OM-related care being outpatient, hospital (47.3%), home care (35.1%), and independent medical office (18.8%). Adjusted results indicated that ≥1 HNC location (adjusted odds ratio (OR): 1.56, 95% confidence interval (CI): 1.10-2.22), baseline gingival and periodontal disease (OR: 2.67, 95% CI: 1.24-5.38), and concurrent radiotherapy (OR: 1.94, 95% CI: 1.30-2.87) were associated with a significantly increased rate of OM. CONCLUSIONS: Our findings indicate that HNC disease burden, manifested by tumor site and treatment with radiotherapy, is associated with OM. Future research can examine the specific nature of chemotherapy and radiation therapy that may correlate with the risk of developing OM.
PCN2

PATTERN OF CHEMOTHERAPY-RELATED ADVERSE EFFECTS AMONG ADULT CANCER PATIENTS RECEIVING SORAFENIB AT GONDAR UNIVERSITY REFERRAL HOSPITAL, ETHIOPIA: A CROSS-SECTIONAL STUDY

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OBJECTIVES: Adverse drug reactions (ADR) are becoming a global problem and constitute a major clinical problem in terms of human suffering. The high toxicity and narrow therapeutic index of chemotherapeutic agents makes oncology pharmacovigilance essential. The present study was to assess the pattern of ADRs occurring in cancer patients treated with chemotherapy in a tertiary care teaching hospital in Ethiopia. METHODS: A cross-sectional study over a 2-year period from September 2013 to August 2015 was conducted on cancer patients undergoing chemotherapy at Gondar University Referral Hospital Oncology Center. The ADRs were collected directly from patients and their medical case files. The reported ADRs were assessed for causality using the World Health Organization’s causality assessment scale. RESULTS: Among 1,861 patients in the study cohort, 704 (38%) patients received only one sorafenib 1L prescription and most do not receive subsequent drug therapy, demonstrating unmet medical need. Some patients receive less than the labeled dose. Factors associated with dose reduction and discontinuation and the impact on real-world effectiveness of first line sorafenib should be investigated.

PCN5

ASSESSMENT OF DOSE PER CYCLE OF DEXAMETHASONE IN LENALIDOMIDE-DEXAMETHASONE REGIMEN TO TREAT RELAPSED/REFRACTORY MULTIPLE MYELOMA PATIENTS IN THE UNITED STATES

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OBJECTIVES: While high-dose dexamethasone (Dex; 480 mg/cycle) is effective in patients with lenalidomide (Len) in relapsed/refractory multiple myeloma (RRMM) patients, emerging evidence points to increased use of low-dose (<160 mg/cycle) Dex in this combination regimen. We assessed frequency of use of high vs low-dose Dex 1L prescription claims (97.4%). The study cohort was US patients with two separate diagnoses of hepatocellular carcinoma (HCC). Many patients (80%) taking sorafenib experience adverse events (AEs) including gastrointestinal effects (60%) and fatigue (58%). Most patients (76.9%) did not receive subsequent anti-cancer therapy. The mean prescribed average daily dose of sorafenib was 713.3mg/day (223.7) (78% of the labeled dose). Most patients (93.3%) did not receive subsequent therapy with an alternate anti-cancer agent. The decision to discontinue for all those who did the median time to initiation of subsequent therapy was 49 (Range: 1-456) days after sorafenib initiation. CONCLUSIONS: Over one-third of patients with HCC in the US fill only one sorafenib 1L prescription. Patients do not receive subsequent drug therapy, demonstrating unmet medical need. Some patients receive less than the labeled dose. Factors associated with dose reduction and discontinuation and the impact on real-world effectiveness of first line sorafenib should be investigated.
study of patients (age ≥66 years) diagnosed with first primary FL from 2001-2011, using the SEER-Medicare database. Differences in risk of all-cause and cancer-specific mortality were examined using the Cox proportional hazards model. Adjusted hazard ratios and 95% CIs were also estimated to determine the comparative effectiveness of rituximab-based chemotherapy versus observation only. Among 5,419 FL patients, treated patients were younger than patients receiving observation only. African-American patients were less likely (44%) to receive treatment versus Caucasian patients (53%). Our findings suggested benefit of rituximab-based chemotherapy in all races, even though statistically significant among Caucasian patients, for specific mortality (Caucasian: HR=0.55, 95% CI:0.44-0.68; African-American: HR=0.62, 95% CI:0.30-1.41; Hispanic: HR=0.69, 95% CI:0.42-1.28; Asian/Pacific Islander : HR=0.65, 95% CI:0.27-1.40) and all-cause mortality (Caucasian: HR=0.53, 95% CI: 0.46-0.62; African-American: HR=0.61, 95% CI:0.28-1.93; Hispanic: HR=0.51, 95% CI:0.23-1.10; Asian/Pacific Islander : HR=0.54, 95% CI:0.20-0.94).

CONCLUSIONS: We found racial differences in the treatment utilization and comparative effectiveness of therapies in elderly FL patients. Some sociodemographic predictors may have an important role for treatment decisions.

In this preliminary analysis it remains unclear if racial differences exist in the effectiveness of rituximab-based chemotherapy and monoclonal on cancer-specific and all-cause survival. Further analyses are planned to extend our analysis to all elderly indolent lymphoma patients.

PCN8 SPINAL SURGERY IN PATIENTS WITH MALIGNANT AND BENIGN BONE CANCER OF THE VERTEBRAL COLUMN – PREVALENCE AND RISK FACTORS

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OBJECTIVES: Spinal fusion (SF) is performed to address pain and loss of function. However, the incidence of SF and incidence of repeat SF for patients with malignant bone tumors of the vertebral column (BTVC) is not well documented.

METHODS: Using the Truven CCAE and Truven Medicare databases, patients with SF (International classification of disease (ICD)- 9:118.0 or ICD-10: M84.0) from 2007 to 2010 were identified and all diagnoses concurrent to SF were analyzed. A patient subset that had ≥12-month enrollment pre- and post- SF and no prior spine surgery within 12 months of index SF were categorized for comorbidities at index.

RESULTS: Among 4,849 elderly FL patients, treated patients tended to have malignant bone tumors of the vertebral column (BTVC) was not well documented. Comorbidities at surgery included diabetes (ICD-9 250.0), osteoporosis (ICD-9 733.00) and obesity (ICD-9 V85.35-45; 278.0, 278.0). Incidence of repeat SF (new or revision for revision) was 9.8 3%) within the 12 months follow-up period was evaluated.

RESULTS: 61% of patients who underwent SF had spinal metastasis, 41% had spondylolisthesis, 36% had DDD and less than 1% had malignant or benign BTVC. The study cohort included 122,589 patients, with a total 12-month rate of 0.5%.

CONCLUSIONS: For patients without BTVC. Our results suggest that the risk of repeat SF is significantly elevated and all diagnoses concurrent to SF were analyzed. A patient subset that had ≥12-month enrollment pre- and post- SF and no prior spine surgery within 12 months of index SF were evaluated.

PCN9 COMORBIDITY MEASURES TO PREDICT OVERALL SURVIVAL TIME AMONG ELDERLY GYNECOLOGIC CANCER SURVIVORS IN THE US: AN ANALYSIS OF SEER-MEDICARE DATA

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OBJECTIVES: To examine relationships between different comorbidity indices and overall survival time, and to compare the performance of these indices in predicting survival time among elderly gynecologic cancer survivors. METHODS: This retrospective study used 2007-2010 Surveillance, Epidemiology, and End Results (SEER-Medicare) database. The primary independent variables were comorbidity indices, including diagnosis-based indices [Deyo-Charlson Comorbidity Index (CCI), Romano CCI, D’Hoorre CCI, Original Exhauster Comorbidity Index (EI), AHRI EI, and National Cancer Institute comorbidity index] and medication-based indices [Morbidity Index (MHI), Charlson-Deyo index (CDI), and Deyo-Charlson index (DCI)]. The CCI CIs and EI were included as both score and categorical/indicator variables. The dependent variable was overall survival time. Cox models with a time-dependent covariate were used to assess the relationships between comorbidity measures and survival time. The Akaike Information Criterion, Bayesian Information Criterion, and Likelihood ratio tests were used to compare the predictive ability of the models.

RESULTS: The mean age of the 4,063 gynecologic cancer survivors studied was 78.0 (SD=7.4) years; 27.6% died within one year after diagnosis. Uterine cancer was most common (48.5%), followed by ovarian cancer (30.0%). All diagnosis-based indices were significantly positively associated with risk of death, while none of the medication-based indices were associated with risk of death after controlling for covariates. Regarding predictive ability of comorbidity indices, the score versions of the diagnosis-based indices tended to outperform the categorical/indicator versions of the diagnosis- and medication-based indices. CONCLUSIONS: This study found meaningful associations between different comorbidity indices and overall survival among the elderly gynecologic cancer population in the US. Study findings suggest using the score versions of the diagnosis-based indices predicting survival-related outcomes in this population. This study may help clinicians identify conditions where better treatment plans could improve health outcomes, and health scientists choose the better comorbidity indices to use in their epidemiologic research.

PCN10 IMPACT OF CRYOTHERAPY AND CONSERVATIVE MANAGEMENT ON DEPRESSION AND ANXIETY DISORDERS IN MEN WITH PROSTATE CANCER

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OBJECTIVES: To compare rates of subsequently diagnosed mental health issues (anxiety and depression) in men with recently diagnosed prostate cancer who underwent conservative management (CM) or cryotherapy. METHODS: The Surveillance, Epidemiology, and End Results (SEER)-Medicare linked data from 2000-2013 was used. Patients’ aged 65 years or older with stage I and stage II cancer diagnosis were identified. Patients who did not receive any immediate treatment within 6 months of diagnosis of localized prostate cancer. Patients in the cryotherapy cohort were identified using diagnosis-based indices in predicting survival-related outcomes in this population. This study may help clinicians identify conditions where better treatment plans could improve health outcomes, and health scientists choose the better comorbidity indices to use in their epidemiologic research.

PCN11 TREATMENT PATTERNS AND MEDICATION ADHERENCE AMONG PATIENTS DIAGNOSED WITH MULTIPLE MYELOMA AND TREATED WITH PANOBINSTAT

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OBJECTIVES: Examine treatment patterns and sequence, combinations, dosing, medication adherence, and persistence in adults with multiple myeloma (MM) treated with panobinostat. Using a nationwide administrative claims database, a cohort of MM patients aged ≥18 years treated with panobinostat from 02/01/2015-07/31/2016 was evaluated. Three months continuous enrollment was required for patients to be included. Our results SF is compared to cryotherapy cohorts: neurotic depression (0.25% and 0.42%, respectively), major depressive disorder (0.49% and 0.58%, respectively); anxiety disorders (2.38% and 2.69%, respectively), adjustment disorder with depressed mood (0.17% and 0.21%, respectively), and adjustment disorder with anxiety (0.24% and 0.22%, respectively).

CONCLUSIONS: Findings suggest that the burden of MM is greater with cryotherapy treatment in comparison to CM. Patients who receive cryotherapy may need additional mental health monitoring and treatment to avoid negative outcomes.

PCN12 EPIDEMIOLOGY OF METASTATIC MELANOMA AND FREQUENCY OF MUTATION TESTING IN THE U.S. MEDICARE POPULATION

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OBJECTIVES: To examine the population of metastatic melanoma patients who are covered by the Medicare FFS Database, and assess the frequency and timing of newly available mutation testing. METHODS: A retrospective claims study was conducted using the Medicare FFS Database. Patients included were aged ≥65 years and at least 2 claims for malignant melanoma in the identification period.
A BAYESIAN NETWORK META-ANALYSIS (NMA) OF THERAPIES FOR TREATMENT-NAÏVE CHRONIC LYMPHOCYTIC LEUKEMIA (TN-CLL) PATIENTS INELIGIBLE FOR FULL-DOSE FLUDARABINE THERAPY

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OBJECTIVES: To systematically review identified randomized controlled trials (RCTs) in TN-CLL to estimate the evidence for full-dose fludarabine therapy (FFA) and its comparators.

METHODS: We conducted a systematic literature review identifying all RCTs in TN-CLL and paired them with terms for relevant treatments to identify studies reporting patient outcomes.

RESULTS: Among 25814 rectal cancer patients in study, 66.4% were open surgery, 28% were laparoscopic, and 5% were hand-assisted laparoscopic surgery. The overall median survival (OS) was 19 months, with higher OS for the open surgery group compared to the laparoscopic and hand-assisted laparoscopic groups. The 5-year OS rate was 50% in the open surgery group, 45% in the laparoscopic group, and 42% in the hand-assisted laparoscopic group.

CONCLUSIONS: Overall, the results indicated that open surgery had a better outcome for rectal cancer patients compared to laparoscopic and hand-assisted laparoscopic surgery. Further research is needed to determine the long-term effects and patient preference for different surgical approaches.
response and time to PSA progression in patients with a lack of response to first-line ARTA in the US community oncology setting. METHODS: Using Alvos electronic health records, 345 mCRC subjects were identified, divided to response to first-line ARTA (abiraterone: N=289; enzalutamide: N=56) and received second-line chemotherapy (docetaxel: N=128; cabazitaxel: N=19), or alternative ARTA (enzalutamide: N=170; abiraterone: N=28) from 05/2011 to 1/2014. Outcomes were evaluated from second-line therapy initiation and compared between the two cohorts using one-sided tests. Clinical response (clinical note, ECOC performance status (PS) reduction by ≥1, ≥5% weight increase, or ≥2g/dL hemoglobin) and surgical approach (radical prostatectomy, dehydrogenase, and abiraterone, or pil for PSA progression) were defined to evaluate outcomes (Intra OR Bleeding, OR time, length of stay, Post OR complication) and overall survival (OS). RESULTS: At start of second-line therapy, patients receiving chemotherapy vs ARTA were younger (median age, 74 vs 79 years) and had a poorer prognosis: higher mean PSA (429 vs 231 ng/mL), LDH (344 vs 234 μg/L) and ALP (241 vs 166 μg/L). More patients had PSA levels (11 vs 12 g/dL), serum albumin levels (25% more), and had higher hospitalization cost (vs. non-converted: 21.26mins, 95%CI[6.15, 36.38]; vs. Open: 60.14mins, 95%CI[3.46,116.83]), and higher hospitalization cost. Stratifying by community teaching status. RESULTS: At end of second-line therapy, patients receiving chemotherapy vs ARTA were younger (median age, 74 vs 79 years) and had a poorer prognosis: higher mean PSA (429 vs 231 ng/mL), LDH (344 vs 234 μg/L) and ALP (241 vs 166 μg/L). More patients had PSA levels (11 vs 12 g/dL), serum albumin levels (25% more), and had higher hospitalization cost (vs. non-converted: 21.26mins, 95%CI[6.15, 36.38]; vs. Open: 60.14mins, 95%CI[3.46,116.83]), and higher hospitalization cost. Stratification analyses were conducted by surgeon specialties and hospital teaching status. CONCLUSIONS: Among 25,814 rectal cancer patients with rectal resection in Premier Hospital Perspective® Database were included. Conversion to open surgery was associated with higher risk of complications and longer time to PSA progression (adjusted hazard ratio=0.66, p=0.010). CONCLUSIONS: Second-line taxane-based chemotherapy vs second-line ARTA may be suitable for patients with a lack of response to first-line ARTA and therefore should be further investigated in a prospective randomized trial.

PCN18 IMPACTS OF CONVERSION IN RECTAL RESSECTION FOR RECTAL CANCER PATIENTS - DOES CONVERSION MATTERS? Song C, Lu X

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OBJECTIVES: Conversion to open surgery is an intra-operative outcome indicating failure of minimally-invasive surgery (MIS). Conversion in rectal cancer resection is high yet the associated clinical and economic impacts of conversion are less understood. METHODS: Rectal cancer patients underwent rectal resection in Premier Hospital Perspective® Database were included. Conversion to open surgery was defined by ICD-9: Multivariate regression was used to estimate the impacts of conversion through comparing converted vs. (1)non-converted cases; (2)open cases. Outcomes included post-operative complications, length of stay (LOS), operation-room time, and hospitalization cost. Stratification analyses were conducted by surgeon specialties and hospital teaching status. RESULTS: Among 25,814 rectal cancer patients with rectal resection, 33% were done with MIS and 22.8% of those MIS were converted to open surgery. Patients who were converted to open surgery had significantly higher risk of postoperative complications, longer operation-time and hospitalization cost. Stratification analyses were conducted by surgeon specialties and hospital teaching status. CONCLUSIONS: Among 25,814 rectal cancer patients with rectal resection, 33% were done with MIS and 22.8% of those MIS were converted to open surgery. Patients who were converted to open surgery had significantly higher risk of postoperative complications, longer operation-time and hospitalization cost. Stratification analyses were conducted by surgeon specialties and hospital teaching status. Conclusions: Conversion to open surgery is an intra-operative outcome indicating failure of minimally-invasive surgery (MIS) and conversion in rectal cancer resection is high. Stratification analyses were conducted by surgeon specialties and hospital teaching status. CONCLUSIONS: Among 25,814 rectal cancer patients with rectal resection, 33% were done with MIS and 22.8% of those MIS were converted to open surgery. Patients who were converted to open surgery had significantly higher risk of postoperative complications (vs. non-converted: OR 1.47, 95%CI[1.29, 1.66], vs. Open OR 1.61 95%CI[1.40, 1.82]), longer operation-time (vs non-converted: 21.6mins, 95%CI 6.15, 36.38; vs. Open: 60.14mins, 95%CI[3.46,116.83]), and higher hospitalization cost (vs non-converted: $2270.47, 95%CI$1251.99, 3288.95; vs. Open: $1942.48 95%CI$880.41, 3004.54); LOS of converted cases is significantly longer than non-converted cases (0.8stays, 95%CI[0.51-1.19]) after adjusted for covariates. Stratifying by community teaching status, the hospital teaching converted the cases in community hospital had significantly higher risk of postoperative complication, longer operation-room time and higher hospitalization cost compared with both non-converted and open cases, while in teaching hospital, the outcome differences between converted and open cases became insignificant. Similar results were found after stratification by surgeon specialties or colorectal surgeon. CONCLUSIONS: Conversion to open surgery for rectal cancer resection is associated with higher risk of complications, longer LOS, operation-room time and higher hospitalization cost. The impact of conversion varies in different types of surgeons and hospitals. Further studies are needed for prevention of conversion and how to tailor the prevention method to different archetypes of care providers.

PCN19 COMPARATIVE EFFECTIVENESS OF SURGICAL VERSUS NONSURGICAL THERAPY FOR LARYNGEAL AND OROPHARYNGEAL CANCER Camolinha AG, Lopez RV, Lopes EF, Hoff PM, Chamamas R

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OBJECTIVES: The treatment of patients with laryngeal and oropharyngeal cancer includes surgery or concurrent chemoradiation (CRT). Although CRT has become more common in recent years, the effectiveness of complete CRT in improving survival over surgery is not clear. The aim of this study was to evaluate the impact of CRT on mortality rates for laryngeal and oropharyngeal cancer patients with advanced oropharyngeal carcinoma (MW, RFA) was equivalently safe and effective to LR (in which, 2 studies suggest better outcomes than LR). In the analyzed studies, sorafenib resulted to significantly increase the progression-free survival between 10-35 months in radioiodine-refractory DTC patients. Hand-foot syndrome (4-66%), fatigue (5.3-16%), hypertension (7.3-9.7%), diabetes (5.8-6.8%), rash (4.8-6.8%) and weight loss (5.2-5.8%) were the most frequently reported severe adverse events caused by sorafenib. No cost-effectiveness studies related to DTC were found in the review. CONCLUSIONS: Our results suggest that sorafenib represents a new and effective treatment option for patients with progressive RAI-refractory DTC.

PCN21 THE TREATMENT EFFECT ON EARLY STAGE HEPATOCELLULAR CARCINOMA IN JAPANESE POPULATION: LITERATURE REVIEW Seno A1, Yin C1, Metz L1, Ghosh SK2, Murata T1, Kobayashi M2

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BACKGROUND: The Japanese health insurance and literatures is now available. This study aimed to understand treatment effects of radiofrequency ablation (RFA), microwave coagulation (MW), LR and transcatheter arterial chemoembolization (TACE) for HCC from Japanese literatures. METHODS: The Ichushi-Web search was performed on 4th of May 2016. Except for non-peer reviewed, all studies described short- and long-term outcomes (Intra OR Bleeding, OR time, length of stay, Post OR complication) and long-term outcomes (survival rate, Relapse-free survival rate, etc.) of HCC patients treated with MW or RFA. RESULTS: A total of 464 studies were included and 597 studies (PubMed ¼ 37, Embase ¼ 464) were excluded after reviewing titles and abstracts. A total of four studies met the inclusion criteria and were included in the analysis (systematic reviews 2, meta-analysis 1 and clinical trials 1). In the analyzed studies, sorafenib resulted to significantly increase the progression-free survival between 10-35 months in radioiodine-refractory DTC patients. Hand-foot syndrome (4-66%), fatigue (5.3-16%), hypertension (7.3-9.7%), diabetes (5.8-6.8%), rash (4.8-6.8%) and weight loss (5.2-5.8%) were the most frequently reported severe adverse events caused by sorafenib. No cost-effectiveness studies related to DTC were found in the review. CONCLUSIONS: Our results suggest that sorafenib represents a new and effective treatment option for patients with progressive RAI-refractory DTC.
calculated using longitudinal patient records timeframes. Time to treatment is considered the period from last diagnosis method and first treatment record. Also, data shows a substantial gap between treatment line and patient death. **RESULTS:** The overall analysis cohort results 34,167 patients considering datasets intersection obtained through record linkage. On the period between June 16 and July 15, the average time to treatment was 6 months among the 7,565 patients in treatment: 3,279 in STx, 600 in RTx and 1401 in CTx, being 246 on TKIs/tmTORs/MAbs and 1,179 on another CTx regimen. Considering first line patients, overall OS was 39 months, curving up into disease-staging results in stage I/II/III 34 and stage IV 8 months. Finally, considering CTx patients, 5.6% were prior exposed to RTx and 31.0% to STx and 3.1% to both. **CONCLUSIONS:** Framing patient-centric medical claim databases using record linkage algorithms provides a powerful tool for calculating clinical survival costs and their impact to the real world environment. Furthermore, both demographic and socioeconomic analysis can be shaped bring up a better understanding of RCC dynamics in Brazil.

PCN23

**FULVESTRANT: A TREATMENT OPTION IN METASTATIC BREAST CANCER AFTER TWO LINES OF HORMONAL THERAPY, THE EXPERIENCE IN COSTA RICA**

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**OBJECTIVES:** In Costa Rica, Caja Costarricense de Seguro Social (CCSS) does not include fulvestrant in its basic drug list, however it’s authorized for individual cases of women with metastatic breast cancer after receiving two lines of hormone therapy. The objective of this study is to analyze the cost and safety of treatment with fulvestrant in CCSS between 2012 and 2015, and the cost-effectiveness (efficiency) of intervention. **METHODS:** This is an observational, retrospective study, that includes all patients that were authorized to receive treatment with fulvestrant, according to the data base of the Central Pharmacotherapy Committee, between January 2012 and December 2015. Clinical records were accessed to retrieve information on diagnosis, hormone receptors, ECOG performance status, progression-free and overall survival, and cost of treatment. **RESULTS:** 26 clinical records were available for review. All patients that received fulvestrant were woman, average age was 67 years old (63.9; 71.6). 77% (n=20) of them were dead. Hormone receptors were registered in 65% of patients, 50% (n=13) had both estrogen and progesterone and 15% (n=4) had positive estrogen and negative progesterone receptors. All patients received an initial dose of 500mg IM on day 1, 15, and 29, followed by 50mg each month. Median time of treatment was 6.5 months, IC95% (5.6; 7.4). Median progression-free survival was 6.5 months, IC95% (5.0; 8). Median overall survival was 13.8 months, IC95% (10.8; 16.7). Considering cost of treatment and the median time of treatment, we obtained a cost per patient of US $7 500. At divided by the median overall survival (1.15 years) gives us a cost of US $6,881 per year gained, that represents the 65% of GDP per capita in 2015 for Costa Rica. **CONCLUSIONS:** Given treatment with fulvestrant in metastatic patients with breast cancer, progression-free to two lines of hormone therapy is an efficient intervention in the context of Costa Rica’s Social Security.

PCN24

**RACE DIFFERENCES IN PATTERN OF CARE AND SURVIVAL IN MEN DIAGNOSED WITH PRIMARY PROSTATE CANCER**

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**OBJECTIVES:** To understand the impact of race on shared decision making on the first course of treatment in patients with newly diagnosed prostate cancer. This study explored the difference in treatment patterns and clinical outcome in PCa patients by race, risk categorization and clinic-pathologic characteristics. **METHODS:** This study consisted of a retrospective cohort of 1,545 patients, 141 African American Men (AAM), 1,404 Non-Hispanic white (NHW), who were newly diagnosed with adenocarcinoma of the prostate after calendar year 2006 at Moffitt Cancer Center (MCC) or elsewhere, and received all or part of first course treatment at MCC. Logistic regression was used to evaluate primary treatment choice by race. Survival Analysis was used to analyze the difference in PCa specific mortality (PCSM) and overall survival (OS). **RESULTS:** AAM had a higher preoperative Prostate Specific Antigen (PSA) compared to NHW (p < 0.01). There was a trend in high risk category as more AAM (24.8%) were at higher risk compared to NHW (16.9%) (p = 0.03). Furthermore, AAM had a higher Gleason Score (GS) compared to NHW (p = 0.02). In multivariate analysis, AAM had higher Gleason Score (p = 0.01). Among AAM and NHW with low grade PCa may suggest biological differences in this patient population.

PCN25

**EFFICACY AND SAFETY OF OXLAPILATIN/CAPECITABINE BASED CHEMOTHERAPY PLUS BEVACIZUMAB AS FIRST-LINE TREATMENT FOR ADVANCED COLORECTAL CANCER: A SYSTEMATIC REVIEW AND META-ANALYSIS**


**OBJECTIVES:** To evaluate the clinical efficacy and safety of combined targeted therapy against epidermal growth factor receptor (EGFR) and vascular endothelial growth factor (VEGF) pathways in patients with advanced non-small-cell lung cancer (NSCLC). **METHODS:** Literature searches were conducted using PubMed/MEDLINE and Web of Science. The Cochrane library database was also searched. The search included randomized controlled trials (RCTs) with at least 50 participants, duration of at least 24 weeks, and follow-up of at least 26 weeks. The primary outcomes were overall survival (OS) and progression free survival (PFS). The secondary outcomes included adverse events. The eligibility of included trials was assessed using the Cochrane Risk of Bias Tool. Two authors independently selected papers, extracted data and assessed quality. **RESULTS:** Three RCTs with 1,902 patients were included in this meta-analysis. Oxlaplatin/
cicaplatin-based chemotherapy plus bevazcумab (OCB) regimen showed improved outcome in OS (odds ratio [OR] = 1.4, 95% CI 0.68 to 2.34), which was not statistically significant. The median OS of abiraterone group showed higher RR, CR, PR and SD (OR = 1.4, 95% CI 0.80 to 2.11, OR = 1.99, 95% CI 0.49 to 8.05, OR = 1.57, 95% CI 1.05 to 2.36 and OR = 1.94, 95% CI 0.96 to 1.86) respectively. Most of the eligible patients reported with bilateral pleural effusion, hypertension, and venous thromboembolic events. CONCLUSIONS: Bevaczumab plus Oxaplatin/cicaplatin-based chemotherapy showed improvement in OS and RR as compared to other chemotherapy in patients with advanced CRC.

PCN28

EFFICACY AND COST-EFFECTIVENESS OF SECOND-LINE CHEMOTHERAPY IN ELDERLY PATIENTS WITH ADVANCED GASTRIC CANCER

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OBJECTIVES: Second-line chemotherapy has been shown to benefit patients with advanced gastric cancer (AGC), extending the overall survival (OS) and progression-free survival (PFS). This study aimed to assess the efficacy and cost-effectiveness of second-line treatment for elderly patients with AGC. METHODS: Medical records and follow-up information of elderly patients (≥70 years) with AGC who received second-line chemotherapy were collected. A Markov model comprising three health states (PFS, progressive disease, PD), and death was developed to simulate the process of AGC. Cost was calculated from the perspective of Chinese society. Sensitivity analyses were applied to explore the impact of essential variables. RESULTS: Forty-three elderly patients with AGC receiving second-line chemotherapy were included in our study. The median OS was 6 months (95% confidence interval [CI], 3.90-8.18) and PFS was 3.1 months (95% CI, 1.38-4.82), respectively. Treatment with second-line chemotherapy was associated with increased OS and PFS compared with best supportive care (BSC) with a gain of 0.103 quality adjusted life years (QALYs). Thus, the incremental cost-effect ratio was $19,231.21/QALY for second-line chemotherapy versus BSC, which is below the threshold of 3 times the gross domestic product (GDP) per capita of China ($23,970.00 in the Utility score). Cost-effectiveness analysis was estimated from statistical evaluation of factors to the model. CONCLUSIONS: Second-line chemotherapy was an optimal strategy for elderly patients with AGC from the China's perspective and cost-effectiveness perspective.

PCN29

COMPARATIVE EFFECTIVENESS OF PLATINUM PLUS PLOCTAXEL, PLATINUM PLUS LIPOSOMAL DOXORUBICIN, TOPOTECAN, AND LIPOSOMAL DOXORUBICIN FOR SECOND-LINE CHEMOTHERAPY AMONG PLATINUM-SENSITIVE PATIENTS WITH RECURRENT ADVANCED OVARIAN CANCER IN TAIWAN

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OBJECTIVES: To compare the effectiveness, as measured by complete molecular response (CMR) and 2- and 3-year overall survival (OS), of ponatinib versus first- and second-generation TKIs (i.e., imatinib, dasatinib, and nilotinib) for treatment of de novo Philadelphia-positive acute lymphoblastic leukemia (Ph+ ALL) METHO- DS: Twenty-six studies of front-line Ph+ ALL treatment with a TKI in combination with chemotherapy or corticosteroids were identified from published targeted literature reviews and recently published trials. Study arms in which patients received chemotherapy or corticosteroids only, a single TKI agent, or autologous stem cell transplant exclusively, were excluded. The proportions of patients achieving CMR (no detectable BCR-ABL1 transcript) and 2- and 3-year OS were extracted from all study arms and summarized by TKI group (ponatinib versus earlier-generation TKIs) using pooled estimates with 95% confidence intervals (CIs) from a random-effects meta-analysis. RESULTS: The proportion of patients achieving CMR after front-line treatment with ponatinib was higher than that with earlier-generation TKIs (79% versus 34%). The pooled estimates of 2- and 3-year OS were also higher with ponatinib than with earlier-generation TKIs (75% versus 50% and 55% versus 36%, respectively). CONCLUSIONS: Compared to earlier-generation TKIs, ponatinib was associated with a 2-fold, 3-fold, and 4-fold increase in the odds of achieving CMR, 2-year OS, and 3-year OS, respectively. Ponatinib in combination with chemotherapy may represent an effective front-line treatment option in newly diagnosed Ph+ ALL compared with combination therapy with earlier-generation TKIs.

PCN30

EFFECTIVENESS OF ABRATERONE IN THE POST-DOTACCET SETTING ON THE SURVIVAL OF METASTATIC CASTRATION-RESISTANT PROSTATE CANCER PATIENTS IN QUEBEC

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OBJECTIVES: Abiraterone was introduced in Quebec in 2012 for metastatic castration-resistant prostate cancer (mCRPC) in the post-dotacet setting. This study described abiraterone utilization in the post-prostatectomy period and its clinical effectiveness in Quebec, for both post-chemotherapy patients and patients unfit for chemotherapy. METHODS: A retrospective cohort study was conducted using Quebec public healthcare administrative databases. Our cohort consisted of mCRPC patients receiving abiraterone from 2012-2013 (N=303). The abiraterone group was stratified into abiraterone post-chemotherapy (N=99) and abiraterone without chemotherapy (N=204, unfit for chemotherapy and qualified for abiraterone with ≥4-fold abnormal prostatic specific antigen (PSA) measure). Study outcomes included overall survival, abiraterone duration, and hospitalization days. Cox proportional hazard regression was used to estimate the effectiveness of abiraterone in the post-dotacet setting adjusted for several covariates. RESULTS: Our cohort consisted of 303 mCRPC patients treated with abiraterone (abiraterone post-chemotherapy: 99 and abiraterone “exception patient”: 204). The median age was 75.4 for the abiraterone post-chemotherapy group and 80.0 for the abiraterone “exception patient” group. Median survival of abiraterone post-chemotherapy was 5.3 months, abiraterone “exception patient” 5.9 months. The corresponding median survivals were 12 and 14 months, respectively (log-rank test p-value=0.815). Risk of death was similar in the abiraterone post-chemotherapy and abiraterone “exception patient” groups (hazard ratio: 0.99, 95%CI 0.64-1.52). Hospitalization days were higher for abiraterone post-chemotherapy patients compared to abiraterone “excep- tion patients” (13.7 vs 10.9, p-value=0.056). CONCLUSIONS: Effectiveness of abiraterone in older patients who were chemotherapy ineligible was similar to that of patients with prior docetaxel exposure. Overall, real-world survival benefits of abiraterone were similar to the results of the COA-301 trial.

PCN31

REAL-WORLD OUTCOMES AMONG PATIENTS WHO INITIATED PONATINIB OR SUNITINIB AS FIRST-TARGETED THERAPY FOR ADVANCED RENAL CELL CARCINOMA (ARCC): A RETROSPECTIVE ANALYSIS OF MEDICARE DATA

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OBJECTIVES: This study assessed real-world overall survival (OS), time on treatment (TOT), and dose intensity among ARCC patients who initiated ponatini- b or sunitinib, two commonly-used first-targeted therapies (TT). METHODS: Patients aged ≥65 with mRCC at initial diagnosis were identified using a first TT (index date) identified from the 100% Medicare data + Part D linkage (1/1- 6/30/2014). Patients were stratified by first TT and matched 1:1 using propensity scores based on age, sex, race, year of RCC diagnosis, metastatic sites, and prior TKI use. Sensitivities and costs were assessed 1 year after index date. OS was defined as the time from index date to death from any cause; TOT as the time from index date to the earliest of treatment discontinuation (a prescription gap of ≥ 90 days) or death from any cause. For both outcomes, patients were censored at the earliest of end of eligibility or data cut-off. Dose intensity was defined as the ratio of days that the patient had received drug supply to TOT. OS and TOT were compared between matched cohorts using Kaplan-Meier analyses and univariable Cox models; dose intensity was compared using Wilcoxon signed-rank tests. RESULTS: Before matching, the ponatinib cohort (N=526) was associated with higher outpatient visits and costs and lower pharmacy costs than the sunitinib cohort (N=1,185; all p<0.05). After matching, all baseline characteristics were balanced (N=522 for both). First TT with ponatinib was associated with significantly longer OS (median: 18.2 vs. 14.6 months, p<0.05; hazard ratio [HR]= 0.83, 95% CI 0.65-1.04) and lower dose intensity (mean: 0.91 vs. 0.94, p=0.01) compared with the sunitinib cohort. CONCLUSIONS: Among Medicare patients with ARCC, first TT with ponatinib compared to sunitinib was associated with significantly longer OS, similar TOT, and lower dose intensity.
AN OUTCOMES MODEL ASSESSING THE IMPACT OF EARLY DISCONTINUATION OF EVEROLISM (EVE) DUE TO STOMATITIS ON HEALTH AND PATIENT-REPORTED OUTCOMES IN POST-MENOPAUSAL WOMEN WITH HR+/HER2- ADVANCED BREAST CANCER (ABC) RECEIVING EVEROLISM-EXEMESTANE COMBINATION THERAPY (EVE-EXE)

**OBJECTIVES:** To explore the impact of early discontinuation of everolism (EVE) due to stomatitis on health and patient-reported outcomes among everolism-exemestane combination therapy (EVE-EXE) users with HR+/HER2- ABC. **METHODS:** A current model was adapted from a published cost-effectiveness model using a US third-party payer perspective comparing EVE-EXE with other endocrine therapies and focused only on the EVE-EXE arm. Specifically, efficacy data were obtained from a published clinical trial; utility and disutility data were obtained from published literature. The base case scenario was 61-year-old patients. The model time horizon was 10 years. A deterministic sensitivity analysis was carried out.

**RESULTS:** Fifty percent of patients who prematurely discontinued everolism due to stomatitis was created from the overall intent-to-treat (ITT) EVE-EXE arm and the outcomes were compared with the ITT sample. As 90% of stomatitis events upon everolism use occurred prior to 8 weeks, the average time to treatment discontinuation in the aforementioned subgroup was assumed to be 8 weeks. Exposure-outcome ratios were calculated to quantify the relationship between time on everolism and outcomes. The outcomes of interest included progression free survival (PFS), overall survival (OS), and time to initiation of life modifying discontinuation. Deterministic sensitivity analyses were applied to understand the relative impact of different parameters to study findings. **CONCLUSIONS:** In the base-case scenario, relative to the ITT sample, patients who prematurely discontinued everolism due to stomatitis on average was projected to experience 2.0 months (17.8 vs. 19.8 months), 1.3 months (37.4 vs. 38.8 months), and 1.2 (22.7 vs. 23.9) shorter PFS, OS, and QALM respectively. Deterministic analyses showed that time on everolism and exposure-outcomes ratios are the two parameters influencing key findings.

**REFERENCE:** Prolonging initial EVE-EXE and discontinuing everolism early due to stomatitis was projected to experience shorter PFS, OS, and QALM compared with the ITT sample. There is a need to prevent stomatitis to ensure better patient outcomes.

USE PATTERNS OF FIRST-LINE INHIBITORS OF TYROSINE KINASE AND TIME TO CHANGE TO SECOND-LINE THERAPY IN PATIENTS WITH CHRONIC MYELOID LEUKAEMIA

**OBJECTIVES:** Chronic myeloid leukemia (CML) has a low incidence but a high mortality. To explore the impact of early discontinuation of everolism (EVE) due to stomatitis on health and patient-reported outcomes among everolism-exemestane combination therapy (EVE-EXE) users with HR+/HER2- ABC. **METHODS:** A current model was adapted from a published cost-effectiveness model using a US third-party payer perspective comparing EVE-EXE with other endocrine therapies and focused only on the EVE-EXE arm. Specifically, efficacy data were obtained from a published clinical trial; utility and disutility data were obtained from published literature. The base case scenario was 61-year-old patients. The model time horizon was 10 years. A deterministic sensitivity analysis was carried out.

**RESULTS:** Fifty percent of patients who prematurely discontinued everolism due to stomatitis was created from the overall intent-to-treat (ITT) EVE-EXE arm and the outcomes were compared with the ITT sample. As 90% of stomatitis events upon everolism use occurred prior to 8 weeks, the average time to treatment discontinuation in the aforementioned subgroup was assumed to be 8 weeks. Exposure-outcome ratios were calculated to quantify the relationship between time on everolism and outcomes. The outcomes of interest included progression free survival (PFS), overall survival (OS), and time to initiation of life modifying discontinuation. Deterministic sensitivity analyses were applied to understand the relative impact of different parameters to study findings. **CONCLUSIONS:** In the base-case scenario, relative to the ITT sample, patients who prematurely discontinued everolism due to stomatitis on average was projected to experience 2.0 months (17.8 vs. 19.8 months), 1.3 months (37.4 vs. 38.8 months), and 1.2 (22.7 vs. 23.9) shorter PFS, OS, and QALM respectively. Deterministic analyses showed that time on everolism and exposure-outcomes ratios are the two parameters influencing key findings. **CONCLUSIONS:** Prolonging initial EVE-EXE and discontinuing everolism early due to stomatitis was projected to experience shorter PFS, OS, and QALM compared with the ITT sample. There is a need to prevent stomatitis to ensure better patient outcomes.
review was undertaken to identify incidence data for AML using databases, registries, clinical trials and publications. Detailed bottom up studies were reviewed for sample size, demographic and geographic coverage and representation. RESULTS: The highest rates of AML for target countries were for the UK where incidence was 4.1/100,000, in 2016. This was based on clinical and lab data from Yorkshire and Humber region. The annual crude incidence rates for France were reported as 3.7/100,000 based on the RARECARE project using patients diagnosed between 1995-2002. CONCLUSIONS: Rates were consistent across the target countries, ranging from 2.3-4.1/100,000. Robust data regarding the incidence of treatment naive and relapsed or refractory patients was not identified, but we would expect to have a lower incidence than the overall AML population.

PCN42 PREVALENCE OF ANAPLASTIC LYMPHOMA KINASE POSITIVE NON-SMALL-CELL LUNG CANCER IN SELECTED POPULATION OF PATIENTS IN BULGARIA Djambozov S1, Slavchev G2, Vekov T1, Toshcheva-Konteva L1 1Medical University Pleven, Pleven, Bulgaria, 2Bulgarian Academy of Science, Sofia, Bulgaria

OBJECTIVES: Since the approval of crizotinib for locally advanced or metastatic NSCLC with ALK rearrangement in 2011, several studies have shown a high incidence of ALK rearrangement in the Eastern countries. The prevalence of the ALK rearrangement in the patients in Bulgaria remains unclear. The purpose of this study was to determine the prevalence of ALK rearrangement in patients with non-small cell lung cancer.

METHODS: A total of 150 patients were reviewed from two centers in Bulgaria (Pleven and Sofia) between January 2015 and July 2016. The age range of patients was 40-90 years. All patients had undergone biopsy and thoracentesis. A total of 150 patients were reviewed from two centers in Bulgaria (Pleven and Sofia) between January 2015 and July 2016. The age range of patients was 40-90 years. All patients had undergone biopsy and thoracentesis.

RESULTS: In our study, we found that the prevalence of ALK mutation in EGFR negative NSCLC patients is 3.8%.

PCN43 RATES AND PREDICTORS OF POLYPHARMACY IN CANCER SURVIVORS IN THE UNITED STATES Babcock Z1, Vyas A, Kogut S 1University of Rhode Island, Kingston, RI, USA

OBJECTIVES: Polypharmacy among individuals with cancer is an alarming issue. We aimed to determine the rates of polypharmacy and predictors among cancer survivors in the United States. This cross-sectional design of the 2014 MEPS was utilized in the study. Data from the MEPS 2014 survey years were utilized for analysis.

METHODS: A total of 18,006 adults aged 18 or older were included in the analysis. Patients were considered polypharmacy if they took five or more prescription medications per year. Regression analysis was performed to identify predictors of polypharmacy.

RESULTS: Polypharmacy was defined as having five or more classes of medications or less. Polypharmacy was defined as having five or more classes of medications or less. The prevalence of polypharmacy among patients diagnosed with cancer was 46.5 million, with 1.9% and 100,000 per 100 years. Robust data regarding the incidence of treatment naive and relapsed or refractory patients was not identified, but we would expect to have a lower incidence than the overall AML population.

PCN44 TARGETED LITERATURE REVIEW OF ADVANCED/METASTATIC TRIPLE-NEGATIVE BREAST CANCER BURDEN OF ILLNESS Naidoo S1, Friedman ML2, Paly VF3, Hansen R4, Sidhu MK5, Smith P1 1Astellas Pharma Europe Ltd, Chertsey, UK, 2ICON Health Economics New York, NY, USA, 3Balanced Outcome Research Associates, LLC, Seattle, WA, USA, 4Astellas Pharma Ltd, Chertsey, UK

OBJECTIVES: Advanced/metastatic TNBC remains a major unmet need. New treatments and strategies are being explored to address this unmet need. The burden of disease is significant; however, the optimal strategy for managing this burden has not been determined. This literature review aimed to assess the efficacy, safety, and resource utilization of existing and emerging treatments for advanced/metastatic TNBC.

METHODS: MEDLINE and EMBASE searches were performed from 2010 to 2020 to identify relevant studies. Study and patient characteristics were extracted and analyzed.

RESULTS: Treatments for advanced/metastatic TNBC primarily include chemotherapy and targeted therapies. New therapies, such as immune checkpoint inhibitors, are being explored. Resource utilization in this patient population is high, with significant treatment costs and hospitalization rates.

CONCLUSIONS: Further research is needed to determine the most effective and cost-efficient strategies for managing advanced/metastatic TNBC.

PCN45 ASSESSING VARIATION IN THE INCIDENCE OF ACUTE MYELOID LEUKEMIA (AML) ACROSS FRANCE, GERMANY, ITALY, SPAIN, UK AND CANADA Boushad R1, Chadda S2, O’Reilly K1, Upton CM3, Bowe C4 1Pharmaco Economics Europe Ltd, Worship, UK, 2SIRIUS Market Access, London, UK

OBJECTIVES: To explore the variation in incidence rates of AML across Europe, Germany, Italy, Spain, UK and Canada. METHODS: A comprehensive literature review was undertaken to identify incidence data for AML using databases, registries, clinical trials and publications. Detailed bottom up studies were reviewed for sample size, demographic and geographic coverage and representation. RESULTS: The highest rates of AML for target countries were for the UK where incidence was 4.1/100,000, in 2016. This was based on clinical and lab data from Yorkshire and Humber region. The annual crude incidence rates for France were reported as 3.7/100,000 based on the RARECARE project using patients diagnosed between 1995-2002. CONCLUSIONS: Rates were consistent across the target countries, ranging from 2.3-4.1/100,000. Robust data regarding the incidence of treatment naive and relapsed or refractory patients was not identified, but we would expect to have a lower incidence than the overall AML population.

PCN46 HERPES ZOSTER INCIDENCE, DISEASE BURDEN AND COST AMONG PATIENTS WITH SOLID TUMOR MALIGNANCY RECEIVING CHEMOTHERAPY 2010-2014 IN A LARGE, INSURED US POPULATION Mao J1, McPheters JT1, Finnell E2

METHODS: Claims were analyzed for adults ≥18 years with STMc between 01/2010-06/2014 in Optum Research and Impact National Benchmark Database vs. age and sex-matched controls. Incidence rates of HZ were calculated for each age group.相同

RESULTS: HZ incidence among STMc patients was 23.48/1,000 person-years vs. 3.5/1,000 PY in the general population. We aimed to assess HZ incidence and associated healthcare resource utilization (HRU) and cost among STMc patients. METHODS: Claims were analyzed for adults ≥18 years with STMc between 01/2010-06/2014 in Optum Research and Impact National Benchmark Database vs. age and sex-matched controls. Incidence rates of HZ were calculated for each age group.相同

CONCLUSIONS: The incidence of all 4 types of lymphoma yielded increasing trends during 1998-2012 among Taiwanese population and aggressive B-cell lymphoid neoplasms increased fastest.

HERPES ZOSTER INCIDENCE, DISEASE BURDEN AND COST AMONG PATIENTS WITH SOLID TUMOR MALIGNANCY RECEIVING CHEMOTHERAPY 2010-2014 IN A LARGE, INSURED US POPULATION Mao J1, McPheters JT1, Finnell E2

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HERPES ZOSTER INCIDENCE, DISEASE BURDEN AND COST AMONG PATIENTS WITH SOLID TUMOR MALIGNANCY RECEIVING CHEMOTHERAPY 2010-2014 IN A LARGE, INSURED US POPULATION Mao J1, McPheters JT1, Finnell E2

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CONCLUSIONS: The incidence of all 4 types of lymphoma yielded increasing trends during 1998-2012 among Taiwanese population and aggressive B-cell lymphoid neoplasms increased fastest.

METHODS: To review current literature for epidemiological data on HNSCC sub-populations and HZ-associated healthcare resource utilization (HRU) and cost among STMc patients. METHODS: Claims were analyzed for adults ≥18 years with STMc between 01/2010-06/2014 in Optum Research and Impact National Benchmark Database vs. age and sex-matched controls. Incidence rates of HZ were calculated for each age group.相同

CONCLUSIONS: The incidence of all 4 types of lymphoma yielded increasing trends during 1998-2012 among Taiwanese population and aggressive B-cell lymphoid neoplasms increased fastest.
OBJECTIVES: To summarize literature on the burden of illness in patients with advanced or metastatic triple-negative breast cancer (TNBC) and identify information that may inform a cost-effectiveness analysis. METHODS: Searches of MedLINE, Embase, EconLit, and the NHS Economic Evaluation Database were conducted to identify relevant literature describing the epidemiology (January 2006-July 2016), economic burden, quality-of-life (QoL) burden, and treatment guidelines (January 2011-July 2016) associated with TNBC. Search strategies included disease terms for breast cancer, advanced/metastatic disease, and hormone receptor/human epidermal growth factor receptor 2 status. Abstract review, full-text review, and data extraction were conducted by a single reviewer and validated by a second, independent reviewer. RESULTS: A total of 3140 publications were identified, following screening, 56 studies were selected for review (21 epidemiology, two economic, 13 guidelines). Across 11 studies, reported prevalence of TNBC (TN) subtypes among advanced/metastatic breast cancer ranged from 1.3% to 25.6% (nine out of 14 patient groups had prevalence > 15%). Incidence rates were reported to have a similar range (nine studies), and ranged from 1.0 to 0.1 per 100,000 females (0.2). Incidence rates were higher in geographical locations with higher patients 65 years and older (3.0) vs 24-64 years old (0.1), and in males (0.9) vs females (0.3). Evidence of resource use and higher treatment costs compared with non-TNBC patients. No QoL studies were found for a TNBC population; supplemental searches identified two additional studies in a general metastatic breast cancer population to provide context. Disease progression has the largest impact on QoL, with disease-related adverse events also often a significant QoL burden. Treatment guidelines generally recommended anthracycline- and taxane-based chemotherapy as initial treatment for TNBC. CONCLUSIONS: The prevalence, incidence, and overall survival of TNBC patients by sex, year of diagnosis, and geographical location for all races were evaluated using data from 18 cancer registries with SEER from 1973-2013 for MPM patients by ICD-0 code 9950/3 and C38.4. Cancer-directed surgery and outcomes were also examined over time. RESULTS: The prevalence of MPM increased with age, but decreased over time. Age-adjusted incidence rates per 100,000 were higher in patients 65 years and older (3.0) vs 24-64 years old (0.1), and in males (0.9) vs females (0.2). Incidence rates were higher in geographical locations with higher asbestos exposure. The incidence of patients receiving surgery per 100,000 decreased over time, from 1.2 to 0.43. Observed survival was lower in patients greater than 65 years old, with a median survival of 1 year, and remained relatively unchanged after the FDA approval of pemetrexed in 2004. CONCLUSIONS: The trend in prevalence rates demonstrates a delay in disease onset from asbestos exposure to disease diagnosis. This decrease in prevalence over time is expected to be due to advancements in asbestos removal and removal. Very few patients received surgery, which suggests a higher usage of chemotherapy. There was minimal change in survival before and after the FDA approval of pemetrexed for MPM, demonstrating an unmet need for additional treatment options.

PCN46 ASSOCIATION BETWEEN ASTHMA AND RISK OF PROSTATE CANCER – A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: Evidence indicates that systemic inflammatory response, not only prostate inflammation, contributes to prostate cancer etiology. Therefore, it is possible that males with long-term inflammatory responses such as asthma are at increased risk of prostate cancer. However, there are existing knowledge gaps in the association between comorbid asthma and prostate cancer. METHODS: A systematic review with meta-analysis was conducted to examine the association between asthma and risk of prostate cancer. An initial search of the bibliographic databases (Embase, MedLINE, and Pubmed) from January 1966 to January 2016 was completed by using a combined text word ("Asthma"[Mesh] OR Asthma[tiab] AND "Prostatic Neoplasms"[Mesh] OR Prostate[tiab] AND Cancer[tiab] OR Neoplasms[tiab] OR Prostatic Neoplasms[tiab] OR Prostate cancer[tiab]) and electronic search strategies. A search was restricted to studies written in English and carried out in human subjects. The meta-analysis was further limited to studies with reported quantitative effect estimates, expressed as an odds ratio, relative risk ratio (RR), standardized mortality ratio (SMR), excess incidence ratio, and excess mortality ratio. Results: Of these, 12 studies (including 12,866 individual participants) were considered eligible for meta-analysis, involving 4 case-control studies and 8 cohort studies. The summary of combined RR from the random-effects model for prostate cancer relative risk was 1.13 (95% CI 0.95-1.33) for asthma with high heterogeneity (94.4%). CONCLUSIONS: The present meta-analysis of observational studies indicates that there is no association between asthma and risk of prostate cancer. Further subgroup analysis in different patient characteristics needs to be investigated.

PCN47 REAL-WORLD OUTCOMES IN PATIENTS WITH METASTATIC MERKEL CELL CARCINOMA TREATED WITH FIRST-LINE CHEMOTHERAPY IN THE UNITED STATES: RESULTS FROM A RETROSPECTIVE ANALYSIS

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OBJECTIVES: This retrospective study examined therapeutic outcomes to first-line (1L) chemotherapy in patients with distant metastatic Merkel cell carcinoma (mMCC). MCC is a rare, aggressive skin cancer associated with poor prognosis in patients with metastatic disease. Advanced MCC is typically treated with chemotherapy, but there is no approved standard-of-care treatment. METHODS: Data from the US Oncology Network/McKesson Specialty Health electronic health record database and medical charts. Qualifying patients were adults with distant mMCC who had received 1L chemotherapy between 11/2004 and 9/2014 with follow-up until 6/2015. Patients who received treatment with any drug targeting T-cell coregulatory proteins were excluded, among other eligibility criteria. Objective response rate (ORR) to 1L chemotherapy was assessed using RECIST v1.1 as a guide, and duration of response (DOR), time to treatment discontinuation (TTD), progression-free survival (PFS), and overall survival (OS) were estimated using Kaplan-Meier methodology. The primary analysis population was patients with immunocompetent status. RESULTS: Of 686 patients identified to have mMCC, 67 qualified for analysis (76% immunocompetent/24% immunocompromised). In immunocompetent patients (n=51) at start of 1L chemotherapy, median age was 78 years, 84% were male, 49% had an ECOG performance status of 1, and 69% were diagnosed initially with stage I-L disease. The most common 1L regimen was carboplatin + etoposide (63%). ORR was 29.4% (95% CI, 17.5–43.8), median DOR was 6.7 mos (95% CI, 1.2–10.5; interquartile range, 2.3–12.1), median TTD was 2.4 mos (95% CI, 2.2–2.9), median PFS was 4.6 mos (95% CI, 1.9–6.7), and median OS was 10.5 mos (95% CI, 7.2–13.5). Results in the overall population were consistent with those in the immunocompetent population. CONCLUSIONS: In patients with distant mMCC treated with 1L chemotherapy, responses were of limited duration. The median survival was less than 1 year, highlighting the need for novel therapies.

PCN48 SURVIVAL ASSOCIATED WITH COPD AMONG SEER-MEDICARE BENEFICIARIES WITH NSCLC

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OBJECTIVES: Lung cancer and chronic obstructive pulmonary disease (COPD) are among leading causes of morbidity and mortality worldwide. We investigated the impact of pre-existing COPD and its subtypes, chronic bronchitis, and emphysema, on overall survival among Medicare enrollees diagnosed with non-small cell lung cancer (NSCLC). METHODS: Using SEER-Medicare data, we identified 112,855 patients with NSCLC during 1995–2014 aged ≥ 66 years of age diagnosed with NSCLC at any disease stage between 2006 to 2010 and continuously enrolled in Medicare Parts A and B in the 12 months prior to diagnosis. Pre-existing COPD in patients with NSCLC were identified using ICD-9 codes. Kaplan-Meier method and log-rank tests were used to examine overall survival by COPD status and COPD subtype. Multivariable Cox Proportional Hazards models were fit to assess the risk of death after cancer diagnosis. RESULTS: We identified 66,963 lung cancer patients. Of these, 22,497 (33.60%) had documented COPD before NSCLC diagnosis. For each stage of NSCLC, median survival was shorter in the COPD compared to the Non-COPD group (stage I: 692 days vs 1130 days, P < 0.0001; stage II: 475 days vs 627 days, P = 0.0001; stage III: 224 days vs 229 days, P = 0.0001; stage IV: 106 days vs 112 days, P = 0.0001). For COPD subtype, median survival for patients with pre-existing chronic bronchitis was shorter compared to emphysema across all stages of NSCLC (stage I: 672 days vs 811 days, P = 0.0001; stage II: 583 days vs 445 days, P = 0.0001; stage III: 255 days vs 223 days, P < 0.0001; stage IV: 105 days vs 112 days, P < 0.0001). In cox proportional hazard model, COPD patients exhibited 11% decreased time to death than Non-COPD patients (Hazard Ratio: 1.13, 95% Confidence Interval: 1.09–1.13). CONCLUSIONS: NSCLC patients with pre-existing COPD had shorter survival with marked differences in early stages of cancer. Chronic bronchitis demonstrated a greater association with time to death than emphysema.

PCN49 AGE DISPARITIES IN INFAMMATORY BREAST CANCER SURVIVAL BY RACE AND HORMONAL RECEPTOR STATUS: AN ANALYSIS OF 1990-2013 SEER DATA

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OBJECTIVES: Inflammatory breast cancer (IBC) is a rare and aggressive form of cancer with poor outcomes. This study aims to assess age differences in IBC survival among all, white, black, estrogen receptor positive (ER+) and estrogen receptor negative (ER-) patients. METHODS: Using the Surveillance, Epidemiology,
and End Results (SEER) data, IBC female patients diagnosed between 1990 and 2013 were identified. Patients were divided into five groups according to their age at diagnosis (18-34, 35-49, 50-64, 65-74, and ≥75 years). The 36-month inflammatory breast cancer-specific survival (IBCSS) was estimated using the Kaplan-Meier method and compared across groups using the log-rank test. Possible survival advantages observed in IORT trials were used to assess the association between age and survival among all, white, black, ER+ and ER- patients after adjusting for patient and tumor characteristics.

RESULTS: A total of 13,748 IBC patients were identified, 3.8% were diagnosed between the years of 1983-1984, 25.0% between 1985-1986, 16.9% between 65-74, and 15.5% aged 75 and above. The 36-month IBCSS Kaplan-Meier curves showed younger patients had a better crude survival compared to older patients. The median survival was 52%, white (60% vs 52%), ER+ (76% vs 64%) and ER- (48% vs 41%) subgroups, and the same survival among the black subgroup (48% vs 48%). The adjusted HRs were higher for older versus younger patients for all, white, ER+ and ER- patients, but not for black patients. Compared to younger patients, the adjusted HRs for older patients were 1.28 (95% CI: 1.11-1.47), 1.32 (95% CI: 1.21-1.56), 1.07 (95% CI: 0.79-1.45), 1.28 (95% CI: 1.01-1.63) and 1.31 (95% CI: 1.06-1.61) for all, white, black, ER+ and ER- patients respectively. CONCLUSIONS: This study suggests increased age may be associated with poorer survival among all black patients.

Further research is needed to examine other variables that may affect these findings.

PCN50
THE EFFECT OF CACHEXIA ON SURVIVAL IN LUNG CANCER PATIENTS
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OBJECTIVES: Lung cancer is the leading cause of cancer death in the United States. It is estimated that 60% of lung cancer patients are afflicted with cancer-cachexia and approximately 10% of these patients will die due to cachexia within one year of diagnosis. We examined the impact of cachexia on survival among lung cancer elderly patients.

METHODS: We conducted a retrospective study using SEER-Medicare data. From January 1, 2005 and December 31, 2010, 55,563 Medicare patients with a primary lung cancer diagnosis during January 1, 2005 and December 31, 2010, at least 66 years of age, and continuously enrolled in Medicare Parts A and B in the 12 months prior to diagnosis were identified. We censored in lung cancer patients using ICD-9 codes. Descriptive statistics were used to analyze the epidemiology of cachexia. Propensity score (1:1 nearest neighbor) matching was performed between cachetic and non-cachetic lung cancer patients to compare survival.

RESULTS: We identified 84,518 lung cancer patients (52% female, 25% of patients had cachexia at diagnosis. The most common comorbid conditions among cachetic and non-cachetic lung cancer patients were chronic obstructive pulmonary disease (50% versus 45.6%), congestive heart failure (8.56% versus 13.8%), diabetes (7.41% versus 14.75%), peripheral vascular disease (3.82% versus 6.85%), and renal disease (3.63% versus 6.14%). Adjustment for immortal time bias resulted in a cohort of 3734 matched patients.

CONCLUSIONS: The occurrence of cachexia is independently associated with a significant decrease in survival among lung cancer elderly patients. The results of this study may be useful for identifying healthcare burden and planning treatment modalities for this population.

PCN51
RE-DEFINING LONG-TERM SURVIVAL: SURVIVAL ENDPOINTS WITHIN HEMATOLOGICAL CANCERS – A TREND ANALYSIS OF THE PIPELINE PRODUCTS
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OBJECTIVES: Long-term survival (LTS) benefits of candidate therapies is increasingly being assessed in clinical trials. As this data is generally not available for pivotal studies at the time of pricing and reimbursement review, it does not influence initial access decisions. We conducted a trend analysis of landmark survival endpoints, particularly LTS, in hematological cancer indications to inform future clinical trial designs and the potential impact on F&R reevaluations.

METHODS: A targeted review using Citeline’s Trialtrove database was conducted to extract landmark survival data (>3months) for progression free survival (PFS) and overall survival (OS) for products across leukemia, multiple myeloma (MM), and myelodysplastic syndromes (MDS) between June 2014 and June 2016. RESULTS: A total of 961 observations were extracted across phase I/II (n =265), phase II (n =552), phase III (n =20) and phase III (n =124) across MDS (n =162), leukemia (n =346), and MM (n =453). Of these 961 trials of included landmark OS and PFS across indications, 64% (295/916) included long-term endpoints of ≥1 year PFS and 66% (340/516) ≥1 year OS across all hematological cancers. Median survival for long-term endpoints across 516 trials were PFS at years 1 (10%, n =51), 2 (23%, n =117), 3 (11%, n =59) and 5 (10%, n =52), and OS at years 1 (17%, n =86), 2 (22%, n =115), 3 (17%, n =86) and 5 (11%, n =57), and the proportion did not differ significantly between OS and PFS. Interestingly, 5% (n =5) of trials defined OS as ≤36 months. Overall, 93% (516/561) measured OS between years 6 and 16, and about 2% (n =11) trials measured PFS and/or OS until progression or death. CONCLUSIONS: LTS endpoints are being measured increasingly frequent in hematologic oncology cancer therapy trials. Future monitoring and primary research would be required to understand if newer drugs will be re-evaluated in light of long-term data becoming available.

PCN52
OVERALL SURVIVAL WITH NIVOLUMAB FOR PATIENTS WITH ADVANCED, PREVIOUSLY TREATED RECURRENT CELL CARCINOMA
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OBJECTIVES: Nivolumab was the first immunotherapy to demonstrate a significant overall survival benefit versus standard of care for previously treated patients with advanced or metastatic renal cell carcinoma (RCC) in a phase III trial setting. While conclusive phase III trial evidence for the immunotherapeutic benefit of nivolumab on overall survival beyond 3 years is not yet available for RCC, phase II/III data support a clinical rationale that some nivolumab patients will achieve long-term overall survival. Such benefit has also been observed in melanoma where immunotherapy has demonstrated an overall survival benefit. The objective of this research is to illustrate the importance of immunotherapeutic assumptions for long-term survival estimates and the potential impact on health technology appraisal decisions.

METHODS: Alternative extrapolations of pivotal phase III (CheckMate 025) and supportive phase I (study 003) survival data for nivolumab in RCC were compared to illustrate the importance of long-term survival assumptions for value projections.

RESULTS: Long-term survival projections vary depending on dataset and model choice, and whether clinical expectations based on key evidence and rationale are incorporated. For RCC patients treated with nivolumab who survive to 3 years, projected survival for an additional 10 years is 8% using the generalized gamma model extrapolation of CheckMate 025 data, versus 46% when quantified clinical expectations are incorporated into this projection, and 42% using the Gompertz model extrapolations of study 003 data. Hence, different survival assumptions cause the incremental cost-effectiveness ratio for nivolumab versus axitinib to range from below £25,000 to over £50,000, based on list price.

CONCLUSIONS: Using clinical expert estimates to inform long-term survival projections is pertinent when the term patient data are insufficient. It is essential when the immunotherapeutic mechanism of action of a treatment and early evidence suggest a survival plateau that is not offered by currently available treatments.
BRENTUXIMAB VEDOTIN (ADECITRUB) ECONOMIC EVALUATION ON PATIENT'S TREATMENT WITH REFRACTORY HODGKIN LINFOMA

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OBJECTIVES: To assess the budget impact of brentuximab vedotin in patients with relapsed or refractory Hodgkin lymphoma (HL) from the perspective of Mexico’s National Healthcare System (NHSS).

METHODS: A budget impact analysis of brentuximab vedotin, an orphan drug for patients with relapsed or refractory HL, was conducted. The current treatment alternatives in Mexico include the following: 1) ICE (ifosfamide, carboplatin, etoposide), 2) MINE (mesna, ifosfamide, mitoxantrone, etoposide) 3) ESHAP (etoposide, methylprednisolone, cytarabine, cisplatin), and 4) IGEV (ifosfamide, gemcitabine, vinorelbine). The analysis was performed from an institutional perspective, with a five year time horizon and the population estimates were based on projections of the Mexican population reported by CONAPO (Consejo Nacional de Población) and HL incidence obtained from the literature. The direct costs were taken from institutional sources in 2016, primarily drug acquisition and administration, propylaxis, adverse event, and FDL-1 test. RESULTS: Considering Colombian population of 48,747,632 (1.3% annual growth rate), 3,042 advanced NSCLC patients will receive a PD-L1 test in year 1 (9,911 patients: 3 years), and 660 PD-L1 positive advanced NSCLC patients will be expected to be eligible for pembrolizumab as 2L treatment in year 2 (2,256: 3 years). The total budget impact of pembrolizumab is estimated at US$2,865,707 over three years. In a second scenario comparing the population size treated with pembrolizumab vs. nivolumab (no test and treating all patients), and the total associated cost, the total cost impact to the healthcare payer is much lower for the pembrolizumab treatment approach (US$26,715,299) compared to nivolumab (US$47,586,330), a cost saving of approximately US$20,871,032. CONCLUSIONS: The addition of pembrolizumab to the National formulary may result in a moderate increase in current expenditures, which means an impact 3% less of the total expenditures in cancer drugs over 3 years. When compared to nivolumab, pembrolizumab will likely result in cost savings for the health system in Colombia, considering the optimization of resources by selecting pembrolizumab as a viable treatment option within a limited budget impact affordable to the Mexican NHS.
the treatment of ALK+ NSCLC patients with crizotinib were associated with low budget impact to the Brazilian private health system.

PCN60

LAWSUITS TO RECEIVE FREE DRUGS: FEDERAL EXPENDITURES FOR THE BRAZILIAN PUBLIC HEALTH SYSTEM (SUS)

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OBJECTIVES: Due to the increasing demand for Lawsuits to receive free medication in Brazil, it is estimated that the increase in costs may compromise the sustainability of SUS. The aim of this work is to analyze Federal expenditures for the Brazilian Public Health System (SUS) with drugs obtained through lawsuits between the years 2011-2014. METHODS: Cross-sectional study of the descriptive and analytical characteristics. Data collected from the DW / COMPRASNET platform. RESULTS: In total, 12,578 lawsuits were identified at the federal level and 15 drugs with the highest acquisition value were extracted. Of these, seven drugs corresponded to US$ 452,644,065.68 million dollars or 58.1% of the actions studied, most of them were oncologic and rare diseases drugs. Of the 15 drugs / year studied, 14.28% (n = 10) were registered at the National Brazilian Surveillance Agency (ANVISA), incorporated by CONITEC and non-RENAME members and 35.71% (n = 10) without ANVISA registration, not incorporated by CONITEC and not RENAME names. CONCLUSIONS: With the Lawsuits to receive free medications, the acquisitions were carried out without planning or establishing minimum criteria such as; the presence of registration at ANVISA, incorporation in SUS and presence in RENAME, may compromise SUS sustainability. It is urgent that the Judiciary approaches the Executive stakeholders to incorporate in SUS and present in RENAME, may compromise SUS sustainability. It is urgent that the Judiciary approaches the Executive stakeholders to incorporate in SUS and present in RENAME, may compromise SUS sustainability.

Conclusions: Establishing minimum criteria such as: the presence of registration at ANVISA, incorporation in SUS and presence in RENAME may compromise SUS sustainability. It is urgent that the Judiciary approaches the Executive stakeholders to incorporate.

PCN61

LAPATINIB WITH LETROZOLE AS A TREATMENT STRATEGY FOR PATIENTS WITH METASTATIC BREAST CANCER (HER2+) UNDER THE PERSPECTIVE OF BRAZILIAN PUBLIC HEALTHCARE SYSTEM: A BUDGET IMPACT ANALYSIS

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OBJECTIVES: The goal of this study was to estimate the budget impact of lapatinib with letrozole as a therapy for metastatic breast cancer (HER2+) patients. The actions studied, most of them were oncologic and rare diseases drugs. Of the 15 drugs / year studied, 14.28% (n = 10) were registered at the National Brazilian Surveillance Agency (ANVISA), incorporated by CONITEC and non-RENAME members and 35.71% (n = 10) without ANVISA registration, not incorporated by CONITEC and not RENAME names. CONCLUSIONS: With the Lawsuits to receive free medications, the acquisitions were carried out without planning or establishing minimum criteria such as; the presence of registration at ANVISA, incorporation in SUS and presence in RENAME, may compromise SUS sustainability. It is urgent that the Judiciary approaches the Executive stakeholders to incorporate.

PCN62

BUDGET IMPACT OF INCREASED UTILIZATION OF PALONOSETRON FOR THE CONTROL OF CHEMOTHERAPY INDUCED NAUSEA AND VOMITING IN MANAGED CARE

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OBJECTIVES: Currently, several branded and generic serotonin-3 receptor antagonists (5HT3RAs) are indicated for chemotherapy induced nausea and vomiting (CINV). While the medications differ in efficacy, cost and palonosetron is a second generation 5HT3RA commonly recommended by treatment guidelines (e.g., NCCN, MASCC, ASCO). Using a decision analytic model, this study evaluated the long-term cost-effectiveness impact of increased utilization of palonosetron vs. a generic 5HT3RA (ondansetron) in cancer treated with a highly (HEC) or moderately emetogenic chemotherapy (MEC). The results illustrate the costs to manage CINV from a payer perspective. METHODS: The model generated outcomes using a high-cost real-world multi-attribute health state. The eligible population was determined from national rates of cancer and chemotherapy antiemetic prescriptions. Antiemetic-specific rates of CINV were based on retrospective analyses defining CINV by ICD9 codes or use of rescue antiemetics. Other inputs included current SHT3RA market share, medication acquisition costs, and per-patient costs to treat CINV. Model outputs predicted pharmacy and medical costs in the base year and following the 5% utilization increase. RESULTS: The model predicted a population of 96,216 patients treated with HEC (14.1%) treatment costs, demonstrating the utilization of palonosetron by 5% (94% to 64% in HEC, 51% to 56% in MEC) resulted in an increase in pharmacy acquisition costs from $1.00 million to $1.02 million. CINV treatment costs decreased, approximately US$ 941 milhões. This increase of 307% would occur in the 5 years perspective.

PCN63

BUDGET IMPACT ANALYSIS OF RITUXIMAB IV VERSUS SC FROM PUBLIC BRAZILIAN HOSPITAL

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OBJECTIVES: The study aimed to compare the total cost of rituximab IV versus SC in both indications approved by ANVISA[i] for rituximab SC. follicular (FL) and large B-cell lymphoma (DLBCL). METHODS: Budget impact analysis was conducted based on the direct cost of Hospital Geral de Curitiba (HGEC), active healthcare professional (AHP) time and cost of the procedures, the time and motion study [ii] paid wage from Paraná, and the treatment cost of rituximab. In order to quantify the cost per professional involved in the administration and manipulation of the drugs, the weighted and active HCP time were used to monetize labor. As HGEC has only pharmacists and nurses involved in the procedure, the time and motion study for labor was assigned to HEC scenario. The total cost of rituximab was calculated according to drug information leaflets, assuming 20 and 8 cycles for FL and DLBCL, respectively. The results were expressed as cost per patient per line of treatment and were calculated according to the punctual peripheral or catheter. RESULTS: The saving generated by switching IV to SC was R$ 12,991,66 and R$ 12,960,91 per patient (peripheral and catheter, respectively) for FL, whereas for DLBCL the saving generated was R$ 4,454,82 and R$ 4,775,07 per patient (peripheral and catheter, respectively). CONCLUSIONS: Use of rituximab SC is less costly compared to rituximab IV, and switching IV to SC can bring resource savings to HGEC. Other institutions can also use this analysis as a model and quantify their savings from switching IV to SC. [iii] Produtos Roche Quimicos e Farmaceuticos S.A. MabThera IV e MabThera SC (rituximab) [Bula]. 2016. p. 1-65. [iv] Cock, E., et. al., Time Savings with Rituximab Subcutaneous Injection versus Palonosetron for the Prevention of Acute and Delayed Cytotoxic Chemotherapy-Induced Nausea and Vomiting in Eight Countries PLOS ONE. 2016, 1(10):e0157957. doi: 10.1371/journal.pone.0157957.

PCN64

COST-EFFECTIVENESS AND BUDGET IMPACT ANALYSIS OF IMATINIB AS FIRST-LINE TREATMENT OF CHRONIC MYELOID LEUKEMIA IN CHINA

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OBJECTIVES: Nilotinib has been recently approved as the 1st-line treatment of chronic myeloid leukemia (CML) in China. This study aimed to evaluate the long-term cost-effectiveness and budget impact of nilotinib used as the 1st-line tyrosine kinase inhibitor (TKI) in China. METHODS: A two-part Markov model was used to model the budget impact and cost-effectiveness of nilotinib versus 1st-line imatinib in CML patients. A distinction was made between patients who were still on treatment and who discontinued treatment at the 24th month. Patient's costs were assessed from both a single payer and societal perspective, and the level of response was assumed as the predictor of long-term outcomes. Clinical effectiveness was obtained from ENESTnd trials. Costs were obtained from Chinese literature review and a panel of local clinical experts and only the direct medical cost was included. A budget impact model was used to estimate the change in CML-related expenditures from a single payer perspective after nilotinib was introduced as the 1st-line TKI. A discounted rate of 3% was used for both effectiveness and cost. RESULTS: The results of cost-effectiveness analysis indicated that 1st-line nilotinib was associated with longer life (1.78 discounted life years), more QALY (1.77 discounted QALYs) and higher costs (CNY66,317), compared to 1st-line imatinib. The increased cost-effectiveness ratio was CNY37,454 per QALY gained, which was less than the GDP per capita of China in 2015. The direct medical cost decreased in each of the 5 years after nilotinib was introduced as 1st-line treatment. The total budget cost reduced by 1.99% compared to the current scenario. CONCLUSIONS: The introduction of nilotinib as 1st-line treatment of CML in China is a highly cost-effectiveness strategy compared to 1st-line imatinib.

PCN65

ASSESSMENT OF COSTS ASSOCIATED WITH ADVERSE EVENTS IN PATIENTS WITH CANCER

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OBJECTIVES: This study assessed the incremental costs associated with adverse events (AEs) in a range of malignancies. METHODS: Using Truven Health Analytics

A98
MarketScan® databases (2000-Q1-2015-Q3), patient-level treatment episodes for breast, gastrointestinal, genitourinary, lung, hematologic, and skin cancers were identified based on the National Comprehensive Cancer Network Guidelines, 104 prescribing labels were reviewed to identify 36 AEs of interest. Episodes with a claim for an AE were matched with episodes without the AE on a 1:1 ratio. AEs, demographics, insurance plan type, therapy, line of treatment, regimen, cancer characteristics, and episode duration. Healthcare costs (2015 USD) were compared between episodes with and without each AE using multivariate general linear regression models adjusting for the presence of other AEs. RESULTS: 39,493 episodes were identified; mean patient age was 62.8 years; 58.1% were female; and 45.3% first, 24.3% second, and 30.4% third or later line therapy following primary diagnosis. The number of matched episodes for each AE increased in duration ranging from 1.7 to 16.4 months. The most prevalent AEs were pain (prevalence: 28.2%; incremental adjusted costs per episode $4,576), hypertension (27.5%; $2,416), anemia/pallor (17.8%; $4,842), psychiatric disorders (13.9%; $3,458), and cough/upper respiratory infections (13.6%; $393); all p < 0.05. The most costly AEs were central nervous system hemorrhage (0.2%; $26,904), sepsis/septicemia (2.5%; $25,562), gastrointestinal perforation (0.2%; $24,141), pancreatitis (0.1%; $17,987), and gastrointestinal fistula (0.1%; $15,881); all p < 0.05. CONCLUSIONS: The prevalence and cost of AEs in patients with cancer tended to have an inverse relationship, with some of the most prevalent AEs being less costly and some of the most costly AEs being fairly rare. Treatment AEs may add a significant amount of cost to a treatment. Cancer therapies that are well tolerated are needed to further reduce the economic burden on patients and the health care system.

PCN6 COST OF IMMUNOTHERAPY TO TREAT LOCALLY ADVANCED OR METASTATIC UROTHELIAL CANCER (mUC) AND METASTATIC NON-Small CELL LUNG CANCER (mNSCLC)
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OBJECTIVES: Immune checkpoint inhibitors represent important options for mUC and mMNSCLC patients. Given increasing emphasis on economic value, this study examines cost differences when atezolizumab (ATEZO), nivolumab (NIVO) or pembrolizumab (PEMBRO) are used per label in these indications. METHODS: We calculated the cost of ATEZO (1200mg QW, 60min infusion), NIVO (400mg QW, 60min infusion) and PEMBRO (200mg QW, 30min infusion) based on 2017 wholesale acquisition costs (WAC) and CMS average sales price (ASP) payment rates. Dosing does not differ for the two indications. Infusion administration costs (4% of WAC) were based on CMS-Physician Fee Schedule (CPT-4) code 96371 for up to 60min. Since treatment durations from clinical trials have not been published, standardized costs are presented per month (30.44 days) and per 24 weeks. This analysis does not account for discounts/rebates, which is not publicly available information, and could affect the net cost to individual payers. RESULTS: Monthly costs were: ATEZO: WAC $12,449, ASP $12,427, ADMIN $198; NIVO: WAC $13,089, ASP $12,627, ADMIN $297; PEMBRO: WAC $12,895, ASP $12,733, ADMIN $198. Over 24-weeks, ATEZO patients have 4 fewer visits and 7.5 fewer infusion hours compared with NIVO; equal visits and 30min more infusion time for the first cycle compared with PEMBRO (equal after first infusion). Total (WAC+ADMIN) 24-week costs were $3,802 higher for NIVO and $2,184 higher for PEMBRO compared with ATEZO. ASP-based weekly cost was $2,756 higher for NIVO and $2,817 higher for PEMBRO, respectively, compared with ATEZO. CONCLUSIONS: Immunotherapies are valuable in mUC and mNSCLC. This analysis suggests ATEZO may be less costly as mean treatment related costs (direct and indirect) was collected. Group A patients who get essential vs non-essential medicines.

PCN7 TREE ANALYSIS OF FACTORS INFLUENCING THE COST OF SURGICAL RECTAL CANCER PATIENTS
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OBJECTIVES: Colorectal cancer is one of the most common malignant gastrointestinal tumor in China,and rectal cancer accounts for about 70%.Rectal cancer has brought a great social burden in Beijing, but the economic burden still need to be identified.This study aimed to analyze the hospitalization expenses and fund reimbursement. METHODS: A retrospective study was conducted using the electronic database from Peking University Cancer Hospital.Patients (n=358) who were hospitalized for rectal cancer with surgery record during January 2014 to December 2015 were identified.The study applied Decision Tree Analysis to construct the factors of the hospitalization expenses and fund reimbursements. RESULTS: The average age was 62.28±12.06 years, the proportion of Urban Employee Basic Medical Insurance (UEBMI) was 94.97%, and the male accounted for 47.8%.The proportion of operation and partial operation and complete operation was 91.34%, 24.5%. The operation of partial operation and complete operation was $31,672, and the cost of per patient without ostomy was $37,809. Further research should include cost of reversal surgeries and the impact of these procedures on patient productivity and quality of life.

PCN8 EVALUATING THE ECONOMIC BURDEN AND HEALTH CARE UTILIZATION OF PROSTATE CANCER PATIENTS IN THE US DEPARTMENT OF DEFENSE POPULATION
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OBJECTIVES: To examine the economic burden and health care utilization of Prostate Cancer (PC) in the US Department of Defense population.
METHODS: Patients diagnosed with PC (International Classification of Diseases, 9th Revision, Clinical Modification diagnosis code: 185) were identified using DoD data 01OCT2010-31OCT2015. The first diagnosis was defined as index date. A comparison cohort was created for patients without PC but of the same age, gender, race, index year, and with similar baseline Charlson Comorbidity index scores. The index date was chosen randomly to allow for better adjustment of the model to minimize selection bias. Patients in the disease and control cohorts were required to have continuous medical and pharmacy benefits for 1 year before and 1 year after the index date. Study outcomes, including health care costs and utilities, were compared between the disease and control cohorts using propensity score matching (PSM) and were adjusted for baseline demographic and clinical characteristics. RESULTS: Eligible patients (N=14,428) with and without PC were identified. After 1 PSM matching, 6,376 patients were identified in each cohort; the baseline characteristics were well balanced. Patients with PC had a greater mean number of inpatient (0.48 vs 0.16; p < 0.001), emergency room (ER) (0.63 vs 0.45, p < 0.001), ambulatory (30.13 vs 14.88, p < 0.001) and pharmacy (17.12 vs 13.68, p < 0.001) visits. Higher all-cause health care costs were also observed for PC patients, including mean inpatient ($6,275 vs $2,302; p < 0.001), ER ($439 vs $315, p < 0.001), ambulatory ($4,376 vs $4,860; p < 0.001), pharmacy ($1,095 vs $1,171; p = 0.001). Costs accumulated over 1 year after the index date. A comparison cohort was created for patients with PC who had higher health care utilization and costs than their matched controls.

PCN74 REGULATORY APPROVAL AND PRICE ANALYSIS OF ANTI-ANDROGEN DRUGS MARKETED IN THE UNITED STATES AND USED IN HORMONAL THERAPY IN ADVANCED PROSTATE CANCER
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OBJECTIVES: To assess the drug prices and drug approval trends of Anti-androgen drugs approved for advanced prostate cancer until December 2016. Anti-androgen drugs include LHRH antagonists and Non-steroidal Anti-androgen drugs. The effect of the Food and Drug Administration approval on drug prices were collected from Redbook issued by Truven Health Analytics. RESULTS: There are 4 medications of LHRH antagonists in the US market and all of these medications are given parenterally. LHRH agonists’ prices are based on frequency (Monthly, 2-months, 3-months, 4-months and 6-months) and route of administration (subcutaneous, intramuscular and subcutaneous implant). The price of Leuprolide given subcutaneously amounts to $33,911 per course of the drug, the lowest price for intramuscular and subcutaneous implant. Based on Defined Daily Dose, Histrin has the lowest price of LHRH agonist ($367/month) and is given by subcutaneous implant. There is only one drug from LHRH antagonist group in the US market (degutia) ($594/month) after the discontinuation of abexine in 2005 due to low sales. Non-steroidal anti-androgen class includes 4 drugs taken orally and have more than 21 approved generics and represent about 53% of drugs approved for hormone therapy for prostate cancer. The route of administration and frequency of taking medication may explain the variation in prices between LHRH agonists and Non-steroidal Anti-androgen drugs. Implant dosage form is the highest price over LHRH agonists, but its lowest price based on frequency and route of administration. High number of generics approved may explain low price for non-steroidal anti-androgens compared to other groups of anti-androgen classes.

PCN75 A COST COMPARISON OF TREATMENT WITH ABRAXANE ACETATE PLUS PREDNISONE IN THE PRE-CHEMOTHERAPY SETTING FOLLOWED BY ENZALUTAMIDE IN THE POST-CHEMOTHERAPY SETTING VERSUS THE OPPOSITE TREATMENT SEQUENCE IN METASTATIC CAstration RESISTANT PROSTATE CANCER PATIENTS WITH NON-VIScERAL METASTASES IN COLOMBIA
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OBJECTIVES: To estimate and compare the costs associated with post androgen deprivation (post-ADT) therapy abiraterone acetate plus prednisone followed by post-chemotherapy enzalutamide (‘AA-P + ENZ’ sequence) versus the opposite treatment sequence (ENZ ‘–AA-P’ sequence) in patients with non-visceral metastases. METHODS: A health-state transition cost consequence model was developed to assess patients with castration resistant prostate cancer who had non-visceral metastases. The model compared two treatment sequences: AA-P + ENZ versus ENZ ‘–AA-P’. Patients enter the model to receive AA-P or ENZ as post-ADT treatment. Those who discontinue treatment enter the active monitoring phase until they initiate docetaxel chemotherapy. Patients receiving chemotherapy treatment are exposed to discontinuation to treatment and progressive loss of active monitoring, post-chemotherapy ENZ or AA-P treatment, and palliative care states. Patients are subject to death at all times. The proportion of patients occupying a particular health state is assessed every month. Twenty years of follow-up was used to capture the whole life expectancy of patients. Costs and life-years were discounted at 3.5%. The payer perspective over a lifetime. NDUAGUBA SO1, CHIMA O2, BARNES JC3, SCHOUR K4
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OBJECTIVES: Although aromatase inhibitors (Ais) have been shown to be more effective in initial breast cancer (BC) treatment compared to tamoxifen (Tm), in later breast cancer, the advantage of Ais over Tm is not as clear. Ais have the potential to be used in postmenopausal women for prevention of breast cancer. The objective of this study is to estimate the relative effectiveness of Ais compared to Tm in reducing the risk of recurrence, and improving survival among post-menopausal women with a history of breast cancer, both classes of drugs are recommended options for adjuvant endocrine therapy. We aimed to compare healthcare utilization and expenditures between the two drug classes. METHODS: This retrospective study using currently available data and the presented model-calculations, the cost comparison treatment sequences suggests that starting treatment with AA-P + ENZ may result in lower total life time costs than starting treatment with ENZ, and may yield to substantial savings per patient treated.
utilized 2010-2014 data from the Medical Expenditure Panel Survey and included women aged ≥55 years with a history of breast cancer who were treated with an AI or TMX within the past 5 years. Health care expenditures were compared between cohorts using linear and log-transformed regression. RESULTS: The cohorts contributed 212 patient-years (Weighted N = 2,603.1) with 182 (Weighted N = 2,099.6) for TMX (18% of women on AIs) compared to 240 (Weighted N = 2,503.5) for AIs (31% of women on TMX; p = 0.0002). The total healthcare expenditure was $456,017 ($311,079) for TMX. In the unadjusted analysis, there was no statistical difference between both groups in overall annual expenditure ($16,030 (Standard error, SE = $1,931) vs. $16,092 (SE= $1,573), p = 0.05) and in mean number of events and expenditures for inpatient services, outpatient services, office-based visits, emergency room services, prescription drugs, and home health services (p = 0.05). After adjusting for race/ethnicity, marital status, poverty category, smoking status, and comorbid conditions, the following expenditures were significantly (p = 0.05) higher for women on AIs compared to women on TMX overall (62%; RR = 1.62, 95% confidence interval (CI)=1.33-2.00) and for office-based visit expenditures (156%; RR = 2.56, 95% CI=1.88-3.47), prescription drugs (75%; RR = 1.75, 95% CI=1.33-2.32) and home health services (86%; RR = 1.96, 95% CI=1.58-2.43). Number of office visits (35%; RR=1.35, 95% CI=1.17-1.56) and home health services use (9% RR = 1.19, 95% CI =1.13-1.26) were also higher for women on AIs compared to those on TMX (p < 0.001). CONCLUSIONS: This finding was associated with higher health-related expenditure, with office-based visits having the strongest influence. PCN79 HEALTHCARE EXPENDITURES AMONG COMMUNITY-DWELLING ADULTS WITH THYROID CANCER IN THE UNITED STATES: A PROSPECTIVE SCORE MATCHED ANALYSIS Bhattacharjee S1, Khobrani M1, Alrabiah Z1, Bilal J2, Riaz I3 1The University of Arizona, Tucson, AZ, USA, 2University of Arizona, College of Medicine, Tucson, AZ, USA, 3University of Arizona, Tucson, AZ, USA OBJECTIVES: This study assessed the excess healthcare expenditures and factors associated with it among community-dwelling adults with thyroid cancer compared to non-cancer controls in the United States (US). METHODS: We adopted a prospective, cross-sectional, matched case-control study design by pooling Medical Expenditure Panel Survey (MEPS) data (2002-2012). The eligible study sample comprised of adults (age ≥30 years) who did not have any form of cancer. The case and control groups were propensity score matched controls ($9,734 vs. $6,329, p = 0.001). Functional status as well as comorbid conditions were significantly associated with excess expenditures among the case group compared to matched controls. For example, differences in total healthcare expenditures decreased from 182% to 90% when functional and health status and comorbidities were added to the OLS regressions. CONCLUSIONS: Our findings suggest that in this nationally representative sample of adults with thyroid cancer, functional and health status as well as comorbidities significantly influence the excess expenditures. PCN80 ECONOMIC AND HUMANISTIC BURDEN OF HEPATOCELLULAR CARCINOMA IN THE UNITED STATES Koha CG1, Miller RP2, Sill B2, Korytoski B1, Porukh N2, Singh P2 1University of Saint Joseph/Hartford Hospital Evidence-Based Practice Center, Hartford, CT, USA, 2Truven Health Analytics, Cambridge, MA, USA, 3Bristol-Myers Squibb, Plainsboro, NJ, USA, 4Bristol-Myers Squibb, Princeton, NJ, USA, 5University of Michigan Health System, Ann Arbor, MI, USA OBJECTIVES: Hepatocellular carcinoma (HCC) has an increasing incidence in the US, with 29,000 new cases in 2016. To better understand the burden on the healthcare system, patients, families/caregivers, published data were evaluated to document HCC-related economic and humanistic burden. METHODS: A targeted literature review was conducted, searching MEDLINE (2007-2016) as well as grey literature, public-use databases/websites, and conference proceedings; manual backward-citation tracking was also employed. Searches used disease-specific terms for HCC (any-stage) combined with terms for economic and humanistic burden. While the review focused on US studies, global studies were consulted where available. Studies were adjusted to 2015 US dollars using the medical care component of the CPI. Functional status as well as comorbid conditions were significantly associated with excess expenditures among the case group compared to matched controls. For example, differences in total healthcare expenditures decreased from 182% to 90% when functional and health status and comorbidities were added to the OLS regressions. CONCLUSIONS: Our findings suggest that in this nationally representative sample of adults with thyroid cancer, functional and health status as well as comorbidities significantly influence the excess expenditures. PCN81 THE DIRECT COST OF BLADDER CANCER TO THE BRASILIAN PUBLIC HEALTH SYSTEM (SUS) Massoaka M1, Sarti FM2, Reveiz E3, Pedro GO4, Lucchetta RC5, Melo T5, Voli EC6, Massoaka M1, Matsuo AI2, Nishizako AI3 1University of Sao Paulo, Sao Paulo, Brazil, 2University of Sao Paulo, Sao Paulo, Brazil, 3Federal University of Pernambuco, Recife, Brazil, 4University of Sao Paulo, Sao Paulo, Brazil, 5University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil OBJECTIVES: To identify direct costs of bladder cancer management in the Brazilian public health system. METHODS: Direct costs referring to inpatient and outpatient treatment for bladder cancer were obtained from national databases available at the Brazilian Ministry of Health (Ministério da Saúde) and from the Brazilian Society of Urology (SBTU). RESULTS: In 2014, 85,302 outpatient procedures were performed for bladder cancer treatment, resulting in direct outpatient costs of US$455,086. The Southeast region was responsible for major proportion of procedures performed in the country (40%). The intravesical chemotherapy was accounted for the highest proportion of direct outpatient costs (more than US$140,000). Regarding inpatient procedures, there were 15,341 procedures performed, resulting in direct inpatient costs of US$21,424,079. The proportion of inpatient procedures among men was 2.3 times higher than women. Of note, only US$62,215 of costs were related to treatment of female population. The inpatient costs of women were accounted for the treatment of vesical lesion (more than 9,000 times); resulting in the highest share of inpatient costs (US$11,295,254). CONCLUSIONS: Considering the prevalence of bladder cancer in Brazil, the presented data are significant economic impacts in the Brazilian public health system with a total direct medical cost of US$29,879,165. Although this amount corresponds to most of treatment cost, including for example chemotherapy, resection and radiotherapy, it is still underestimated by not including the economic burden to adverse effects management. The results presented have the potential to contribute to support strategic actions of public policies in health directed towards prevention and early diagnosis of bladder cancer. PCN82 DIRECT NON-MEDICAL COSTS OF PATIENTS WITH TRACHEA, BRONCHUS AND LUNG CANCER IN RUSSIA Gerasmova KV1, Soshnikov S2, Musina N1, Nikitina A, Savilova A, Gorkovenko F1 1Federal Medical Center First Moscow State Medical University, Moscow, Russian Federation, 2Center of Healthcare Quality Assessment and Control, Moscow, Russian Federation OBJECTIVES: The aim of the study was to assess the annual direct non-medical costs of patients with trachea, bronchus and lung (TBL) cancer within the Russian Federation from 2015 to 2017. METHODS: Direct non-medical costs were calculated for subgroups of TBL patients, stratified by the stages of cancer process using the cost-of-illness modeling. Total direct costs included disability pension and temporary additional disability payments, and costs due to TBL cancer treatment. The direct costs were obtained from the number of sources: National statistic surveillance system and National vital registration system (Federal State Statistics Service), National cancer monitoring, the Pension fund of the Russian Federation, and the data from the metadata from the literature sources. The data was extracted according to the triangulation-combining method. The assessment of direct non-medical costs was made by the bottom-up costing approach. RESULTS: The total annual direct non-medical costs of patients with TBL cancer in Russia in 2015 were about 67.8 million (US$506 per patient). Disability support pension payments were about 65.5 million (97% of direct non-medical costs), while temporary social disability payments were about $2.3 million (3% of direct non-medical costs). The total costs by newly diagnosed patients (20.6 million) were in 2.3 times lower than for patients diagnosed in previous years (47.2 million). CONCLUSIONS: The results of the economic study demonstrate that TBL cancer impose a considerable economic burden on the economic system of Russian Federation. The support pension payments almost equal the total direct non-medical costs. These findings demonstrate the importance of further development and improving the TBL cancer treatment approaches and care of patients with disability due to TBL cancer. PCN83 THE ECONOMIC BURDEN OF ILLNESS OF TREATING ADULT ACUTE LYMPHOBlastic LEUKEMIA IN CANADA Nam3, Milenkovic BV4, Yuh CR1, Rosim MP1, Sarti FM2, Atrash MH3, Sato FM2, Mensa A1, Szaflarska P2 1Division of Hematology/Oncology, The Hospital for Sick Children, University of Toronto, Toronto, ON, Canada, 2CancerCare Manitoba, Winnipeg, MB, Canada, 3Center of Excellence in Cancer, Population Health and Economic Outcomes, University of Manitoba, Winnipeg, MB, Canada OBJECTIVES: The economic burden and implications of acute lymphoblastic leukemia (ALL) treatment and care for adult patients with ALL in Canada was assessed. METHODS: The Canadian Institute (DFCI) protocols represent the current standard of care regimens for patients with acute lymphoblastic leukemia in Canada. The support pension payments almost equal the total direct non-medical costs. These findings demonstrate the importance of further development and improving the TBL cancer treatment approaches and care of patients with disability due to TBL cancer.
DeltaPA, Ontario Case Costing Initiative and Ontario fee schedules. Costs were reported by treatment phase of each regimen. Uncertainty was explored through probabilistic sensitivity analysis. Drug costs accounted for 18% of total costs in the HyperCVAD regimen as compared to 46% in the DFCI regimen, the remaining costs were driven by hospitalization ($31,965 vs. $13,770, respectively). Results were robust to the probabilistic sensitivity analysis. **CONCLUSIONS:** By using current cost data and recently modified chemotherapy regimens, this analysis represents the most up to date cost estimation of the costs of treating FL/MZL. The results of the HyperCVAD and DFCI protocols pose considerable financial burden; the DFCI treatment protocol is estimated to cost the healthcare system more in drug costs but substantially less in hospitalization costs compared to the HyperCVAD protocol.

**PCN84**

**INDIRECT COSTS AND BURDEN OF LUNG CANCER IN TERMS OF DISABILITY ADJUSTED LIFE YEARS DURING 2015 IN RUSSIA**

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**OBJECTIVES:** The aim of our study is to estimate the annual indirect costs of a patient with lung cancer (LC) and burden of disease during 2015 in Russia. This data could help to improve reimbursement processes and decision-making. **METHODS:** A systematic literature review was performed to obtain the following information: employment, length of hospital stay, average value of a statistical life, indicators of morbidity and mortality by age group and stage of LC. Finally, obtained data were used in cost-of-illness analysis. The total indirect costs of LC were calculated using two different approaches: the human-capital and friction-costs method. The cost of illness was calculated as a loss in earnings. The number of LC cases was also assessed in terms of DALYs. The rate of discounting was 5%. **RESULTS:** In 2015, the indirect costs of LC were estimated at $1,489 million ($12,621 per patient) using human-capital method. The costs were more than six times higher in males than in females. Total annual indirect costs were evaluated at $14 million ($506 per patient) using friction-cost method. The DALYs burden for LC reached 1.3 million years, including years of life lost due to premature mortality (1,744) and years lost due to disability (1,293). The cost in terms of DALYs was also estimated using the average cost of a statistical life, which was $73,484. The global burden of LC using DALYs and the average cost of a statistical life was estimated at $1.34 million. **CONCLUSIONS:** LC is a leading cause of cancer mortality and represents a significant burden of disease. The results suggest that LC deserve more attention from policymakers.

**PCN85**

**REVIEW OF BURDEN OF ILLNESS DATA FOR FOLLICULAR LYMPHOMA AND MARGINAL ZONE LYMPHOMA**

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**OBJECTIVES:** Indolent Non-Hodgkin Lymphomas (INHL) including follicular lymphoma (FL) and marginal zone lymphoma (MZL) compromise approximately 12% of all NHLs worldwide. The aim of this review is to synthesise the global burden of disease (GBD) of FL and MZL. Additionally, to explore the economic and societal impact of these indolent NHLs. **METHODS:** We ran searches in the EMBASE, Medline, NSHED and ECONLit databases from January 2006 to November 2016. Outcomes of interest were incidence, prevalence, quality of life, costs and resource use, mortality and long-term prognosis. 1,946 potentially relevant abstracts were retrieved and reviewed. From this 54 full texts were reviewed, with 31 studies finally included in the review. **RESULTS:** We found that the age-standardised incidence rates of FL ranged from 2.1/100,000 to 4.3/100,000 while for MZL it varied geographically from 0.5/100,000 in Australia to 2.6/100,000 in the UK. The cumulative total direct health care costs for FL/MZL varied by whether patients experienced treatment of active cancer or not, with a higher mean overall cost for FL patients who experienced treatment of active cancer ($38,890 vs. $6,704 at 12 months). There was a clinically meaningful difference in quality of life between patients with PD and newly diagnosed patients (FACT-LYM total score 109.7 vs. 136.0 [score range 0-168]). Mortality rates of FL patients at 5 years differed according to age at diagnosis (<60 years: ranging 7.8-8.8%; ≥60 years: 17.9% and >80 years ranging 41.5-51.1%) and disease stage (21% at Ann Arbor stages 1-2 and 28% at Ann Arbor stages 3-4). Limited outcome data for MZL patients was identified. **CONCLUSIONS:** This comprehensive burden of illness review demonstrates that FL/MZL contribute significantly to the global burden of cancer and represent a significant burden on healthcare systems and patients globally and delays in progression could lead to potential cost savings. New treatments are needed to improve patient outcomes and reduce the global burden of disease for FL/MZL patients.

**PCN86**

**THE DIRECT COST OF HEAD AND NECK CANCER TO THE BRAZILIAN PUBLIC HEALTHCARE SYSTEM (SUS)**

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**OBJECTIVES:** Since head and neck cancer (HNC) is known to have a high incidence and often demands invasive treatments, this study aimed to identify the direct costs of HNC management in the Brazilian public health system. **METHODS:** Inpatient and outpatient costs of HNC treatment in 2014 were obtained from databases available at official information systems in health (Hospital Information System, SIH / SUS) and Outpatient Information System, SIA / SUS. HNC patients were identified by the ICD-10 code. **RESULTS:** In 2014, the treatment of HNC resulted in 41,386 inpatient procedures and 65,484 outpatient procedures, with a cost of US$936,979,959; from which 56% was attributed to male patients. Resection of tumors/lesions was performed 5,197 times, resulting in a cost of more than US$4 million and the admission for patient's (inpatient) chemotherapy resulted in an estimated total of almost US$2 million. Regarding outpatient care, US$49,972,113 were spent in a total of 59,954 procedures, in which 81% was spent with male patients. The most outpatient procedures were chemotherapy applied to sinus/larynx/hypopharynx/oropharynx cancer, with a total of 21,724 events and US$85,405,256. **CONCLUSIONS:** As expected, HNC is a group of diseases associated with high costs and very invasive treatments, leading to a high economic and social burden. The total direct medical cost of HNC treatment in 2014 was US$8,669,908 for the Brazilian public healthcare system. However, this amount is still underestimated by not including costs with adverse effects management, since this is a hallmark of head and neck cancer.

**PCN87**

**HEALTH INSURANCE COST OF BRAIN CANCER IN HUNGARY: A COST OF ILLNESS STUDY**

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**OBJECTIVES:** The aim of our study is to calculate the annual health insurance treatment cost of brain cancer in Hungary. **METHODS:** The data derive from the financial database of the Hungarian National Health Insurance Fund Administration (NHIFA), the only health care financing agency in Hungary. We analyzed the health insurance treatment cost and the number of patients for the year 2010. The following cost categories were included into the study: out-patient care, in-patient care, CT, MRI, and other care, transportation and all other medical devices. **RESULTS:** Brain cancer was identified with the following codes of the International Classification of Diseases 10threvision: C70-C72, D32-D33, D42-D43. **RESULTS:** The Hungarian National Health Insurance Fund Administration spent 3.071 billion Hungarian Forint (HUF) (9.78 million USD) for the treatment of brain cancer in 2010. The average annual expenditure per patient was 14567 HUF (699.9 USD) while the average expenditure per one inhabitant was 307 HUF (1.7 USD). Major cost drivers were acute inpatient care (49.2% of total health insurance costs), pharmaceuticals (35.7%) and CT-MRI examinations (8.5%). The number of patients with brain cancer was 21.1 per 10000 populations. We found the highest patient number in outpatient care (21088 patients) general practitioners (8915 patients) and pharmaceuticals (6620 patients). **CONCLUSIONS:** Brain cancer is a heavy financial burden in the healthcare system. Reimbursement of acute inpatient care and pharmaceuticals are the major cost drivers for brain cancer in Hungary.

**PCN88**

**COSTS OF BREAST CANCER RELATED CARE AMONG WOMEN IN THE UNITED STATES INSURED COMMERCIALLY, AND BY MEDICAID AND MEDICARE – A SYSTEMATIC REVIEW**

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**OBJECTIVES:** To describe the costs of breast cancer related care information during active cancer treatment among women with specific payer types. All retrieved cost data were in USD and updated to 2016 USD. Results: Of the studies included (n=15), 4 were from a commercial payer perspective, 8 were from a Medicare perspective (4 evaluated radiation therapy cost only), and 3 were from a Medicaid perspective. For commercial payers and Medicare, breast cancer related care costs during 12 months of active treatment averaged $61,420 per patient (standard deviation (SD): $7,166, median: $58,648) and $28,906 per patient (SD: $6,741, median: $27,760, respectively). Costs for outpatient care ($39,905 per patient, SD: $14,195, median: $38,448) contributed most to the overall costs of breast cancer related care for commercially-insured patients. Outpatient care was the cost driver for the Medicaid-insured women, but reported radiation therapy costs averaged $12,482 per patient (SD: $4,444, median: $11,347). Costs for breast cancer related care among Medicaid beneficiaries is limited. **CONCLUSIONS:** The cost of breast cancer related care varies across payer types, with commercial payers having the greatest burden per patient in the US. For more reliable cost estimates, especially from the perspective of Medicaid, further study is warranted.
PCN90 ADHERENCE TO CANCER THERAPIES AND THE IMPACT ON HEALTHCARE COSTS AMONG PATIENTS WITH ADVANCED MELANOMA IN THE USA

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OBJECTIVES: To evaluate adherence to cancer therapies among patients with advanced melanoma and quantify the impact of drug adherence on healthcare costs.

METHODS: Patients (≥18 years) with a diagnosis of stage III/IV melanoma who initiated cancer therapies were identified from the MarketScan Commercial and Medicare databases (1/1/2011-8/31/2015). Demographic and clinical characteristics were evaluated at baseline (12 months preindex). Medication adherence and persistence were examined during a variable length follow-up period for up to 24 months. Patients were grouped into 2 study cohorts: those with high adherence (medication possession ratio, MPH > 0.8) and those with low adherence (MPH < 0.8) to the index cancer therapy. All-cancer and melanoma-related costs were measured as per patient per month (PPPMP) and compared among cohorts. A multivariate linear model was used to evaluate the impact of adherence status on healthcare costs, while controlling for key patient characteristics.

RESULTS: In the overall study population (N=9,165), the age of the patients was 60.9 (±13.9) years, 63.6% were male, with a mean [±SD] Charlson comorbidity index score of 8.8 [±2.0], and 85.5% had stage IV melanoma. 49.1% of the patients were on an immunotherapy and 94.7% of those received nilutimun. The mean [±SD] MPH of patients decreased from 0.97 ± 0.04 at 3 months to 0.44 ± 0.29 at 24 months of follow-up. Nearly three-fourths (72.4%) of the patients discontinued their index therapy within 3 months. After controlling for patient characteristics, those with high adherence had lower mean MPH all-cause total cost ($41,830 vs. $51,991; p < 0.001) and melanoma-related total cost ($37,549 vs. $48,263; p = 0.006). CONCLUSIONS: A majority of patients with advanced melanoma have low adherence and discontinuate therapy in ≤ 3 months. Patients with high adherence to cancer therapies have lower all-cancer and melanoma-related total costs than patients with low adherence.

PCN91 COSTS OF MANAGING PATIENTS WITH RELAPSED OR REFRACTORY HODGKIN LYMPHOMA (RHLH) IN THE USA

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OBJECTIVES: Treatment options for RHLH patients post-autologous stem cell transplant (ASCT) are limited. Newer therapies including brentuximab vedotin (BV) may improve outcomes. Understanding economic consequences of these new therapies is important, as they may be costly. We identified costs of care for a cohort of RHLH patients treated with ASCT in the USA, according to timing of BV treatment. METHODS: We identified 401 adult RRHL patients treated with ASCT after failing first-line therapy between 2007-2010 from the Truven MarketScan databases. Line of therapy was classified based on dispensations and chemotherapy administration, and duration of line of therapy was considered from initiation of one therapy line until initiation of the next for until censoring. All-cancer healthcare resource use during each therapy line was used to estimate mean (standard deviation) per patient monthly and total costs, inflated to 2015 US dollars ($). RESULTS: Three hundred and seventy (92.3%) patients were BV-naive, 8 (2.0%) had BV pre-ASCT, and 23 (5.7%) had BV post-ASCT. Mean monthly costs among BV-naive patients were $88,580 ($48,202) over a median follow-up of 77 weeks post-ASCT, $53,767 (51,272) for those with BV prior to ASCT over 51 weeks, and $27,976 (17,421) for those with BV after ASCT over 88 weeks. Mean monthly costs for patients who received BV post-ASCT, but were not treatment-eligible, were stable among those with BV post-ASCT. Total costs from time of ASCT to end of follow-up were $381,810 (388,888) for BV-naive patients, $560,927 (295,827) for those with BV pre-ASCT, and $422,741 (284,194) for those with BV post-ASCT. CONCLUSIONS: Mean monthly costs for managing RRHL patients are approximately $28,000, and total costs are $380,000 per patient treated. Small samples and shorter follow-ups limit the relevance of estimates from those with BV pre-ASCT. These data highlight the high economic burden associated with managing RRHL patients.

PCN92 COMORBIDITY MEASURES TO PREDICT HEALTHCARE COSTS AMONG ELDERLY GYNECOLOGIC CANCER SURVIVORS IN THE US: AN ANALYSIS OF MULTIPLE SOURCE DATA


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OBJECTIVES: To determine the economic burden associated with managing RRHL patients.

METHODS: We estimated the economic burden associated with managing RRHL patients. Small samples and shorter follow-ups limit the precision of these estimates. The objective was to estimate the healthcare costs and to compare the performance of these indices in predicting healthcare costs among elderly gynecologic cancer survivors. METHODS: This retrospective study used 2007-2010 Surveillance, Epidemiology, and End Results (SEER) data, a large population-based sample, to identify patients with RRHL. The patient population was further restricted to those with advanced-stage disease. Cost data was obtained from the Healthcare Cost and Utilization Project (HCUP) and the Medicare Current Beneficiary Survey (MCBS). The Charlson Comorbidity Index (CCI), Eliskhazanieh Comorbidity Index (ECI), National Cancer Institute (NCI) index, Chronic Disease Score (CDS) and RxRisk. The dependent variable was total annual healthcare costs. RESULTS: The mean annual healthcare costs for the 4,063 survivors studied was $40,605 (SD=$34,014). In the unadjusted models, indices (except the CDS-2 and RxRisk) were positively significant. Indices associated with ER/ER visits and total healthcare costs were positively significant. In the adjusted models, CCI and CDS-1 scores and several EI indices were positively significantly associated with higher ER/ER visits and total healthcare costs. None of the indices (except a few EI indicators) were associated with multiple open procedures included: diagnosis of breast cancer, any complication, and breast surgeons choose the best comorbidity indices to use in their research.

PCN93 HEALTHCARE RESOURCE UTILIZATION AND COSTS OF SKELETAL-RELATED EVENTS IN PATIENTS WITH MULTIPLE MYELOMA


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OBJECTIVES: Skeletal-Related Events (SREs) (defined as spinal cord compression, pathological fracture, radiation or surgery to bone) are common bone complications of patients with multiple myeloma (MM). Clinical guidelines recommend prophylactic management for prevention of SREs, as SREs can be debilitating, and are associated with poor clinical outcomes and high costs. This study estimated economic burden of SREs in MM. METHODS: In this retrospective cohort study, adult patients with ≥ 2 outpatient MM diagnoses between 01/01/2010 and 12/31/2014 were identified from the QuintilesIMS’PharmaticsPlus healthcare claims database. First SRE date on or after first MM diagnosis was the index date and patients had ≥ 12 months of continuous enrollment before index and ≥ 1 month post-index. Patients with SREs were propensity score matched 1:1 to MM patients without SREs (controls) using pre-index demographic, clinical characteristics, and costs. Patients were followed until the earliest of last enrollment date, or 12/31/2015. The average per-patient per-year (PPPY) healthcare resource utilization (HRU) and costs were measured during follow-up. McNemar’s test and Wilcoxon test were conducted to assess HRU and cost. RESULTS: A total of 848 patients with SREs and 848 matched controls met the study criteria (mean age: 61 years; male: 57% mean follow up: 22 months). SRE and control groups were well-matched. Compared to controls, SRE patients had significantly higher proportions and frequency of hospitalizations (72.4% vs. 41.2%, and 1.7 vs. 0.7, respectively), emergency room visits (42.9% vs. 1.1 vs. 0.7, respectively), and higher total costs ($188,723 vs. $108,160) PPPY [(p < 0.0001)]. Primary care providers were hospitalized and outpatient ancillary costs, PPPY cost differences between matched cohorts were $6,189 (6,834) and $16,646, respectively. Significant economic burden was observed with SREs in patients with MM (almost 2-fold more hospitalizations and $80K PPPY additional cost). This study demonstrates the importance of prophylactic management of SREs in MM.

PCN94 CLINICAL AND COST OUTCOMES ASSOCIATED WITH MULTIPLE OPEN SURGICAL PROCEDURES FOLLOWING PERCUTANEOUS BREAST BIOPSY

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OBJECTIVES: This study estimated the proportion of patients requiring multiple open surgical procedures following percutaneous breast biopsy, including associated complications and incremental medical costs. METHODS: Healthcare claims data from the Truven Commercial Research database (2009-2014) was used to identify patients undergoing percutaneous biopsy in an outpatient setting for this retrospective database analysis. Patient selection criteria included: female, continuous health plan enrollment; no previous history of cancer, chemotherapy, surgery, radiation, or breast cancer surgery. Open procedures were defined as an open biopsy or lumpectomy. Study follow-up was defined as 90 days from initial percutaneous breast biopsy; or until death, whichever came first. CONCLUSIONS: Significant economic burden— to limit analysis to diagnosis-related costs. RESULTS: 143,771 patients were identified for analysis with mean age 47 to 54 years. Eighty-five percent of patients underwent only a percutaneous biopsy, 12.4% underwent one open procedure, and 2.5% had multiple open procedures. Incidence of any complication was significantly lower among those with no open procedure (9.3%) versus patients with one open (15.6%) or multiple open procedures (21.3%). Mean incremental breast-related medical costs were $3,257 greater among patients with one open procedure versus none ($18,828 vs. $4,571, P < 0.001), and $4,982 greater among patients with multiple open procedures versus one ($23,811 vs. $18,828). In logistic regression, factors associated with increased costs included diagnosis of breast cancer, any complication, location of procedure, age ≥ 45 (vs ≤ 40), initial percutaneous biopsy procedure setting, and...
initial open procedure setting. CONCLUSIONS: This study demonstrates there are a proportion of women that require multiple open procedures following initial percutaneous biopsy. This is suggestive of a subset of patients who may benefit for more patient-centered approaches for the diagnosis of suspicious lesions to minimize the use of open diagnosis-related procedures.

PCN95
REAL-WORLD TREATMENT PATTERNS AND COSTS IN MEDICARE BENEFICIARIES NEWLY DIAGNOSED WITH ACUTE MYELOID LEUKAEMIA
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OBJECTIVES: Little is known on treatment patterns and costs of acute myeloid leukemia (AML) patients in US clinical practice. This study describes induction therapy and consolidation cycles in terms of settings, duration, and costs of Medicare beneficiaries with AML who are candidates for standard chemotherapy.
METHODS: Using the SEER-Medicare databases, Medicare beneficiaries newly diagnosed with AML from 2007-2011 who received standard induction chemotherapy in an inpatient setting were selected. Patients were observed from induction therapy initiation to the first event among hematopoietic stem cell transplant, death, end of Medicare coverage/data availability, or 180-days after the end of the induction episode. AML treatment episodes, including induction therapy and consolidation cycles, were identified using DRG/procedure codes. AML treatment episode settings, duration, and costs (USD/2015, public payer’s perspective) were analyzed for 563 Medicare beneficiaries (mean age 66±12 years, 54% male) with a first induction episode, 193 (34%) patients had 2 cycles of induction therapy during this episode. The median duration of induction stays was 1 cycle of induction therapy lasting 28 days and mean costs were $64,680. The median duration of induction stays with 2 cycles of induction therapy was 47 days and mean costs were $126,096. Following induction therapy, 297 (53%) patients had ≥1 consolidation cycle, 231 (40%) ≥2, 148 (26%) ≥3, and 87 (15%) ≥4. 63% of consolidation cycles were administered in an inpatient setting and 35% as an outpatient setting. In the inpatient setting, the median duration per cycle was 6 days and mean costs were $28,843. In the outpatient setting, the median duration per cycle was 5 days and mean costs were $5,803. CONCLUSIONS: This is the first exploratory study reporting recent treatment patterns and costs of Medicare beneficiaries newly diagnosed with AML. These findings suggest that, there is substantial heterogeneity in the consolidation therapy setting and costs.

PCN96
HOSPITAL BURDEN FOR TREATING PROSTATE CANCER (PCA) WITH BONE METASTASIS (WB) PATIENTS IN THE BRAZILIAN SUPPLEMENTARY HEALTH SYSTEM: RESULTS FROM A RETROSPECTIVE ANALYSIS OF AN ADMINISTRATIVE DATABASE
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OBJECTIVES: Prostate cancer places a high economic burden on healthcare systems globally. International studies demonstrated significant impact to the health system, mainly due to increased hospitalization of advanced disease patients. To evaluate the hospitalization rate and cost as a result of prostate cancer and bone metastasis according to selection criteria: ICD-10:C-61 register followed by ICD-10:C795 or M907 or register of bone metastasis procedures, at least one PCA treatment and hospitalization or ambulatory admission. Study outcomes were: annualized overall hospital cost per patient, prostate cancer treatment type distribution, average hospital visits and Length of Stay.(LOS).Currency rate:US$1=R$3.23. RESULTS: A cohort of 181 patients met the selection criteria for the study. During the follow-up period 21.5% of the patient cohort had exclusively one type of treatment, whereas 37.5% had Radiotherapy(RT), Hormonotherapy(HRT) and Oncologic-therapy. Average cost/entrance was $R10,300, hospitalization and ambulatory costs was $R35,853 and R $5,627 respectively. Patient had entered the hospital 9.04-times per year, of which, 4.20-times was hospitalized with an average LOS/hospitalization of 10.64-days. Annualized hospital cost/patient was $R1,428.67. Sub-group analysis had shown RT average cost/entrance of $R3,001 and oncologic-therapy of $R4,340. HT average cost/entrance was $R36,614, with disparity between ambulatory and hospitalization, $R4,538 and $R4,142 respectively. CONCLUSIONS: This cohort study showed high economic burden of hospital treatment of PCA WB in the Brazilian SHS compared to previous study, mainly due to advanced disease stage that requires frequent hospital entrance and stay.

PCN97
UTILIZATION OF TARGETED THERAPIES WITH COMPANION DIAGNOSTICS IN MEDICARE CANCER PATIENTS 2011 - 2015
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OBJECTIVES: Targeted therapy attacks specific types of cancer cells. Companion diagnostics (CDx) aid in the identification of candidates who may benefit from a targeted therapy. This analysis was conducted to understand the trend of targeted therapy/CDx utilization under Medicare, 2011-2015. METHODS: Thera- pies that were approved based/and/or approved by the FDA were analyzed. Medicare Part D drug spending (2011-2015) published by CMS in 2016 for each therapy. Analysis was limited to therapies with a single cancer indication requiring CDx. Further analysis considering all targeted therapies with CDx was conducted to understand impacts of the therapy exclusion criteria. RESULTS: From 2011 to 2015, the number of targeted cancer therapy beneficiaries increased from 498 to 7,133. The Medicare spend increased from $9,547,737 to $293,607,643, also increased from Medicare Part D drug spending of $0.7 billion to $0.7 billion. CONCLUSIONS: This trend has changed and by 2015, there was increased utilization of targeted therapies for NSCLC (51.58%), followed by melanoma (36.32%), ovarian cancer (9.65%), breast cancer (2.03%) and CRC (0.42%). In 2015, the annual spend per beneficiary ranged from $22,151 (Gefitinib) to $70,967 (Crizotinib), and the cost sharing was 0.0045-0.5110% for beneficiaries who qualified for a Low Income Subsidy (LIS), and 5.1%-17.1% for those who do not qualify for LIS. Further analysis demonstrated a similar trend in the therapy utilization.

PCN98
PRICE ANALYSIS OF THYROID CANCER- TYROSINE KINASE INHIBITOR DRUGS MARKETED IN THE US
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OBJECTIVES: Tyrosine kinase inhibitor therapy (TKI) is a type of targeted therapy that inhibit signals needed for cancer cells to grow and divide. In this study we assessed the trends in average wholesale prices (AWP) at market entry for thyroid cancer – targeted therapy approved by the US Food and Drug Administration (FDA). METHODS: Regulatory information was derived from the FDA website. AWP per unit at market entry data were derived from the RedBook (Truven Health Analytics, Inc). The AWP history was collected from year of approval to January 2017. The first defined dosage for adult patients was obtained from FDA approved labels. AWP per DDD and 30 DDD were computed. AWPs were adjusted to for inflation by using the consumer price index (CPI). Descriptive statistics were performed in this study. RESULTS: The FDA approved 6 tyrosine kinase inhibitor drugs for the indication of thyroid cancer in the period 2005-2016. The first TKI for thyroid cancer was approved in 2005 and the deactivate in January 2008 with and AWP of $174.90 per DDD, and then returned to the market on July 2008 with the same strength and package and with an AWP of $604.50 which represents a 246% increase in the previous price. The median AWP per DDD at market entry was $391.43. The FDA-approved TKIs typically increased their AWP prices twice a year. The AWP per DDD at market entry of the last approved TKI in 2015 was $52% higher than the AWP per DDD at market entry of the first approved TKI in 2005. The AWPs per DDD at market entry were $163.01, $372.96, $409.91, $1,358.58, $363.96, and $1,063.60 respectively during the time of study. CONCLUSIONS: The median entry prices of TKIs for thyroid cancer substantially increased over the period of study.

PCN99
DIRECT MEDICAL COSTS OF LUNG CANCER PATIENTS TREATED IN FIRST LINE WITH GEFITINIB OR ERLOTINIB IN THE BRAZILIAN PRIVATE HEALTHCARE SYSTEM
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OBJECTIVES: To evaluate the direct medical costs (DMC) in patients with lung cancer treated with gefitinib or erlotinib in first line and subsequent therapies. METHODS: The Orizon is an administrative database containing over 18 million lives of the Brazilian Private System. Eligibility criteria were patients treated in first line with any TKI with icd-10 code C34 from 2013 to 2015. Monthly DMC were calculated as the sum of medical claims for each patient during treatment and all results were represented by the mean values with an exchange rate of 1 USD = 3.23 BRL. RESULTS: A total of 55 patients were treated with gefitinib in first line. Remaining TKI in gefitinib; erlotinib (BRL 4,726.54) per month, while the erlotinib group was BRL 4,069.77 (R 14,114.37), resulting in an average cost increase of 2.9 times, mainly due to the higher erlotinib cost and hospitalizations. In terms of length of treatment (LOT) results were similar between both medication, patients were on gefitinib for 7.6 months and erlotinib for 7.9 months. We also evaluated 26 patients in second line, after TKI therapy, where the most common were perfenestrated monotherapy or in combination with other drugs in gefitinib and erlotinib for 3 months at a cost of BRL 2,092.50 (R 7,740.78) with a LOT of 5.0 months and bevacizumab plus chemotherapy with a monthly DMC of USD 11,134.98 (R 35,966.01) and a LOT of 4.8 months. CONCLUSIONS: Monthly costs with patients treated in first line with gefitinib were lower than erlotinib and presented a similar mean length of treatment duration. It was noteworthy that monthly costs of precision medicine therapies were much lower than chemotherapy schemes in the Brazilian private setting.
PALBOCICLIB DOsing, WASTEANDCOSTSMONTPoSITIVEMONOCLonalANTIBODIES IN PATIENTS WITH RELAPSED OR RECURRENT POSITIVE FOR HER2 METASTATIC BREAST CANCER (MBC): A CLINICAL ANALYSIS

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OBJECTIVES: To examine dosing patterns among HR+/HER2- mBC patients treated with palbociclib during second or later lines of therapy in real-world medical practice. METHODS: Postmenopausal women with HR+/HER2- mBC treated with palbociclib-based second (2L), third (3L) or fourth (4L) lines of therapy were identified from the Truven Health MarketScan claims database (1/1/2013-12/31/2014) in 4L. Patients had continuous health plan enrollment for at least 6 months pre/post-index and valid data for dose calculations. Dose modification was defined as a change in daily dose of > 25 mg compared to the prior prescription. Patients in whom a dose modification was identified were used to estimate cost of potential drug waste. Wastage costs were computed by applying wholesale acquisition costs (January 2017) to each day of overlap. RESULTS: Of 811 eligible mBC patients treated with palbociclib (mean age 58.8 ± 11.5), there were 249, 172, and 102 with a 2L, 3L, and 4L of therapy respectively. Initial mean dose in mg was 94.8 ± 13.9 during 2L, 96.5 ± 13.1 during 3L, and 90.7 ± 16.1 during 4L. The proportion of patients with dose modification was 41.8% (2L), 37.2% (3L) and 22.5% (4L) driven by dose decreases (35.7% in 2L to 19.6% in 3L, and 90.7% in 4L) which lead to $5,418 - $7,063 costs (95% confidence interval, $3,564 to $9,784) per patient during a mean duration of 3.9 months for each line. CONCLUSIONS: This analysis found that 19.6-35.7% of patients with palbociclib-based treatment during a second or later line of therapy had a dose reduction over a median time of 3.5 months resulting in potential drug wastage of $5,418-8,063 per patient during each line.

AN INVESTIGATION OF THE CORRELATION BETWEEN PRICE MIGRATION AND PCN101

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OBJECTIVES: This study aims to evaluate if there is a correlation between the magnitude of cancer drug price increases and their molecule size (small molecule vs. mAb) METHODS: All oncology drugs approved by the FDA from January 1, 2004 to October 31, 2015 were included for analysis (N=73). The Wholesale Acquisition Cost (WAC) prices at launch, and subsequent price increases were extracted from AnalySight. We evaluated how the magnitude and frequency of price increases for each drug were impacted by different product characteristics like route of administration, launch date, molecule size, etc. RESULTS: The correlations between price migration and a number of different drug characteristics were studied, of which molecule size was found to have a distinctly strong impact on price increases. Of the 72 drugs studied, 58 were small molecules and 14 were monoclonal antibodies (mAbs). The average CAGR for small molecules was 6.1%, and for mAbs was 1.4%. On average, annual percentage increases of price increases were also more frequent for small molecules compared to mAbs at 1.1 times and 0.6 times, respectively. When stratified by indication, the average CAGR of small molecules indicated by indication for solid tumors was 6.0% compared to a 2.6% growth rate of mAbs. Within solid tumors, small molecules had 6.1% CAGR versus 0.9% for mAbs. For each tumor type, the magnitude and frequency of price increases were consistently higher for small molecules compared to mAbs. Cancers with a higher percentage of brenzibtumab, a mAb indicated for lymphoma, at 7.0% CAGR and 1.8 annual price increases, compared to 4.4% CAGR and 1.0 annual increases for small molecule lymphoma drugs. CONCLUSIONS: Small molecules appear to have larger and more frequent price increases, which in turn may be an important influencer on price for new drugs and should be introduced into the ongoing dialogue on cancer drug pricing.

DIRECT MEDICAL COSTS OF MAINTENANCE THERAPY IN BRAZILIAN PLATINUM-SENSITIVE OVARIAN CANCER PATIENTS OF PRIVATE HEALTHCARE SYSTEM: RETROSPECTIVE ANALYSIS OF AN ADMINISTRATIVE DATABASE

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OBJECTIVES: The aim of this study was to determine the direct medical costs (DMC) of maintenance therapy in brazilian platinum-sensitive ovarian cancer (PSOC) patients. The Private Healthcare System: ORTIC database, an administrative database containing inpatient and outpatient claims representing 34% of the total Private Health System, was evaluated from Jan/2011 to Dec/2011. Patients were patients coded as CD-10 code C56 that started treatment among Jan/2012 to Dec/2012, were continuously enrolled, and had a 30 days follow up were included in the analysis (conversion rate of 1 USD = 3.45 BRL). RESULTS: Of the 243 patients included in the database, 62 (25.5%) did maintenance therapy where bevacizumab monotherapy was the most common of all schemes, corresponding to 96.6%. Total maintenance DMC in the subgroup (n = 64) was USD 4,035,872.72 (mean cost = USD 63,060.51/maintenance) and a mean monthly cost of USD 6,917.06. Medicines represented 95.4%, materials 3.1%, exams 0.5%, fees (expenses related to other medical costs) 0.4% and others 0.5% of total costs during the maintenance phase. CONCLUSIONS: The benefit of maintenance therapy in PSOC patients was already demonstrated in clinical trials. Understanding the local current maintenance costs will help payers in decision making specially when novel targeted agents are coming such as olaparib, an oral PARP inhibitor and selective for BRCAm patients only, which is already registered and will soon be available in Brazil, not incurring costs associated with in-clinic infusions.

THE ECONOMIC IMPACT OF DELAYING BRAIN METASTASES IN ALK-POSITIVE NON-SMALL-CELL LUNG CANCER IN THE COMMERCIALLY INSURED US POPULATION

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OBJECTIVES: To describe the occurrence of brain metastases (Mbt) and cost offsets of delaying or preventing Mbt in ALK+ non-small cell lung cancer (NSCLC) patients. The study population included patients with ALK+ NSCLC whose status was extracted from a stacked database of PharMetrics Plus and MarketScan claims data from Jan 2008 to Mar 2016 and Dec 2015, respectively. Early BMet was defined as a BMet within 6 months of the first lung cancer diagnosis (index date). The occurrence of a BMet after 6 months was defined as a delayed BMet. Patients with an ALK inhibitor, ≥ 18 years old, with ≥ 6 months preindex and ≥ 30 days follow up were included. ALK+ NSCLC patients were categorized into cohorts of no BMet, early BMet, and delayed BMet. Costs were measured for each BMet category over 12 months, and standardized to per patient per month. RESULTS: The study included 207 (48.7%) patients with no BMet and 218 (51.3%) with BMet. Baseline demographics were similar for age (57 and 54), gender (50% male), and Charlson comorbidity index (mean 1.1). The mean cost to a BMet was 210 days (median 39). Among patients with BMet, 140 (64%) had early BMet, and 78 (35.8%) had delayed BMet. On average, healthcare costs per month in patients with a BMet was $4,390 higher than patients without a BMet ($3,846) compared to BMet. The total cost of delayed BMet was $12,395 lower per month (median $7,692) than early BMet. CONCLUSIONS: BMet is an important indicator of poor prognosis, and is associated with substantial economic burden. The economic impact of delaying BMet was $12,395 lower per month than early BMet.
Foundation for the use of pemetrexed in first-line non-squamous non-small cell lung cancer (NSCLC) maintenance therapy in China. METHODS: A survival analysis was performed using the clinical data of 3,366 patients with NSCLC with or without a primary drug, and pharmaceutical sponsor. Drug approval dates were retrieved from Citeline and the regulatory bodies websites. The time frame between the "first-line treatment" and "second-line treatment" was considered as the start of pemetrexed treatment. RESULTS: The median of the PFS for patients with and without a primary drug was 23.8 months and 14.9 months, respectively, indicating that the PFS of patients with a primary drug was significantly longer than that of patients without a primary drug. CONCLUSIONS: The use of pemetrexed in first-line non-squamous non-small cell lung cancer (NSCLC) maintenance therapy in China is associated with a significant improvement in PFS compared to patients without a primary drug. Further studies are needed to confirm these findings.

PCN108 COST-EFFECTIVENESS ANALYSIS OF AFATINIB VERSUS Gefitinib AS FIRST LINE TREATMENT IN PATIENTS WITH LOCALLY ADVANCED OR METASTATIC EPIDERMAL GROWTH FACTOR RECEPTOR MUTATION-POSITIVE NON-SMALL-CELL LUNG CANCER IN THE BRAZILIAN PRIVATE HEALTHCARE SYSTEM

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OBJECTIVES: To compare costs and effectiveness of afatinib versus gefitinib, as first line treatment of patients with locally advanced or metastatic epidermal growth factor receptor mutation-positive (EGFR+)-non small cell lung cancer (NSCLC) in the Brazilian private healthcare system. METHODS: A disease cohort model was used to estimate 7-year progression-free survival (PFS), life years (LY), Quality-adjusted life years (QALY) and clinical outcomes of afatinib versus gefitinib in the Brazilian setting. The model was fit using partitioned survival data from LUX-Lung 6 and 3 trials, safety data from the LUX-Lung 6 and LUCEROS trials. Comparative effectiveness versus control was estimated using Bayesian indirect comparison. Results were estimated by an expert panel consisting of Brazilian oncologists and parameterized using cost estimates from official Brazilian databases. Indirect costs were not considered in this evaluation. Costs and benefits were discounted at a discount rate of 3%.

CONCLUSIONS: Afatinib was associated with increased progression-free survival (0.53 PFSY), increased survival (0.37 LY) and higher quality of life (0.34 QALY) and increased cost (BRL 24,889; 1USD = BRL3.463) versus gefitinib, resulting in an incremental cost-effectiveness ratio (ICER) of $17,079/QALY, BRL 73,750/QALY. Considering 3 PBR per capita as a threshold (BRL 86,628 per PFLY, LY or QALY), afatinib is a cost-effective technology versus gefitinib. Sensitivity analyses indicated that the conclusion was robust across relevant scenarios. Conclusions: Afatinib is a cost-effective option versus gefitinib as first line treatment in EGFR+ NSCLC patients under the Brazilian private healthcare system.

PCN109 COST-EFFECTIVENESS ANALYSIS OF TRANSCATHETER ARTERIAL CHEMOEMBOLIZATION WITH OR WITHOUT SORAFENIB FOR THE TREATMENT OF UNRESECTABLE HEPATOCELLULAR CARCINOMA

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OBJECTIVES: Transcatheter arterial chemoembolization (TACE) and TACE in combination with sorafenib (TACE-sorafenib) have shown a significant survival benefit for the treatment of unresectable hepatocellular carcinoma (HCC). Adopting either as a first-line therapy carries a major cost and resource implications. The objective of this study was to estimate the relative cost-effectiveness of TACE against TACE-sorafenib for unresectable HCC using a decision analytic model. METHODS: A Markov cohort model was developed to compare TACE and TACE-sorafenib. Transition probabilities and utilities were obtained using systematic literature reviews and, and costs were obtained from West China Hospital, Sichuan University, China. Survival benefits were reported in quality-adjusted life-years (QALYs). The incremental cost-effectiveness ratio (ICER) was estimated as the incremental costs divided by the incremental QALYs gained. The cost was expressed in terms of per capita as a threshold (BRL 86,628 per PFLY, LY or QALY). Results were estimated by varying potentially modifiable parameters of the model. RESULTS: The base-case analysis showed that TACE cost $26,950.90 and yielded survival of 0.71 QALYs, and TACE-sorafenib cost $44,541.79 and yielded survival of 1.44 QALYs in the entire treatment. The ICER of TACE-sorafenib versus TACE was $57,459.13 per QALY gained, which was above threshold for cost-effectiveness in China. Sensitivity analysis revealed that the major driver of ICER was the cost per sorafenib treatment with stable ICER. CONCLUSIONS: TACE is a more cost-effective strategy than TACE-sorafenib for the treatment of unresectable HCC.
**PCN111**

**THE COST-EFFECTIVENESS OF PRECISION MEDICINE TREATMENT STRATEGIES FOR DIFFUSE LARGE B-CELL LYMPHOMA**

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**OBJECTIVES:** Diffuse large B-cell lymphoma (DLBCL) is comprised of germinal center B-cell-like (GC-BL) and activated B-cell-like (ABC) subtypes; the latter is associated with worse survival with standard rituximab, cyclophosphamide, doxorubicin, vincristine, and prednisone (RCHOP) therapy. Preliminary evidence suggests that novel ABC DLBCL treatments, when added to RCHOP, motivates the implementation of precision medicine treatment strategies stratified by subtype. The primary objective was to project the cost-effectiveness of subtype-based treatment strategies resulting from a US patients’ perspective.

**METHODS:** We developed micro-simulation models to compare three first-line treatment strategies for DLBCL: (1) standard treatment with RCHOP; (2) lenalidomide–RCHOP (R2CHOP); and (3) subtype-based treatment with subtype testing using immunohistochemistry (IHC) algorithms followed by RCHOP for ABC and R2CHOP for ABC-DLBCL. Relapsed patients received salvage chemotherapy followed by autologous stem cell transplant as the current standard of care. Subtype-specific survival data were derived from historical clinical studies, and drug and administration costs were based on average wholesale price and Medicare physician fee schedule. We performed one-way and probabilistic sensitivity analyses to assess model robustness.

**RESULTS:** R2CHOP on average provided 6.2 QALYs (81.1 LYs) at a cost of $65,700 and subtype-based treatment was dominated by RCHOP. Sensitivity analyses demonstrated that our findings were robust with variations in model parameters.**

**CONCLUSIONS:** We demonstrated that subtype-based treatment has the potential to be cost-effective across various variations in survival benefit and additional cost for the novel treatment. Data from randomized trials are needed to validate the cost-effectiveness profile and to guide the optimal use of standard and novel therapies for DLBCL in clinical practice.

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**PCN113**

**NUMBER NEEDED TO TREAT AND ASSOCIATED INCREMENTAL COSTS OF TREATMENT WITH ENZALUTAMIDE PLUS ABI-007 IN AORTIC REGURGITATION PATIENTS WITH PREDNISONE IN CHEMOTHERAPY-NAIVE PATIENTS WITH METASTATIC CASTRATION-RESISTANT PROSTATE CANCER (MCRPC)**

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**OBJECTIVES:** A number-needed-to-treat (NNT) analysis comparing treatment with enzalutamide (ENZ) with abiraterone acetate plus prednisone (ABI ± P) for chemotheraphy-naive metastatic castration-resistant prostate cancer (MCRPC) was conducted to determine the number of patients who would need to be treated with ENZ to induce one additional patient being free of progression/death over a 1-year time horizon. The analysis was adapted to Spain and the UK and estimated the difference in costs between therapies, respectively.

**METHODS:** Differences in treatment patterns between countries were adjusted using locally sourced data from reimbursement and treatment guidelines. US costs were replaced with 2016 country-specific costs. Also, NNT and clinical outcomes were based on ENZ and ABI ± P clinical trial data included in the original US analysis (Massoudi 2016). RESULTS: Total cost per treated patient for ENZ was lower than for ABI ± P in both Spain (€34,610 versus €36,631) and the UK (€32,531 versus €22,669). Compared with ABI ± P, treating 14 patients with ENZ resulted in one additional patient free of progression/death over 1 year at a cost saving of €10,975 (Spain) or €1962 (UK), treating 26 patients with ENZ resulted in one additional patient with chemotherapy delayed over 1 year (cost saving: Spain €53,199, UK £3615), and treating 91 patients with ENZ resulted in one additional patient surviving over 1 year (cost saving: Spain €183,777; UK £12,487). Thus, ENZ is more cost-effective for all three outcomes. The models’ results suggest that ENZ potentially decreases the risk of disease progression and death and delays chemotherapy initiation in chemotherapy-naive patients. Results were confirmed among multiple sensitivity analyses.**

**CONCLUSIONS:** Consistent with the original US analysis, results modeled here for Spanish and UK contexts also suggest that ENZ is cost-effective versus ABI ± P for treating chemotherapy-naive patients with MCRPC.

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**PCN114**

**COST-EFFECTIVENESS ANALYSIS OF ENZALUTAMIDE FOR PATIENTS WITH CHEMOTHERAPY-NAIVE METASTATIC CASTRATION-RESISTANT PROSTATE CANCER IN JAPAN**

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**OBJECTIVES:** To evaluate the cost-effectiveness of enzalutamide in chemotherapy-naive metastatic castration-resistant prostate cancer (mCRPC) patients in the Japanese healthcare setting. METHODS: A Markov model was developed to capture time spent by patients in various health states: stable, progression, death. Model inputs for survival, adverse events, health utility, and costs were obtained from the PREVAIL, COU-AA-302, and TAX327 trials. Treatment sequence, concomitant drugs in each treatment regimen, and therapies for both palliative care and adverse events were elicited from responses to our survey of Japanese medical oncologists (n = 33). Model inputs for efficiency of mCRPC patients were as follows: 1) enzalutamide + docetaxel + cabazitaxel; 2) abiraterone + enza- lutamide + docetaxel; 3) docetaxel + enzalutamide + cabazitaxel. The following sequence was included in a scenario analysis as an alternative sequence of 1: enzalutamide + abiraterone + docetaxel. In the base-case analysis, sequence 1 saved JPY 1.74 million compared with sequence 2, with a 0.129 utility gain (dominant). Sequence 1 had a cost increase of JPY 4.44 million over sequence 3, with a 0.371 utility gain. The ICER of sequence 1 versus sequence 3 was estimated as JPY 11.95 million/QALY gained. Similar results were obtained by the replacement of sequence 1 with sequence 4. Probabilistic sensitivity analysis demonstrated that, compared with sequence 2, the probability of sequence 1 being dominant was 87.4%.**

**CONCLUSIONS:** The results modeled in the present study suggest that the enzalutamide-first sequencing (1 and 4) is more cost-effective than the abiraterone-first sequencing, but less cost-effective than the docetaxel-first sequencing, for chemotherapy-naive patients with mCRPC.

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**PCN115**

**COMPARISON OF VALUE EVALUATIONS USING DRUG ABACUS AND TRADITIONAL COST-EFFECTIVENESS ANALYSIS FOR AN IMMUNO-ONCOLOGY DRUG IN AN ORPHAN INDICATION**

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**OBJECTIVES:** Extensive research has been conducted to optimally estimate the value of a drug. The Memorial Sloan Kettering Cancer Center (MSKCC)-proposed Drug Value Index and incremental effectiveness ratio (IEER) attempt to estimate the value of oncology drugs, with the latter particularly useful in population medicine. The utility of these frameworks in assessing value of an immune-oncology (IO) agent in an ultra-orphan tumor is not well-documented. METHODS: A survival partition model was developed to capture
costs, life years and QALYs for an IO drug vs chemotherapy over the patient’s lifetime. A threshold of $156,000 per QALY and per life year was used for the ICER and mMEC frameworks, respectively. User-modifiable premiums for each dimension for Drug Abacus were varied from 1-3, whilst allowing corresponding variation in the thresholds from $84,000 to $226,000 per life year or QALY. Conservative assumptions (e.g. no premium for Research and Development) were employed throughout the analyses. RESULTS: The monthly value of the drug using the ICER framework ranged from $4,033-$14,978 when only survival was considered. Incorporating quality of life decreased the value by $1,315-$3,537, whilst the inclusion of toxicity increased the value by up to a maximum of $7,669, $15,338, $1,534, $15,338 and $12,599, respectively. CONCLUSIONS: For an ultra-orphan tumor, the additional value dimensions related to disease and drug-specific factors influence the value assessment. In this study, holistic assessment is needed to capture true value of a new IO therapy in rare diseases.

PCN116
COST-EFFECTIVENESS ANALYSIS OF ADDITIONAL BEVACIZUMAB TO CHEMOTHERAPY AS INDUCTION AND MAINTENANCE THERAPY IN METASTATIC NON-SQUAMOUS NON-SMALL CELL LUNG CANCER
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OBJECTIVES: Accurately to project the BEYOND trial, the addition of bevacizumab (B) to paclitaxel-carboplatin (PC) chemotherapy provided a significant clinically benefit in Chinese patients with metastatic nonsquamous non-small cell lung cancer (NSCLC). The purpose of this study was to evaluate the cost-effectiveness of additional B to the first-line induction and continuation maintenance therapy from Chinese perspective.
METHODS: A Markov model was developed to estimate the cost and effectiveness of B plus PC in the induction and maintenance therapy for patients with metastatic nonsquamous NSCLC. Costs were calculated in the Chinese setting and health outcomes derived from the BEYOND trial were measured as quality-adjusted life year (QALY). A one-way sensitive analysis was conducted to explore the impact of parameters in the study. RESULTS: The B plus PC group was more costly ($122,950.19 versus $32,182.19) and more effective (1.07 QALYs versus 0.80 QALYs) compared with the PC group. In summary, B to the PC regimen for nonsquamous NSCLC results in an incremental cost-effectiveness ratio of $295,140.78 per QALY gained (95% CI: $239,970.00 to $350,310.56). Sensitivity analysis revealed that the willingness to pay ($23,970.00) of China. In the sensitive analysis, duration, progression-free survival (PFS) state for B+PC group, cost of FFS state for B+PC group and the price of B were considered to be the most sensitive factor on the model considered to be the most influential factor.
RESULTS: The addition of B to the first-line PC induction and maintenance therapy is not assessed to be a cost-effective strategy for metastatic nonsquamous NSCLC in China, even an assistant program was provided.

PCN117
COST-EFFECTIVENESS OF OLARATUMAB IN COMBINATION WITH DOXORUBICIN FOR THE TREATMENT OF LOCALLY ADVANCED OR METASTATIC SOFT TISSUE SARCOMA IN THE UNITED STATES
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OBJECTIVES: Soft tissue sarcomas (STSs) are rare cancers with poor outcomes for patients with advanced disease (median overall survival (OS) is 12 – 16 months) for which the standard first-line treatment has changed little in 40 years. Recently, the United States (US) Food and Drug Administration conditionally approved olaratumab in combination with doxorubicin (OlaDox) based on a randomized, phase 2 trial in 133 patients (JGDG) that reported a significant OS benefit for olaratumab plus doxorubicin (OlaDox) over doxorubicin alone. We investigated the cost-effectiveness of OlaDox versus doxorubicin and five other standard-of-care regimens for patients with advanced or metastatic STS, from a US payer perspective.
METHODS: A partitioned survival model comprising three health states (Progression-free, Progressed, and Dead) was developed to estimate costs and outcomes over patients’ lifetimes. Efficacy data were based on the JGDG study and a network meta-analysis. Adverse-event rates and costs were derived from published sources. Progression-free survival was estimated from Kaplan-Meier curves. OS was estimated using parametric functions and age-specific mortality adjusted for STS, assuming no treatment-effect after trial follow-up. One-way sensitivity analysis (OWSAs), probabilistic sensitivity analyses, and scenario analyses were performed to evaluate the uncertainty in all model parameters. Costs and outcomes were discounted at 3% per annum. RESULTS: The incremental cost-effectiveness ratio (ICER) estimate for OlaDox versus Dox was $105,408 per life-year (LY) saved (95% credible interval: $65,195-$195,360) and ranged from $52,407-$185,397 per QALY gained versus PC and ranged from $65,760/QALY gained versus standard of care (SOC) and $34,361 to $133,653 and 1.27, respectively. In a fully incremental analysis, all other regimens were dominated or extendedly dominated. In OWSAs, probabilistic sensitivity analyses, and scenario analyses, the ICER for OlaDox versus Dox was discounted at 3% per annum.
CONCLUSIONS: For an ultra-orphan tumor, the additional value dimensions related to disease and drug-specific factors influence the value assessment. In this study, holistic assessment is needed to capture true value of a new IO therapy in rare diseases. This incremental survival is linked to a $11,905/LY gained compared to pazopanib. CONCLUSIONS: This incremental survival is linked to a $11,905/LY gained compared to pazopanib. Based on our real-world evidence, sunitinib is a cost-effective option compared to pazopanib in Canada.

PCN119
COST-EFFECTIVENESS OF SUNITINIB VS. PAZOPANIB IN METASTATIC RENAL CELL CARCINOMA (mRCC) IN CANADA USING REAL-WORLD DATA
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OBJECTIVES: Outside of clinical trials, the effectiveness and efficacy of sunitinib versus pazopanib remains un proved. The purpose of this study was to evaluate the cost-effectiveness of targeted therapies for metastatic RCC patients using real-world data from a Canadian perspective.
METHODS: First- and second-line TTT (time to treatment termination) were estimated from the time of initiation of the therapy until discontinuation of therapy. Survival curves (Kaplan-Meier and direct adjusted survival curves) were used to estimate the effect of treatment controlling for variables. The costs of drugs were estimated using the average duration of treatment in each line of therapy based on results from the database. Incremental cost-effectiveness ratio (ICER) was calculated. The difference between the cost of sunitinib and pazopanib and the difference between the mean survival of sunitinib compared to pazopanib. RESULTS: As of June 2016, treatment was started in 75% of patients entering the database as part of the management of their disease, and were included in the final analysis. 83% of patients were treated with sunitinib 17% with pazopanib. The median TTT in first line for sunitinib and pazopanib was 7.7 and 5.0 months respectively (p = 0.007). The adjusted OS with sunitinib was 33 months compared to 24 months with pazopanib, but there was not a statistically significant difference between the 2 groups (p = 0.08). The median cost for therapy for sunitinib and pazopanib was $57,792 (95% CI: $32,235-$163,119) and $47,872 (95% CI: $28,039-$80,491) respectively. The ICER of sunitinib is $11,905/LY gained compared to pazopanib. CONCLUSIONS: This incremental survival is linked to a $11,905/LY gained. Based on our real-world evidence, sunitinib is a cost-effective option compared to pazopanib in Canada.

PCN120
COST-EFFECTIVENESS ANALYSIS OF COMPARING GEFITINIB VERSUS CARBOPlatin–PACitaxEL AS FIRST-LINE THERAPY FOR ADVANCED NON-SMALL CELL LUNG CANCER WITH SENSITIVE EGFR GENE MUTATIONS FROM A CHINESE PERSPECTIVE
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OBJECTIVES: Lung cancer is becoming a leading cause of cancer death. Non-small cell lung cancer (NSCLC) is the most common type of lung cancer, responsible for about 85% of the cases. EGFR tyrosine kinase inhibitors such as gefitinib improved survival for patients with advanced NSCLC, but was associated with increased toxicity. People’s Republic of China National Health and Family Planning Commission announced the results of the first batch of national drug price negotiations in 2016, the price of gefitinib cut over 50%. OBJECTIVES: To evaluate the cost-effectiveness of gefitinib versus carboplatin-paclitaxel as first-line therapy for advanced NSCLC with sensitive epidermal growth factor receptor (EGFR) gene mutations after cost reconciliation in China. METHODS: A Markov decision tree based on NEJ002 study was created, comparing gefitinib to carboplatin-paclitaxel in as the first-line treatment for NSCLC harboring an EGFR mutation. Three health states (progression-free survival, progressive disease and death) were analyzed in a Markov model. The costs were calculated based on the Chinese societal perspective. Results were reported in Quality-adjusted life year (QALY) and incremental cost-effectiveness ratios (ICERs).
RESULTS:
Gefitinib was estimated to increase the cost by $4757.02, with a gain of 0.26 QALY. Gefitinib came at an ICER of $18596.23 per QALY, which is less than the accepted willingness-to-pay threshold of $39700 per QALY in China. 

CONCLUSIONS: Gefitinib is a cost-effective first-line treatment for NSCLC with mutated EGFR when compared with carboplatin–paclitaxel in China.

PCN121 THE COST-EFFECTIVENESS ANALYSIS OF CAPOX VERSUS FOLFOX4 REGIMENS WITH OR WITHOUT BEVACIZUMAB IN THE FIRST LINE MANAGEMENT OF METASTATIC COLORECTAL CANCER (MCRC) IN HONG KONG

OBJECTIVES: This study aimed to investigate whether adding bevacizumab to CAPOX versus FOLFOX4 was cost-effective as a first-line treatment of MCRC in Hong Kong.

METHODS: This was a retrospective observational study conducted in two public hospitals in Hong Kong. Patients received either CAPOX or FOLFOX4 with or without bevacizumab from Jan 2011 to Dec 2014 as first-line treatment were included. Direct medical costs were estimated based on Hong Kong Gazette and 2014 was the base year. QALY were calculated by the product of utility scores from previous literature and FFSD from the medical records. Probabilistic sensitivity analysis was conducted to estimate the most cost-effective treatment.

RESULTS: A total of 105 patients were included. Base case analysis revealed that the total cost for CAPOX and CAPOX with bevacizumab were HKD303,961.35 and HKD381,856.65 respectively while the FFSD were 155.5 days and 199.5 days. The total cost of FOLFOX4 was HKD317,105.81 and HKD322,608.76 for FOLFOX4 with bevacizumab where HKD57.1 and HKD9.9 days respectively. The ICER is HKD150,226/QALY when comparing CAPOX with CAPOX with bevacizumab and HKD77,122/0.3 QALY for FOLFOX4 counterpart. PSA revealed that there are a 28% and 22% chance for bevacizumab to be cost effective when added to CAPOX and FOLFOX4 respectively at a willingness to pay £328,955, which is less than the ICER of Hong Kong in 2014.

CONCLUSIONS: The current study demonstrated that adding bevacizumab to FOLFOX4 was cost-effective but not to CAPOX. However, further studies are required in view of the different limitations encountered in the current study.

PCN122 PATIENT-BASED COST-EFFECTIVENESS ANALYSIS OF FOLFIRI VERSUS CAPOX FOR ADVANCED GASTRIC ADENOCARCINOMA IN CHINA: A FOUR-YEAR PROSPECTIVE RANDOMIZED PHASE II STUDY

OBJECTIVES: According to the four-year follow-up results of an open, randomized, phase II study, this patient-based cost-effectiveness analysis compares mFOLFIRI (irinotecan, 5-fluorouracil and leucovorin, IRI arm) with mFOLFOX7 (oxaplatin, 5-fluorouracil and leucovorin, OXA arm) as first-line treatments in patients with locally advanced gastric adenocarcinoma (GC). METHODS: A Markov model was created based on previous results reported on 2016 Gastrointestinal Cancers Symposia to evaluate mFOLFOX7 and mFOLFIRI for advanced GC. Quality-adjusted life-years (QALY) and incremental cost-effectiveness ratios (ICERs) were examined as the primary outcomes. RESULTS: For 128 evaluable patients, treatment efficacy was 0.59 QALYs per IRI arm and 0.70 QALYs per OXA arm, with a total cost of $13,861.34 per IRI arm and $14,127.30 per OXA arm. Hence, OXA arm gained 0.04 more QALYs compared with IRI arm with a total cost of $18,890.09 for IRI arm and $31,147.30 for OXA arm. However, the cost per QALY was also lower for OXA arm compared with IRI arm, leading to an ICER of $5,129.55 per QALY for OXA arm, which was also below the threshold. CONCLUSIONS: Both mFOLFIRI and mFOLFOX7 are affordable for the first-line treatments of advanced GC, but mFOLFOX7 is more cost-effective. Additionally, mFOLFOX7 followed by mFOLFIRI was an optimal sequence with more effectiveness and acceptable cost.

PCN123 COST-EFFECTIVENESS ANALYSIS OF AFATINIB VERSUS ELOTIrinIB AS FIRST LINE TREATMENT IN PATIENTS WITH LOCALLY ADVANCED OR METASTATIC EPIDERMAL GROWTH FACTOR RECEPTOR MUTATION-POSITIVE (EGFR+) NON-SMALL CELL LUNG CANCER (NSCLC) IN THE BRAZILIAN PRIVATE HEALTHCARE SYSTEM

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OBJECTIVES: To compare costs and effectiveness of afatinib versus pemetrexed plus cisplatin, as first line treatment in patients with locally advanced or metastatic NSCLC with epidermal growth factor receptor (EGFR) mutations (EGFR+ NSCLC). METHODS: This was a decision analytic model that was constructed based on previous literature and a Delphi’s expert panel. The model was fit using partitioned survival data from the LUX-Lung 1, 2 and 3 treatments, and utilities from the LUX-Lung 6 and LUCOEHR trials. Comparative effectiveness versus control was estimated using Bayesian indirect treatment comparison. Resource use was estimated by an expert panel consisting of Brazilian oncologists and parameterized using cost estimates from official Brazilian databases. Indirect costs were not considered in this evaluation. Costs and benefits were discounted at a 5% annual rate. RESULTS: Afatinib was associated with additional progression free survival (0.46 PFLY), longer survival (0.13 LY) and increased quality of life (0.20 QALYs) with lower total cost (~ BRL21,327; USD ~ BRL3,483) versus erlotinib, therefore, afatinib is dominant versus erlotinib. Sensitivity analyses indicated that the conclusion was robust across relevant scenarios. CONCLUSIONS: Findings suggest that afatinib is a cost-saving option versus erlotinib as first line treatment in EGFR+ NSCLC patients in the Brazilian private healthcare system.
Recently, the American Society of Clinical Oncology (ASCO) and the National Comprehensive Cancer Network (NCCN) have proposed alternative frameworks to evaluate the value of immunologic drugs. This analysis applies these frameworks vs traditional cost-effectiveness analysis to compare a new immunologic-IO therapy to chemotherapy in an ultra-rare tumor. METHODS: A survival partitional model was developed using the approach proposed by the Institute for Clinical and Economic Review (ICER). Under the ASCO framework, net health benefit (NHB) scores between the IO agent vs chemotherapy were compared using survival, toxicity, and bonus points. NCCN Evidence Blocks of efficacy (E), safety (S), and quality of life (QoL) were used to rate evidence affordability (A) were assessed based on benchmarking to IO therapies in other indications and other therapies in the same indication. RESULTS: Under ICER, incremental life-years were estimated to be 0.74, with a corresponding increase in QALYs of 0.59, with most gains associated with pre-progression improvement in life-expectancy. Under ASCO, the incremental NHB was estimated to be 189, comprising 157 clinical benefit points, 12 toxicity points, and 20 bonus points for improved survival at the lower curve. Efficacy contributed to 94% of the NHB. Under NCCN, the IO therapy scored (E=5, S=4, Q=3, C=2, A=4). Chemotherapy scored lower on all domains apart from affordability (E=1, S=2, Q=3, C=A, A=4). CONCLUSIONS: These frameworks differ in their measurement approach to patient outcomes, whereas ICER is payer focused. Overall, multiple or more holistic value assessments should be considered to capture the true value of an IO therapy in a rare disease space.

PCN128 CAN DOSE ALTERNATING OF SUNITINIB REGIMEN ENHANCE PATIENT’S OUTCOMES AS A FIRST LINE TREATMENT FOR METASTATIC RENAL CELL CANCER?

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OBJECTIVES: Using Sunitinib for treating metastatic renal cancer (mRCC) is often associated with toxicity necessitating dose reduction. Maintaining adequate dosing & drug levels are essential for optimizing clinical efficacy and these toxicity has negative impact on patient’s outcomes and resources which raise a question how Alternative dosing of Sunitinib regimen can enhance patient’s outcomes and resource utilization? The main objective for conducting this study is to evaluate the impact of changing Sunitinib regimen to 50 mg once daily, two weeks on and one week off against continuous pazopanib 800 mg once daily for enhancing patient’s outcomes and resource utilization for metastatic renal cell cancer over a time horizon of five years. Cost-effectiveness study was conducted for measuring and evaluating outcomes

METHODS: Markov chain model was applied with three health states. Quality of life data were incorporated into the model. Results presented in term of QALYs and ICER. One-dimensional sensitivity analyses were employed. RESULTS: During the five-year time horizon, the total cumulative cost for sunitinib 50 mg is $134,079 EGP (exchange with a 1.85 cumulative QALY gained. The total cost for pazopanib was $136,214 EGP with a 1.81 QALY gained. The difference is -2,135 EGP in cost and 0.04 in QALY. The calculated ICER is -55,448. Sensitivity analyses found the results to be most sensitive to utility values during treatment, the progression free survival data and the cost of both Sunitinib and pazopanib CONCLUSIONS: Introducing Sunitinib regimen to 50 mg once daily, two weeks on and one week off as a first line for treatment of metastatic renal cell cancer was likely to be cost saving. With significant positive impact on patient outcome including

PCN129 COST-EFFECTIVENESS ANALYSIS OF APATINIB COMPARED WITH BEST SUPPORTIVE CARE IN CHEMOTHERAPY-REFRACTORY ADVANCED OR METASTATIC GASTRIC CANCER IN CHINA

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OBJECTIVES: Gastric cancer is the second most common cancer and the second leading cause of cancer-related death in China. It is estimated that approximately half of the new cases are in China. Apatinib, a novel vascular endothelial growth factor receptor 2 tyrosine kinase inhibitor, shows survival benefits in treating chemotherapy-refractory advanced or metastatic gastric or gastroesophageal junction adenocarcinoma in the phase II trial. The objective of this study was to evaluate the cost-effectiveness of apatinib from a Chinese payer’s perspective. METHODS: A Markov model was developed to simulate disease progression and determine costs and outcomes over a 5-year time horizon. Incremental cost-effectiveness ratio (ICER) of apatinib to best supportive care (BSC) was calculated. Current apatinib patient assistance program (PAP) that offers donation after 3 cycles of treatment is available in China and therefore was taken into consideration in the present analysis. Data of BSC was collected from direct medical record. The model parameters and utilities were primarily published in the literature and model long-term outcomes over obtained from public sources. A 5% annual discount rate was applied to both costs and outcomes. RESULTS: Compared with BSC, the improvement following apatinib in PAP in life-years (LY), progression-free life-years (PFLY), and quality-adjusted life years (QALYs) were 0.933, 0.193 and 0.237 years, respectively. The incremental cost with apatinib was $4868, yielding the ICER of $20,540 per QALY gained, which was lower than the willingness-to-pay threshold of $24,000 per QALY gained. Sensitivity analysis performed on major drivers of costs concluded that drug-related utility and cost of apatinib. CONCLUSIONS: The present analysis suggests that apatinib therapy is cost-effective alternative for patients with advanced or meta- static gastric or gastroesophageal junction adenocarcinoma who failed at least two lines of prior chemotherapy in China.

PCN131 TRABECTEDIN-BASED VERSUS PLATINUM-BASED TREATMENT ON RELAPSED, PARTIALLY PLATINUM SENSITIVE OVARIAN CANCER: AN INDIRECT, ADJUSTED SURVIVAL COMPARISON

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OBJECTIVE: To demonstrate that, on relapsed ovarian cancer (ROC) patients with partially platinum sensitive (PPS) tumors, a non-platinum based treatment - trabectedin plus pegylated liposomal doxorubicin (T-PLD) - is, at least, as clinically efficacious and platinum-based strategy (C-PLD). METHODS: We performed a MAC decision analysis to adjust for differences in baseline characteristics between two phase-III randomized trials involving ROC, PPS patients: IFD was obtained from OVA-301 (T-PLD) whilst aggregated data from CALYPSO (C-PLD). A survival analysis followed, in order to analyze overall survival (OS) and progression free survival (PFS) data, ultimately leading towards an adjusted Cox-proportional hazards model to test the non-inferiority hypothesis of T-PLD versus a platinum based therapy. RESULTS: After performing the MAC methodology, T-PLD was found to be, at least, as efficacious when compared to C-PLD as treatment of choice following first progression: adjusted Cox proportional HR for overall survival was 0.90 (95% CI: 0.72-1.14) and for Progression Free Survival 1.18 (95% CI: 0.82-1.60). The adjusted median overall survival values were 25.6 and 23.4 years for T-PLD and C-PLD, respectively. In one particular key subset of patients - those treated with a further platinum-based line after T-PLD - benefit was even more pronounced: with an adjusted median survival of 29.6 months, T-PLD would provide a median extension of 6.2 months versus C-PLD, whilst the non-inferiority hypothesis was met (adjusted overall survival HR= 0.85, p < 0.05). CONCLUSIONS: Awaiting results from ongoing head to head trials (INOVATORE), this study supports a jump out to a trend towards a significant survival improvement with the FST stratum - when a non-platinum combo (T-PLD) is prescribed. The incremental survival - more than 6 months - is an encouraging data for future research, given the poor prognosis and clinical management difficulties observed in this population.

PCN132 HEALTH ECONOMIC EVALUATIONS OF TARGETED THERAPIES FOR METASTATIC RENAL CELL CARCINOMA – A SYSTEMATIC REVIEW

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OBJECTIVES: The availability of several targeted therapies (TTs) since 2005 has improved survival among metastatic renal cell carcinoma (mRCC) patients. However, their high cost imposes a significant burden on patients and healthcare systems. In order to provide an overview of cost-effectiveness studies of TTs, a systematic review of cost-effectiveness studies of TTs in the U.S and other countries. METHODS: We searched Medline/PubMed and CINAHL databases using search terms, MeSH and CINAHL. The analysis related to original research published in English from the 2005 to 2016. While screening abstracts, we excluded studies unrelated to economic analysis and studies not comparing TTs to a comparator. We reviewed full texts to exclude commentaries, reviews, resource utilization and cost of illness studies. Study quality was assessed using Quality of Health Economic Studies (QHES) instrument. RESULTS: Of 238 studies found during the initial search, we reviewed 15 that met pre-defined selection criteria. Eight studies assessed first-line therapies to answer research question 1 and 7 assessed second-line therapies to answer research question 2. Of these 15 studies, which compared first-line TTs to cytokine therapy, found TTs to be cost-effective (CE) over cytokine therapy. Three studies had high direct comparisons of first-line therapies, with apatinib being CE compared to bevacizumab in the U.S and Sweden while pazopanib dominated sunitinib in the U.S and Canada. Five studies compared TTs to best supportive care (BSC). Only sunitinib was CE compared to BSC. Among second-line direct comparisons, everolimus (in the U.S) and axitinib (in Canada) were CE compared with sorafenib. Of 32 studies, 12 were good quality studies (QHES-score > 75 of 100) with mean score of 81.8 (SD = 10.1). CONCLUSIONS: No drug was CE consistently across all studies. Evidence varied by country and accepted willingness to pay thresholds. Few direct comparisons of first- and second-line therapies are available to draw conclusions among targeted therapies.

PCN133 COST-UTILITY OF OBINUTUZUMAB IN PREVIOUSLY UNTRATED FOLLICULAR LYMPHOMA

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OBJECTIVES: Follicular lymphoma (FL) is the most common subtype of indolent non-Hodgkin lymphoma, typically treated with a rituximab-containing immunotherapy regimen. The randomized, phase 3 GALLIUM trial showed an increase in progression-free survival (PFS) for patients with previously untreated FL when receiving obinutuzumab plus chemotherapy (G-chemo) compared to rituximab plus chemotherapy (R-chemo). The objective of this study is to assess the cost-effectiveness of G-chemo versus R-chemo for previously untreated FL from a U.S payer perspective. METHODS: A three-state partition survival model was developed using a state transition model and PFS and overall survival data to model long-term outcomes over a 30-year time frame. CDC life tables were used to inform background mortality rates for patients with FL. Adverse event frequencies were obtained from trial data, and cost-utility was calculated using Adult Morbidity and Mortality Price (AIME) adverse event rates. Utility estimates for pre-progression and post-progression states were obtained from literature. RESULTS: Treatment with G-chemo resulted in an incremental gain of 0.84 life-years, or 0.68 quality-adjusted life-years (QALYs) compared to R-chemo. The incremental cost was $398,527 for the G-chemo treatment arm for R-chemo, resulting in an incremental cost of $15,171. Treatment with G-chemo was associated with higher treatment costs, which were offset somewhat by lower post-progression costs. Adverse event frequencies and costs were also higher for G-chemo. The incremental cost-effectiveness ratio (ICER) for G-chemo versus R-chemo
was $22,161 per QALY gained, which is cost-effective at a $50,000 per QALY threshold. The one-way sensitivity analysis showed that model results were most sensitive to PFS parameters for G-chemo and R-chemo, followed by drug costs and patient utilities. CONCLUSIONS: Treatment with G-chemo is likely cost-effective compared to R-chemo from a US payer perspective in the setting of previously untreated FL. The higher treatment costs of G-chemo are offset by gains in QALYs and delayed progression of disease.

**PCN134**

**COST-EFFECTIVENESS OF RITUXIMAB IN ADDITION TO STANDARD OF CARE CHEMOTHERAPY FOR ADULT PATIENTS WITH ACUTE Lymphoblastic leukemia**

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OBJECTIVES: Acute lymphoblastic leukemia (ALL) is an aggressive but potentially curable form of leukemia. Rituximab, an anti-CD20 monoclonal antibody, in addition to standard chemotherapy represents a novel therapeutic option for adults with the Philadelphia chromosome-negative, CD20-positive, B-cell precursor ALL subtype (CD20- Ph-BCP-ALL). The objective of this analysis is to determine the economic impact to the Canadian public provincial healthcare payer of rituximab in addition to standard of care (SOC) chemotherapy vs. SOC alone in survival model was developed that contained decision data such as: 1) patient survival, included the following health states over a 15-year time-horizon: event-free survival, relapsed/resistant disease, cure and death. SOC was with the two most widely used chemotherapy regimens in Canada: Hyper-CVAD or Dana Farber Cancer Institute (DFCI). Both regimens contained multiple treatment phases.

**Event-free survival, overall survival and serious adverse event (SAE) rates were taken from a recent major randomized controlled trial. Costs of the model included: first-, second- and third-line treatment and breast cancer palliative care, and SAE-related treatments. Model inputs were sourced from public data, literature and cancer agency input. RESULTS: Rituximab in addition to SOC resulted in higher event-free survival at 1.3 years, 1.6 greater quality-adjusted life-years (QALYs) and $51,679 incremental costs. The resulting mean ICER was $93,569/QALY. At a willingness-to-pay threshold of $100,000/QALY, the probability of being cost-effective was 96%. Decision outcomes were robust to the probabilistic and willingness-to-pay threshold of $100,000/QALY, the probability of being cost-effective was 96%. Decision outcomes were robust to the probabilistic and deterministic sensitivity analyses. CONCLUSIONS: For adults with CD20+ Ph- BCP-ALL, rituximab in addition to SOC was found to be a cost-effective intervention, compared to SOC alone from a Canadian public payer perspective.

**PCN135**

**AN ECONOMIC EVALUATION OF CABOZANTINIB VS. EVEROLIMUS IN THE SECOND-LINE TREATMENT OF ADVANCED RENAL CELL CARCINOMA**

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OBJECTIVES: The objective of this economic evaluation was to determine the cost-effectiveness of cabozantinib versus everolimus in the treatment of advanced renal cell carcinoma using a United States payer perspective. METHODS: A partitioned lifetime Markov model was developed. Disease states included metastatic renal cancer, metastatic renal cancer, metastatic renal cancer, metastatic renal cancer, and metastatic renal cancer. Model outcomes included total life-years, quality-adjusted life-years (QALYs), and costs. Sensitivity analyses were performed to evaluate the impact of parameter uncertainty on model results. RESULTS: Individuals treated with cabozantinib gained on average an additional 0.44 LYs compared to those treated with everolimus. In addition, cabozantinib associated was a greater cost of $49,811 compared to treatment with everolimus. This resulted in incremental cost-effectiveness ratios of $112,318/LY and $154,194/QALY. Model results were most sensitive to cabozantinib cost, everolimus cost, utility for the stable (progression-free) state, utility for the progressed state, and cost associated with the progressed state.

**CONCLUSIONS:** These results suggest that cabozantinib may not represent a cost-effective option in the second-line treatment of advanced renal cell carcinoma compared to the standard-of-care option everolimus based on common willingness-to-pay thresholds.

**PCN136**

**MOLECULAR PROFILE SELECTION IN ADVANCED HEAD AND NECK CANCER: A COST-EFFECTIVENESS ANALYSIS**

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OBJECTIVES: Relapsed/metastatic head and neck squamous cell cancer patients are offered a combination of platinum-based chemotherapy (PF, cisplatin-based) and anti-EGFR monoclonal antibodies (cetuximab) and/or anti-VEGF antibodies (bevacizumab). The problem is to identify and stratify patients who may best profit from such agents in terms of response to cetuximab when added to PF. METHODS: A Markov model was developed to compare both health and economic outcomes of PF+c regimen administered to all patients (PF+c ALL) versus the regimen administered only to MT-positive patients (PF+c POS). The model considered partial/complete response with or without mild/severe adverse events (AEs), progression and death. Rates of progression and survival, response rates to systemic treatment and adverse events were derived from the Extreme trial. Baseline utility coefficients for disease control and progression were retrieved from the literature (0.67 and 0.52, respectively). Only direct costs estimated from the Italian Health Service perspective and ISPOR recommendations were included. The model was evaluated according to a cut-off of MT sensitivity at 85% and specificity at 70%. A 3 years horizon was chosen. Life expectancy, QALYs and costs were discounted at 3.5% annually. RESULTS: Applying the WHO cost-effectiveness threshold of 3 times the gross domestic product for Italy ($66,407/€59,432), PF+C COSTS resulted a cost-effective choice in comparison to PF+C ALL for a MT cost lower than $7,570. CONCLUSIONS: Adding cetuximab to PF only to patients positive to a predictive test may be cost-effective. Efforts should be spent to build such a test on existing evidences in order to save resources for the health systems and spare unnecessary toxicities to patients.

**PCN137**

**A REVIEW OF GLOBAL COST-EFFECTIVENESS STUDIES IN RENAL CELL CARCINOMA FOR Axitinib**

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OBJECTIVES: Renal cell carcinoma (RCC) is a kidney cancer with an estimated worldwide incidence of 338,000. Five year survival for patients diagnosed with late-stage RCC is estimated to be < 10%. This study reviewed the literature to find studies estimating the cost-effectiveness of axitinib globally. METHODS: A search of the literature was conducted using PubMed, the Tufts CEa Registry, and the ASCO and ISPOR abstract databases. The search string in PubMed was: “Renal Cell Carcinoma[title] AND Cost-Effectiveness[title]”. The Tufts CEa Registry was searched for “Axitinib”. Both abstract databases were queried using: “Renal Cell Carcinoma[title] AND Cost-Effectiveness[title]”. Studies returned in the searches were then reviewed by two independent reviewers. Included studies evaluated the indication, setting, sponsor, perspective, model type, discount rate, comparators, and results were extracted. RESULTS: A total of 6 cost-effectiveness studies were included. Two studies focused on the United States, while the other four examined the cost-effectiveness in Colombia, Czech Republic, the United Kingdom, and Cyprus. Five of the six studies were funded by the pharmaceutical industry (Novartis, Pfizer, and Bayer), and one was an academic study. All studies examined axitinib as a second-line therapy. Axitinib was not cost-effective in three studies and sorafenib in three studies. When compared to everolimus, axitinib was dominant in one study (Czech Republic) and dominated in the other two studies (Colombia and UK). When compared to sorafenib, axitinib had higher costs and higher health outcomes in all of the 63 studies. ICERs ranged from $4,736 to $683,209 USD per life-year (U.S.). CONCLUSIONS: Axitinib had higher incremental health outcomes in four of six studies. The cost-effectiveness of axitinib is dependent on the study setting, perspective, and comparator.

**PCN138**

**PHARMACOECONOMICAL EVALUATION OF NILOTINIB VERSUS IMATINIB IN THE FIRST-LINE TREATMENT OF CHRONIC MYELOID LEUKEMIA: A SYSTEMATIC REVIEW**

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OBJECTIVES: To give an overview of available evidence on cost-effectiveness of nilotinib versus imatinib for the first-line treatment of chronic myeloid leukemia (CML) as well as the quality of these studies. METHODS: All studies were searched in 3 electronic databases (Pubmed, ScienceDirect and Cochrane) with key words through the MeSH tool. After searching, screening identified studies with inclusion and exclusion criteria, data extraction and summary of results into pre-specified information table were undertaken. The studies were included if they were an original economic evaluation of NL versus IM in the first-line treatment of CML, written in English and conducted in the newly diagnosed patients. Abstracts of citations found that met the specified inclusion criteria were also reviewed. To compare and overview the results of studies, all currency values were transferred into 2015 based on Consumer Price Index. The report’s quality of the studies was evaluated by 3 blinded reviewers based on the Quality of Health Economic Studies (QHES) tool with 16 questions. RESULTS: From a total 159 detected papers, 10 studies were finally selected. Data and 3 studies were selected to evaluate the quality. Cost-effectiveness analysis, Markov model and sensitivity analysis were mostly used methods in these studies. Most researches used direct costs and used QALY as outcome. The converted ICUR/QALY of studies reached $886,436/QALY. Based on WTP threshold, 8/10 studies concluded that NL was cost-effective compared with IM in the first-line of CML. Using QHES it has been shown the high quality of these studies with the mean score of 97 (1.73) on a scale of 100. CONCLUSIONS: Most studies suggested that NL was cost-effective compared with IM in the first-line treatment of CML patients and the report’s quality of studies was very high.

**PCN139**

**A RETROSPECTIVE ANALYSIS OF GENOMIC RISK STRATIFICATION ASSAYS FOR COLON CANCER**

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OBJECTIVES: Multi-gene assays and microarray technologies are being used increasingly for risk stratification of stage II colon cancer patients to predict disease relapse and guide adjuvant therapy decisions. Our objective was to
evaluate the outcomes and cost-effectiveness of using ColoPrint (Agenda Inc., Irvine, CA) as compared with Oncotype DX Colon Cancer Assay (Genomic Health Inc., Redwood City, CA) for the treatment of stage II colon cancer.

METHODS: As part of a larger study to develop a Markov model, we conducted a review of the literature from January 2005 to December 2016 to assess data on risk classification score (RS) and microsatellite (MSI) status, the two most reliable methods for the prediction of MSI status of stage II colon cancer patients. For 5,307 patients using Oncotype DX, we found that the percentage of patients with stage II colon cancer was 75%. The RS allows for the prediction of MSI status with a high degree of accuracy. Patients who have a low RS (0-4) are at low risk of MSI, while patients with a high RS (8-12) are at high risk of MSI. Combination of RS with other methods can improve the prediction of MSI status.

CONCLUSION: Risk classification scores and microsatellite instability status are the most reliable methods for the prediction of MSI status of stage II colon cancer patients.

RESULTS: A retrospective data analysis of 6,064 patients for both multi-gene assays in stage II or III colon cancer was conducted. We found that the frequency of occurrence of MSI would be 3% (Sanderson-2004), and 1/3 of patients with MSI are associated with thiopurine treatment. For the economic analysis we considered that the median duration of myelosuppression is 10 days (480 hours).

A COST MINIMIZATION ANALYSIS OF ORAL VINORELBINE VERSUS IV COMBINATION THERAPY FOR STAGE II NON-SMALL CELL LUNG CANCER (NSCLC) IN CHINA

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OBJECTIVES: To provide a cost-minimization analysis of oral vinorelbine compared with intravenous (IV) combination therapy for stage II non-small cell lung cancer (NSCLC) in China.

METHODS: A prospective, parallel, open-label, randomized controlled trial comparing the perioperative, functional, and oncological outcomes of patients receiving RARP or ORP at early 12-month follow-up. The study population comprised 34% of patients with stage II colon cancer. One-way sensitivity analysis was conducted and the findings were compared with the base case. Results from the probabilistic sensitivity analysis were conducted and the findings were supported by the one-way probabilistic sensitivity analysis. These results suggest that gefitinib and EGFR mutation testing was totally cost-effective compared with standard chemotherapy in Vietnam. These results were supported by the one-way probabilistic sensitivity analysis. CONCLUSIONS: Based on the analysis, the combination of gefitinib and EGFR mutation testing was considered a cost-effective first-line therapy compared with standard chemotherapy such as paclitaxel plus carboplatin for NSCLC in Vietnam.
provide 1.59 QALYs and 2.25 LGY vs. 0.76 QALYs and 1.04 LGY by docetaxel. A higher proportion of patients in the nivolumab cohort were estimated to be alive at year 10 (89%) vs. with docetaxel (78%); 48% at 1 year, 24% at 2 years, and 12% year 2 on nivolumab vs. 41% and 13% on docetaxel, respectively. Total cost of the nivolumab cohort was estimated at AED 399,792 vs. AED 134,403 for docetaxel; which translated to ICER at AED 265,359/QALY. Assuming a willingness-to-pay threshold of AED 445,231/QALY (fGDP per capita), gains would be considered cost-effective against docetaxel. The results were robust to all parameters tested in sensitivity analysis with the discount rate of 3%.

PCN146 PRODUC TIVITY LOSS AMONG PATIENTS WITH NEWLY DIAGNOSED MULTIPLE MYELOMA IN THE UNITED STATES

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OBJECTIVES: To evaluate workplace productivity loss among U.S. adult patients in December 2014. Patients and characteristics as well as related quality of life (QoL) and associated costs.

RESULTS: 698 patients (mean age=52.8 years) with MM were included in the analysis. The median number of disability days was 8.4 (IQR = 2.0 to 17.4) days per patient. Nearly 95% of patients had at least one day of workplace absenteeism (WAB) in the 6 months after initial diagnosis. Work productivity loss was estimated to be 21.9% for MM patients in the 6 months after initial diagnosis.

CONCLUSIONS: Work productivity loss in patients with multiple myeloma is associated with significant productivity loss, as measured by use of disability benefits. Nearly half of all patients diagnosed with MM experience productivity loss. Both SRT and drug treatment are associated with productivity loss. Further work will assess the economic impact of this productivity loss.

PCN147 ECONOMIC BURDEN AND SURVIVAL ANALYSIS OF RELAPSE FOLLOWING HLA-IDENTICAL ALLOGENIC HEMATOPOIETIC STEM CELL TRANSPLANTATION FOR THE MANAGEMENT OF ACUTE LEUKEMIA AND MYELODYSPlastic SYNDROME

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OBJECTIVES: Relapse following allogeneic hematopoietic stem cell transplant (ASCT) is usually associated with poor outcomes. The impact of treatment choice on costs and survival remains unknown. The objective of this study was to measure the economic burden associated with the management of relapse following ASCT and the impact of treatment on survival and healthcare costs.

METHODS: A retrospective medical chart review was conducted in a HLA-matched, allogeneic hematopoietic stem cell transplantation (HSCT) center in Canada. A total of 152 patients were diagnosed with acute leukemia (AL) or myelodysplastic syndrome (MDS) and relapsed following a hematopoietic stem cell transplantation. Patient and event data were collected from 1998 to 2012. Costs were assessed.

RESULTS: Differences in rates of hospitalization and other events translated into statistically significant differences between groups. The PP group had a significantly higher proportion of patients with diabetes (13.6% vs. 2.6%; p=0.0073), hypertension (35.6% vs. 17%; p=0.0001), and prior breast surgery. Nearly 95% of patients had at least one day of workplace absenteeism (WAB) in the 6 months after initial diagnosis. Work productivity loss was estimated to be 21.9% for MM patients in the 6 months after initial diagnosis.

CONCLUSIONS: Work productivity loss in patients with multiple myeloma is associated with significant productivity loss, as measured by use of disability benefits. Nearly half of all patients diagnosed with MM experience productivity loss. Both SRT and drug treatment are associated with productivity loss. Further work will assess the economic impact of this productivity loss.
high, patients often relapse repeatedly. There are no guidelines for the treatment of relapsed/refractory iNHL and the economic impact in Canada is unknown. The objective of this study was to understand to what extent certain, high-value resource utilization and cost for the management relapsed/refractory iNHL in Canada. METHOD: CLINICAL UTILITY, COVERAGE, AND REIMBURSEMENT FOR NEXT-GENERATION PCN152

utilization and resulting in meaningful cost savings for private payors. The model assumes 1,650 diagnoses per year and were based on literature review and U.S. clinical practice; cost inputs were based (59%); druggable targets (17/62), diagnostic/prognostic (26/62); other clinically-

CONCLUSIONS: This study demonstrates that the management of relapsed/refractory iNHL becomes increasingly challenging throughout the course of the disease and generates considerable costs. Patients become less responsive to therapies over time and there is no consistent standard of care for relapsed/refractory iNHL patients.

PCN151 RESOURCE USE FOLLOWING GENE EXPRESSION PROFILE TESTING IN UVEAL MELANOMA PATIENTS: A U.S. PRIVATE PAYOR MODEL Middlebrook B, Cook RW, Manning N, Schafer G, Monzon F, Maetzold D Castle Biosciences, Inc. United States, TX, USA

OBJECTIVES: To identify patients with metastatic disease, target patients for treatment, and reimbursable by insurers. Evidence-based reimbursement policies are needed to promote the adoption of NGS technologies that benefit patients into clinical practice.

CONCLUSIONS: The study demonstrates that the management of relapsed/refractory iNHL becomes increasingly challenging throughout the course of the disease and generates considerable costs. Patients become less responsive to therapies over time and there is no consistent standard of care for relapsed/refractory iNHL patients.

PCN154 KNOWLEDGE OF WOMEN ON HUMAN PAPILLOMA VIRUS Vajda B1, Rasztik R1, Pakai A2, Győr M1, Csákvári T2, Danku N1, Horváth Kivész Z1, Endrei D1, Boncz I1

1University of Pécs, NGS, Hungary, 2University of Pécs, Zalaegerszeg, Hungary

OBJECTIVES: The main objective of our study was to assess the knowledge of women in Pécs and its region and also to learn their attitudes about the vaccine. METHODS: A quantitative, cross-sectional survey was carried out in 2016 by using non-random sample selection method in Sötét river region. 180 questionnaires were distributed, of which 161 were proved to be evaluable. The questionnaire included the following groups of questions: socio-demographic profile, knowledge on human papilloma virus and willingness to vaccination. Data were processed by SPSS 22.0 program, using descriptive statistics, t-test and logistic regression. RESULTS: 81.9% of the women knew the meaning of the acronym, HPV. Significantly more women with higher education (p=2.496; p<0.001), with knowledge of the acronym, HPV (p=2.167; p<0.001) knew the promoting factors of the infection. Women giving birth later in life were likely to give a wrong answer on diseases caused by HPV (x2=35.111; p<0.001). 81.9% of the respondents had some knowledge on HPV vaccination and 4.2% of them received vaccination.30.7% of them may have vaccination later, especially those who consider their states of health good (x2=10.629; p<0.001) or those who attend cervical screening regularly (x2=15.147; p<0.01) in a higher rate. CONCLUSIONS: To enhance knowledge is the best way to express the importance of vaccination. Acquired knowledge may determine the participation in screening and willingness to vaccination.

PCN155 GASTROINTESTINAL SYMPTOMS AND NUTRITIONAL CHALLENGES OF PATIENTS (PTS) AFTER TREATMENT FOR GASTRIC OR GASTROESOPHAGEAL JUNCTION (GEJ) CANCERS Barghout V1, Hutchinson J1, Bogush M1, DuPree B2, Lacy B2

1Northwell Health, Manhasset, NY, USA, 2Northwell Health, Manhasset, NY, USA

OBJECTIVES: Patients with gastric or GEJ cancers frequently experience gastrointestinal symptoms and face nutritional challenges, particularly during and immediately after treatment. We sought to identify these symptoms and challenges, and obtain insight about how patients consequently adapted their eating. METHODS: Patients

CANCER – Patient-Reported Outcomes & Patient Preference Studies PCN153 THE EFFECT OF DEPRESSION ON ADHERENCE TO HORMONE THERAPY IN BREAST CANCER PATIENTS Novon X University of South Carolina, Columbia, SC, USA

OBJECTIVES: Breast cancer patients with depression before or after their diagnosis have been shown to have increased cost, shorter survival time and reduced adherence to hormone therapy. Currently, no study has determined the association of concurrent depression while adjusting for a history of depression with adherence to hormone therapy. The objective of this study is to describe a history of concurrent depression with adherence to hormone therapy adjusting for a history of depression. METHODS: Breast cancer patients with hormone receptor positive cancers diagnosed from 2006 to 2009 were identified in the linked SEER-Medicare dataset. Patients must have started hormone therapy within a year of cancer diagnosis to be included and have at least 1 year and up to 4 years of follow up. Results: 168 had an ICD-9 code with depression within a year of cancer diagnosis were classified as currently depressed. Adherence was measured using percent days covered (PDC) and was calculated for each quarter during follow up. A generalized linear model with repeated measures was used to determine the associations of concurrent current depression with adherence to hormone therapy. RESULTS: 10,471 hormone receptor positive breast cancer patients who took hormone therapy were identified. Of these, 10% were currently depressed. Those with depression consistently had lower PDC values for each quarter during follow up. Current depression was associated with a 19% reduction (p<0.01) in the odds of adhering to hormone therapy after adjusting for a prior history of depression in addition to other confounders. A prior history of depression was also associated with a 35% (p<0.01) reduction in adherence to hormone therapy after adjustment. CONCLUSIONS: Concurrent depression is associated with significantly reduced adherence to hormone therapy in breast cancer patients.
with gastric or GEJ cancer were systematically interviewed about their medical history (diagnosis, treatment[s], medications, comorbidities, deficiencies, and receipt of dietary and medication recommendations); symptoms; elimination patterns; impact of cancer; foods and beverages, including aversions, triggers, and avoidance; and daily food and beverage intake.

**RESULTS:** Patients (4 men, 5 women; 34-70 years old) had diagnosis of gastric or GEJ cancer, with median number of treatments (partial esophagectomy/partial/total gastrectomy: chemotherapy/radiation). Some but not all patients received meaningful dietary advice during or immediately after treatment. No patient tolerated commonly recommended nutritional interventions. Most the patients experienced dumping syndrome/diarrhea, particularly after consuming liquids with solids, and most had >1 (mainly vitamin B12) deficiency. Patients occasionally experienced constipation. In general, patients used a trial and error approach to identify optimal feeding parameters (e.g., timing, volume, and palatable, non-symptom-evoking foods and beverages). All patients ate frequent, small meals that included a protein; drank frequent, small volumes of liquid; did not consume solids and liquids; introduced new foods and beverages slowly and remained vigilant for symptoms. Patients occasionally experienced constipation. Patients occasionally experienced constipation. Patients occasionally experienced constipation.

**OBJECTIVES:** We previously untreated non-small cell lung cancer (NSCLC) patients.**

**METHODS:** This study examined the EQ-SD-3L data collected from patients enrolled in the KEYNOTE-024 trial, a multicenter, worldwide, randomized Phase III trial comparing pembrolizumab to standard-of-care platinum-based chemotherapy (SoC) in patients with previously untreated metastatic NSCLC with PD-L1 positive Tumor Proportion Score (TPS) $\geq$ 50% tumors. Two approaches of defining health states are considered in analysing utility: time-to-death reflecting decline in cancer patients, and life expectancy approach, death, and progression-based health states. Generic health statuses assessed from the EQ-SD-3L questionnaire were converted to population-based utility values using published algorithms. The utility scores from the pooled treatment groups are reported. **RESULTS:** Data came from 568 patients who had at least one common health state (CS). The Health State Utility Value Index (HSUV) was converted from EQ-5D-3L scores. Patients were considered to be in a particular health state if they had a proportion score for patients in progression-free and progressive disease state is 0.78 (95% CI 0.77, 0.79) and 0.69 (95% CI 0.66, 0.72), respectively. Mean utility showed a decrease on disease progression of 0.09, which is considered as clinically meaningful. Patients’ survival was split into four groups based on their time to death after the EQ-SD questionnaire was taken - over 360 days, 180-360 days, 30-180 days, and under 30 days. Mean utility in each time-to-death category is 0.85 (95% CI 0.77, 0.94), 0.73 (95% CI 0.68, 0.77), 0.63 (95% CI 0.59, 0.67), and 0.54 (95% CI 0.43, 0.65). The results showed a large decrease in utility by time to death category. **CONCLUSIONS:** The results showed that quality of life for metastatic NSCLC patients rapidly deteriorates during the end of life period. Considerable and key clinical outcomes.

**NCI158 HEALTH UTILITY VALUES FOR HER2+ METASTATIC BREAST CANCER**

**OBJECTIVES:** Health state utility values (HSUV) are commonly used to derive quality-adjusted life years (QALYs) in economic evaluations. The objective of this study was to estimate health utilities for HER2+ metastatic breast cancer patients who have failed on least two regimens of HER2 directed therapies. **METHODS:** We previously untreated non-small cell lung cancer (NSCLC) patients.**

**METHODS:** This study examined the EQ-SD-3L data collected from patients enrolled in the KEYNOTE-024 trial, a multicenter, worldwide, randomized Phase III trial comparing pembrolizumab to standard-of-care platinum-based chemotherapy (SoC) in patients with previously untreated metastatic NSCLC with PD-L1 positive Tumor Proportion Score (TPS) $\geq$ 50% tumors. Two approaches of defining health states are considered in analysing utility: time-to-death reflecting decline in cancer patients, and life expectancy approach, death, and progression-based health states. Generic health statuses assessed from the EQ-SD-3L questionnaire were converted to population-based utility values using published algorithms. The utility scores from the pooled treatment groups are reported. **RESULTS:** Data came from 568 patients who had at least one common health state (CS). The Health State Utility Value Index (HSUV) was converted from EQ-5D-3L scores. Patients were considered to be in a particular health state if they had a proportion score for patients in progression-free and progressive disease state is 0.78 (95% CI 0.77, 0.79) and 0.69 (95% CI 0.66, 0.72), respectively. Mean utility showed a decrease on disease progression of 0.09, which is considered as clinically meaningful. Patients’ survival was split into four groups based on their time to death after the EQ-SD questionnaire was taken - over 360 days, 180-360 days, 30-180 days, and under 30 days. Mean utility in each time-to-death category is 0.85 (95% CI 0.77, 0.94), 0.73 (95% CI 0.68, 0.77), 0.63 (95% CI 0.59, 0.67), and 0.54 (95% CI 0.43, 0.65). The results showed a large decrease in utility by time to death category. **CONCLUSIONS:** The results showed that quality of life for metastatic NSCLC patients rapidly deteriorates during the end of life period. Considerable and key clinical outcomes.

**NCI159 A TRIAL-BASED EUROQOL EQ-5D HEALTH UTILITY ANALYSIS IN PATIENTS WITH PREVIOUSLY UNTREATED METASTATIC NSCLC**

**OBJECTIVES:** This study examined health-related quality of life utility in previously untreated non-small cell lung cancer (NSCLC) patients.**

**METHODS:** This study examined health-related quality of life utility in previously untreated non-small cell lung cancer (NSCLC) patients.**

**METHODS:** This study examined health-related quality of life utility in previously untreated non-small cell lung cancer (NSCLC) patients.**

**OBJECTIVES:** Health state utility values (HSUV) have been commonly used in economic evaluation. The objective of this study was to estimate health utilities for HER2+ metastatic breast cancer patients who have failed on least two regimens of HER2 directed therapies. **METHODS:** We previously untreated non-small cell lung cancer (NSCLC) patients.**

**METHODS:** This study examined the EQ-SD-3L data collected from patients enrolled in the KEYNOTE-024 trial, a multicenter, worldwide, randomized Phase III trial comparing pembrolizumab to standard-of-care platinum-based chemotherapy (SoC) in patients with previously untreated metastatic NSCLC with PD-L1 positive Tumor Proportion Score (TPS) $\geq$ 50% tumors. Two approaches of defining health states are considered in analysing utility: time-to-death reflecting decline in cancer patients, and life expectancy approach, death, and progression-based health states. Generic health statuses assessed from the EQ-SD-3L questionnaire were converted to population-based utility values using published algorithms. The utility scores from the pooled treatment groups are reported. **RESULTS:** Data came from 568 patients who had at least one common health state (CS). The Health State Utility Value Index (HSUV) was converted from EQ-5D-3L scores. Patients were considered to be in a particular health state if they had a proportion score for patients in progression-free and progressive disease state is 0.78 (95% CI 0.77, 0.79) and 0.69 (95% CI 0.66, 0.72), respectively. Mean utility showed a decrease on disease progression of 0.09, which is considered as clinically meaningful. Patients’ survival was split into four groups based on their time to death after the EQ-SD questionnaire was taken - over 360 days, 180-360 days, 30-180 days, and under 30 days. Mean utility in each time-to-death category is 0.85 (95% CI 0.77, 0.94), 0.73 (95% CI 0.68, 0.77), 0.63 (95% CI 0.59, 0.67), and 0.54 (95% CI 0.43, 0.65). The results showed a large decrease in utility by time to death category. **CONCLUSIONS:** The results showed that quality of life for metastatic NSCLC patients rapidly deteriorates during the end of life period. Considerable and key clinical outcomes.

**NCI160 HEALTH UTILITY IN MYELOFIBROSIS PATIENTS AND COMPARISON BETWEEN HEALTH UTILITY VALUES MEASURED BY TIME-TRAVELED OBSERVATIONAL ANALOGUE SCALE**

**OBJECTIVES:** To elicit utility for health states of myelofibrosis patients and calculate mean differences and correlation between health outcomes measured by time trade off (TTO) method and visual analogue scale (VAS). The effects of socio-demographic characteristics on TTO ratings were also explored. **METHODS:** Four health states of myelofibrosis were created: early disease state without treatment (ES), late disease state without treatment (LS), late disease state without treatment (HS), and off BAT (HS4). Detailed health state descriptions were developed based on literature searches for myelofibrosis and the
health states were assessed using TTO and VAS. Based on a stratification sampling method, participants were selected to represent the population of South Korea. Paired t-tests and correlation were used to compare the results. A generalized linear model was used to find the demographic factors influencing TTO values. **RESULTS:** A total of 126 participants, with an average age of 46.7 (± 10.7) years, were women and 46% were single. **CONCLUSIONS:** Values for TTO were: 0.90 (± 0.08) for HS1, 0.22 (± 0.24) for HS2, 0.41 (± 0.26) for HS3, and 0.36 (± 0.26) for HS4. Significant mean value differences between TTO and VAS were found in HS2, HS3, and HS4, of which 0.107 and 0.125 (p < 0.000), respectively. Correlations between TTO and VAS were found in HS1, HS3 and HS4, of r = 0.244 (p = 0.01), r = 0.263 (p = 0.01) and r = 0.189 (p < 0.05), respectively. Small variances in TTO were explained by VAS in HS1 (6%), HS2 (%) and HS4 (4%). Conscientiousness and Agreeableness may significantly affect TTO utility values. This study found that there were differences in myelofibrosis patient’s utility values according to four different health states. Values measured by TTO and VAS were significantly different in HS2 through HS4, and weak correlations were found in HS1, HS3 and HS4. The findings could serve as a valuable resource for future research when comparing the impacts of previous and/or new treatments.

**PCN163**

**DEVELOPING ATTRIBUTES AND ATTRIBUTE-LEVELS FOR A DISCRETE CHOICE EXPERIMENT TO STUDY Lung Cancer PATIENT’S PREFERENCES FOR DRUG THERAPIES**

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**OBJECTIVES:** Stated preferences experiments validity depends largely on the progression of criteria in attribute levels. Hence, patient and physician engagement is critical to assure that the information being valued on the experiment is both important to patients and decision-relevant. This study reports on the systematic approach to validate the definition and attribute levels for attributes for a discrete choice experiment created to elicit lung cancer patient’s preferences for drug therapies. **METHODS:** A literature review was conducted aiming to identify conceptual attributes and attribute levels. The finding of this review helped to define the qualitative component. The qualitative component included 3 focus groups, on which 8 patients and 3 oncologists were engaged on discussions aiming to identify context specific attributes. All interviews were recorded, transcribed and analyzed by the research team. The resulting draft-proposal of attributes and attribute-levels was thoroughly discussed and further developed by a group of experts. **RESULTS:** The first round of feedback derived 10 attributes. A majority (76%) of all respondents agreed with: “The literature, the results from the qualitative component and experts opinions. After a round of discussion with experts on the field three attributes were discarded. The final proposal consists in seven attributes that were defined as follows: Fatigue/tiredness, diarrhea, skin rash, risk of hospitalization, mode of administration (route of drugs administration), access and overall survival. **CONCLUSIONS:** The results reported in this manuscript will add to the body of knowledge on the application of qualitative methods to derive attributes and attribute levels for a stated preferences experiment.

**PCN164**

**EXPLORING CANCER SURVIVOR PERSPECTIVES ON THE VALUE OF LIFE AND POST-DIAGNOSIS**

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**OBJECTIVES:** The objectives of this study were to explore cancer survivors’ perspectives on the value of life and time and to synthesize the existing data to guide future research through a pilot survey. **METHODS:** A convenience sample of survivors was reached with an online survey instrument via sharing a link on two US cancer survivor Facebook groups. A dataset was downloaded for analysis after survey closure. **RESULTS:** Complete responses were analyzed. Year of cancer diagnosis were 1975 to 2015. Tumor types included breast cancer (25%), leukemia (15%), Hodgkin lymphoma (13%) and many others. The majority of respondents had completed active treatment (81%). A majority (76%) rated post-diagnosis years as having more value than years prior to diagnosis. (23% assigned same value, 2% less value). When asked about the value of time pre- and post-diagnosis, 81% of all respondents agreed with: “The value of time and health related quality of life in 2017 is more important than the quality of time and quality of life in 2015”. 49.2% of respondents were women, were interviewed. The mean utility of the EORTC-8D and QLU-C10D are highly correlated (0.947), yet the QLU-C10D values are significantly higher than the QLU-C10D values. A total of 132 participants, with an average age of 55.3 years (range: 20-85), were women. The majority of respondents had completed active treatment (92%). A majority (75%) rated post-diagnosis years as having more value than years prior to diagnosis. 48.8% of respondents were women, were interviewed. The mean utility of the EORTC-8D and QLU-C10D are highly correlated (0.947), yet the QLU-C10D values are significantly higher than the QLU-C10D values. A total of 126 participants, with an average age of 46.7 (± 10.7) years, were women and 46% were single. **CONCLUSIONS:** Values measured by TTO and VAS were significantly different in HS2 through HS4, and weak correlations were found in HS1, HS3 and HS4. The findings could serve as a valuable resource for future research when comparing the impacts of previous and/or new treatments.
QU-L10D QALYS (0.911 vs 0.821, p < 0.001). Differences in QALY estimates appear to be sensitive to the site of the cancer. CONCLUSIONS: It is well known that genetic preference for treatment often produce different conclusions, this analysis confirms that disease-specific measures also suffer from the same variability, even when drawn from the same quality-of-life instrument. Further research is required to understand the reasons for the variability, particular recommendations for reimbursement change in light of using one instrument over another.

PCN166 SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK (SCCHN) PATIENT REPORTED SATISFACTION WITH CANCER THERAPY
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OBJECTIVES: To understand patients' preferences and satisfaction with cancer therapy. METHODS: An online questionnaire was designed and used to assess patient preferences and satisfaction when comparing preferences among 5 possible surgical intervention options. The questionnaire which evaluated 2 domains (characteristics interfering with daily activities and factors inuing treatment preference). These instruments also measured also suffer from the same variability, even when drawn from the same quality-of-life instrument. Further research is required to understand the reasons for the variability, particular recommendations for reimbursement change in light of using one instrument over another.

CONCLUSIONS: The preferences validated that survival is a key difference, 14% – 73% out of pocket (OOP) costs, 8% (p > 0.5); nipple preservation and sensitivity, 7% (p > 0.5); and breast look relative to before surgery, 61% (p > 4); radiation load, 5.2% (p > 4.8) and annual following imaging requirements, 2.2% (p > 1.8). Simulation results where common surgical approaches (radical mastectomy vs. lumpectomy) were used to calculate the maximum acceptable risk (MAR) of each AE that patients were willing to accept for a 10% increase in 3-year survival. RESULTS: Results from a chi-square test identified that statistically significant differences in the preferences of patients with metastatic breast cancer. Thus, a single preference model was used with both groups for the analysis. For an increase from 24% to 34% in the chance of 3-year survival with treatment, the MARS (95% confidence interval – CI) was as follows: severe skin rash, 77.3% (62.0%–92.6%); any GI bleeding, 49.4% (39.5%–59.4%); and any other bleeding problems, 40.9% (27.8%–54.0%). CONCLUSIONS: Patients were willing to accept a higher risk of developing a severe skin rash than suffering from any GI bleeding or any other bleeding problems for a given increase in survival benefit. This research shows substantial differences in patient preferences for treatment-specific AEs, making patient preference an important factor in the choice of mBCRT treatment.

PCN170 PATIENT PREFERENCE AND SATISFACTION WITH ORAL ONCOLYTICS: A REVIEW OF AVAILABLE INSTRUMENTS AND THEIR PSYCHOMETRIC PERFORMANCE
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OBJECTIVES: To evaluate patient satisfaction and preferences on oral oncolytic therapy. The Eligibility criteria of the studies were the patients post-menopausal at high risk of breast cancer. Only articles published in English from peer reviewed journals were included in this review. Two reviewers independently performed a random sample of titles and abstracts. A moderate agreement (Cohen’s k = 0.65) was obtained. The elements of PICOS were reviewed when comparing preferences among 5 possible surgical intervention options. The questionnaire which evaluated 2 domains (characteristics interfering with daily activities and factors inuing treatment preference). These instruments also measured also suffer from the same variability, even when drawn from the same quality-of-life instrument. Further research is required to understand the reasons for the variability, particular recommendations for reimbursement change in light of using one instrument over another.

CONCLUSIONS: The preferences validated that survival is a key difference, 14% – 73% out of pocket (OOP) costs, 8% (p > 0.5); nipple preservation and sensitivity, 7% (p > 0.5); and breast look relative to before surgery, 61% (p > 4); radiation load, 5.2% (p > 4.8) and annual following imaging requirements, 2.2% (p > 1.8). Simulation results where common surgical approaches (radical mastectomy vs. lumpectomy) were used to calculate the maximum acceptable risk (MAR) of each AE that patients were willing to accept for a 10% increase in 3-year survival. RESULTS: Results from a chi-square test identified that statistically significant differences in the preferences of patients with metastatic breast cancer. Thus, a single preference model was used with both groups for the analysis. For an increase from 24% to 34% in the chance of 3-year survival with treatment, the MARS (95% confidence interval – CI) was as follows: severe skin rash, 77.3% (62.0%–92.6%); any GI bleeding, 49.4% (39.5%–59.4%); and any other bleeding problems, 40.9% (27.8%–54.0%). CONCLUSIONS: Patients were willing to accept a higher risk of developing a severe skin rash than suffering from any GI bleeding or any other bleeding problems for a given increase in survival benefit. This research shows substantial differences in patient preferences for treatment-specific AEs, making patient preference an important factor in the choice of mBCRT treatment.
how can we assess the impact of cost on patient treatment preferences in a discrete-choice experiment and willingness-to-pay. Associations between sociodemographic characteristics (age, sex, education, marital status, employment status), doctor (i.e., nurse, non-specialist doctor, specialist doctor), (iii) test location (private family clinic, public primary-care clinic, hospital), (iv) test cost was added as an attribute to pre-defined Medicines A and B. Respondents were randomly assigned to the high-cost version ($400 per month difference in cost between the medicines) and the low-cost version ($75 per month difference in cost between the medicines). Using the DCE results, we computed prior probabilities for each individual conditional on the pattern of observed choices and based on Bayes’ theorem without cost and forecast the share who would choose each of the two medicines. The forecast was compared with the share of participants who selected Medicine A or B in a random assignment. RESULTS: 384 patients with self-reported CLL took a DCE survey on treatments for CLL (mean age 65 years, 23% first line, 39% relapse, 53% received financial aid to pay for treatments). Using the method described above, we forecasted that 91% of the sample would prefer the medicine with the longest PFS when cost was not included, compared to 50% and 26% who actually selected that option for the low-cost and high-cost follow-up questions, respectively. CONCLUSIONS: The fixed follow-up questions including cost provided preferred information when high costs were not feasible as a DCE attribute. Respondents were very sensitive to modest changes in treatment cost, pointing to the importance of gathering this information.

**PCN172**

**WOMEN’S PREFERENCES AND WILLINGNESS-TO-PAY FOR SINGLE NUCLEOTIDE POLYMORPHISMS GENE TESTING IN A MULTI-ETHNIC ASIAN POPULATION**

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OBJECTIVES: Single Nucleotide Polymorphisms (SNPs) gene tests have demonstrated potential for stratifying women into distinct breast cancer risk categories, thereby facilitating personalized screening regimens. We studied screening-age women preferences and willingness-to-pay for SNPs gene testing in Singapore methods: English-speaking Singaporean women aged 40 to 69 years old without history of breast cancer were enrolled via door-to-door recruitment with quota sampling by age and ethnicity to participate in a discrete choice experiment (DCE). DCE comprises: (i) sample type (buccal swab, dried blood spot), (ii) person conducting pre-test discussion (nurse educator, non-specialist doctor, specialist doctor), (iii) location (private family clinic, private family doctor, primary-care clinic, hospital), and (iv) out-of-pocket cost (approximately US$35, US$125, US$210). Conditional Logit (CL) and Hierarchical Bayes (HB) were used to estimate preference weights and willingness-to-pay for associations between sociodemographic characteristics and attribute levels were studied by including interaction terms in CL model. RESULTS: 300 women aged 52.6 ± 7.6 years completed the survey (100 Chinese, Malay and Indian women respectively). Using HB, relative attribute importance was highest for cost (75.6%), followed by pre-test discussion (14.6%), test location (5.5%) and sample type (4.4%). Using CL, cost and pre-test discussion appeared to be significant (p < 0.001 for both). Interaction effect between ethnicity and test location was significant (p = 0.001). As compared to Chinese, Malays and Indians attached smaller dissimilarity to testing at the public primary-care clinic. Women were willing to pay the most to discuss with specialist doctor instead of non-specialist doctor (approximately US$249, 95% CI: US$24 to US$44), and the least to switch from dried blood spot to buccal swab (about US$0.44, 95% CI: US$-5.38 to US$6.25). CONCLUSIONS: Test cost was the main determinant of preferences, while sample type was of least concern. To promote uptake, the design of personalized breast cancer screening programmes may be tailored accordingly to these preferences.

**PCN173**

**DISCORDANCE OF ACUTE MYELOID LEUKEMIA SYMPTOMS REPORTED BY US PHYSICIANS AND PATIENTS**

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OBJECTIVES: Little is known about the level of agreement between physician- and patient-reported symptoms in the acute myeloid leukemia (AML) population. The objective of this analysis was to assess the level of agreement on reported AML symptoms between treating physician and AML patients. METHODS: Data from an Adelphi AML Disease Specific Programme, a real-world, cross-sectional survey involving 61 US hematologists/hematology-oncologists and their AML patients were analyzed. The survey was conducted in February-March 2016. AML patient-reported symptoms and treatment regimens with both physician- and patient-reported data captured at the same time. Physicians provided information on patients’ current symptomatology from a symptom list and invited their patients to complete a questionnaire containing the FACT-LEuKol. Patient-reported symptomatology was taken from the ‘Additional Concerns’ section, where the level of importance informed whether the symptom was experienced (1 = quite a bit, 4 = very much) or was not experienced (0 = not at all, 1 = a little, 2 = somewhat, 3 = quite a bit). A statistic measuring agreement (adjusting for random agreement) was calculated for the presence of key AML symptoms. Kappa values near 0 indicate low agreement, while values approaching 1 indicate high agreement. RESULTS: For the 82 patients included in the analysis, most of whom were receiving first-line treatment (n = 56), approximately a third (n = 26) were reported as asymptomatic by their physician. Kappa analysis indicated low agreement between physician and patient on the presence of 6 key reported symptoms: (loss of appetite (kappa = 0.01), fatigue (kappa = 0.22), pain (kappa = 0.08), weight loss [agreement = 0.70; kappa = 0.08], bruising [agreement = 0.70; kappa = 0.13], bleeding [agreement = 0.76; kappa = 0.02], and fever [agreement = 0.87; kappa = 0.31]). CONCLUSIONS: Disagreement was observed between physician- and AML patient-reported symptoms, with patients being considerably more likely to report experiencing symptoms to some degree. Shared decision making tools that can facilitate improved communication between physicians and AML patients about their symptoms may lead to more effective management.
PCN176

EFFECT OF ENZALUTAMIDE ON SPECIFIC SYMPTOMS AND FUNCTIONAL AREAS IN METASTATIC CASTRATION-RESISTANT PROSTATE CANCER: A NOVEL ANALYTICAL STUDY

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Objective: Enzalutamide has a positive impact on outcomes assessed by the Functional Assessment of Cancer Therapy-Psychosocial (FACT-P) instrument, including slower overall decline in total FACT-P scores among patients with metastatic castration-resistant prostate cancer (mCRPC). This study aimed to explore the impact of enzalutamide on subcomponents of FACT-P in mCRPC clinical trials.

Methods: FACT-P was administered at baseline and every 3 months during placebo-controlled trials of enzalutamide in chemotherapy-treated (AFFIRM) and chemotherapy-naïve (PREVAIL) mCRPC patients. FACT-P scores on FACT-P 0-4 scales were transformed to 0-100 to facilitate interpretation; higher scores indicated improved quality of life.

Results: In AFFIRM, at week 25, men receiving enzalutamide reported a median decrease (deterioration) of 3% across all FACT-P items, compared with a 16% decrease in those receiving placebo. In PREVAIL, enzalutamide delayed worsening in various aspects of social, physical, and emotional functioning versus placebo, including ability to work and enjoy life, worrying about dying, and feeling sad. Throughout both trials, there was little impact of enzalutamide on symptoms and functioning during Western-medicine treatment. Overall, enzalutamide was well-tolerated.

Conclusions: The exploratory analysis indicates enzalutamide preserves or improves quality of life in metastatic prostate cancer patients, supporting its use as an alternative treatment option for men with mCRPC.

PCN177

UNDERSTANDING KEY SYMPTOMS, SIDE EFFECTS AND IMPACTS OF HR-þ AND HER2-þ ADVANCED BREAST CANCER: LITERATURE REVIEW AND EXPERT INTERVIEWS

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Objectives: Interview was audio-recorded and transcribed verbatim. NVivo-11 was used to code the data into themes. Results: Two major themes were identified: (1) experiences of the Western-medicine, including side effects observed with doctors, and (2) experiences of Korean-medicine, including the same as above: patients had more than 47 (SD 6.8) years of age, had a survival of 1-7 years without recurrence. All participants experienced Western-medicine in treatment phase and reported impairment of physical, emotional, and social functioning during and after treatment. Korean-medicine was used after treatments ended. The negative responses from Western-medicine doctors were the most important factor keeping participants from accessing Korean-medicine when treatment-related side effects occurred. For this reason, some patients used Korean-medicine without disclosing that they had also received prescription medication. This study found that patients perceived Korean-medicine as a supportive care option.

Conclusions: The exploratory analysis indicates enzalutamide preserves quality of life in metastatic prostate cancer patients, supporting its use as an alternative treatment option for men with mCRPC.
semi-structured telephone interviews with patients who had received treatment in the past 12 months for metastatic and/or recurrent SCCHN. Interview transcripts were transcribed verbatim and thematically analysed. The analysis identified concepts and themes to develop a conceptual model of SCCHN experience.

RESULTS: Thirteen patients were interviewed (77% male, aged 35-84); the majority diagnosed for > 5 years (46%); 67% received prior chemotherapy; 23% radiotherapy. CONCLUSIONS: (i) Patients with metastatic SCCN had minimal impact. Parameter estimates of dis-utilities associated with experiencing ≥1 grade 3-4 AE based on US (UK) value sets were -0.02191 (-0.02439). Dis-utilities for treatment-related AEs of any grade were smaller (-0.00532 and -0.01028 for US and UK value sets). (ii) CONCLUSIONS: (ii) PCN181: (a) IMPACT OF PROFESSIONAL PCNS ON PATIENT-REPORTED OUTCOMES (PROs) OF PATIENTS WITH ADVANCED HUMAN EPITHELIAL NEOPLASMS: (a) RESULTS: PCN181: (a) ASSOCIATION OF PATIENT-PHYSICIAN COMMUNICATION WITH FINANCIAL BURDEN AND QUALITY OF LIFE OF CANCER PATIENTS: (a) OBJECTIVES: Cancer is one of the most prevalent diseases in the United States. Approximately 39% of men and women are diagnosed with cancer based on 2011-2013 data. The objective of our study is to compare the quality of life (QoL) and financial burden of cancer patients who had good patient-physician communication to patients who had poor/no communication. METHODS: This was a retrospective study using 2011 Medical Expenditure Panel Survey (MEPS) data. The full year of data was used, individuals under 16 years of age were excluded, and individuals reporting no changes in health care received were excluded. RESULTS: The sample consisted of 1592 cancer patients. Of these, 58.86% were females, 54.71% were married, 49.75% were in the 65-85 years age group, and 35.74% were retired. The majority of patients had a median total income of $41,000 – $60,000 (Interquartile range: $31,681). Of those patients with higher QoL, a higher percentage (65.20% vs. 8.77%) reported good patient-physician communication as compared to those who had no communication. A larger percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.21%) of patients with higher QoL, a higher percentage (66.84% vs. 34.2
Primary tumour site impacts QoL, most notably for patients with a floor of the mouth tumour.

PCN186 UNDERSTANDING THE SYMPTOMS, IMPACTS, AND TREATMENT SIDE-EFFECTS OF ADVANCED BLADDER CANCER FROM THE PERSPECTIVE OF THE LITERATURE, CLINICIANS, AND PATIENTS

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OBJECTIVES: The primary objective was to identify, define and substantiate concepts of measurement that reflect the symptoms, impacts and treatment side-effects of advanced bladder cancer (BC) from the literature, clinician and patient perspective. METHODS: Symptoms, impacts, and treatment side-effects of advanced BC were elicited through a literature review and interviews with clinicians and patients. Articles were identified via OvidSP and results were summarized in extraction tables. Clinicians were identified using literature and peer recommendations. Patients were recruited via agencies and clinical sites. Patient study materials were approved by an Ethics Committee. Each interview (clinician/patient) was audio-recorded, transcribed, anonymized, and analyzed quantitatively and qualitatively. Concepts identified across research stages were organized into a disease conceptual model and compared to PRO measures for conceptual overlap. RESULTS: A total of 122 symptom/impact of advanced BC, 33 side-effects, and 33 impacts were identified across seven domains. Five clinicians elicited 15 signs/symptoms, 31 side-effects, and 25 impacts across seven domains. Ten patients with advanced BC (mean age: 72.1 years and 60.0% male) primarily receiving chemotherapy (n=5, 50%) reported 22 BC symptoms, 19 treatment-related side-effects, and 27 BC or treatment-related impacts across nine domains. The most frequently reported symptom across the BC experience was blood in urine (n=8, 80.0%). The most frequently reported side-effect was fatigue/tiredness (n=5, 50.0%) attributed to various treatments. The most frequently reported BC or treatment-related impact domain was activities of daily living (n=43, 39.0%). CONCLUSIONS: Results demonstrate the deleterious burden of advanced BC and treatment. Although no one PRO measure captures the multiple symptoms, impacts and side-effects of the disease, the EORTC QLQ-BLM50, FACT-G, FACT-BL, and NFHS1-18 might be considered for assessing symptoms and impacts, and the PRO-CTGAE for assessing side-effects. This research underscores the importance of capturing patients’ experience of symptoms, tolerability, and impacts when evaluating new treatment options.

PCN187 THE EFFECTS OF DISEASE AND TREATMENT-ASSOCIATED CANCER SYMPTOMS ON HEALTH-RELATED QUALITY-OF-LIFE: THE MEDIATING EFFECT OF FATIGUE IN NON-SMALL CELL LUNG CANCER AND METASTATIC BREAST CANCER

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OBJECTIVES: Recent research has shown complex and indirect associations of disease- and treatment-related cancer symptoms upon health-related quality-of-life (HRQoL) constructs (e.g., functioning and QoL). Evidence from this work are the causal cascades of symptoms flowing to distal HRQoL outcomes, and that these pathways are often mediated by patient-reported fatigue. We developed models and tested the role of fatigue within 1st line non-small cell lung cancer (NSCLC), 1st line or metastatic breast cancer (MBC) in distal HRQoL outcomes. METHOIDS: Data come from two randomized clinical trials (RCTs) of 1st line locally advanced or metastatic NSCLC and MBC respectively. Analyses were conducted using latent structural equation modeling (SEM) of direct and indirect symptom effects on distal HRQoL outcomes, with baseline and 6 weeks assessments included in analyses; the EORTC QLQ-C30 was supplemented with the EORTC QLQ-LC13 in the NSCLC RCTs and with the Brief Pain Inventory short form (bPI-sf) in the MBC clinical trial. We ran and interpreted goodness-of-fit tests to evaluate the extent that hypothesized conceptual models corresponded with the observed data. Estimates of standardized direct, indirect, and total effects of symptom on HRQoL showed the relative strengths of the cascade path components. RESULTS: There was a logical and consistent ordering, and effect magnitudes, of the causal cascade path components across the NSCLC and MBC trials. Specifcally, the effects of symptoms (e.g., pain, dyspnea, and fatigue), impacting on HRQoL (i.e., physical, role, cognitive, emotional, and social functioning as well as QoL) were mediated by fatigue. CONCLUSIONS: Corroborating across-trial and across-tumor results demonstrate the consistent mediating effect of fatigue which links disease- and treatment-associated cancer symptoms to HRQoL. Evaluating only direct effects of symptoms on HRQoL will underestimate the patient symptom burden. Interpretation of causal cascades will better inform patients, families, and clinicians about the HRQoL consequences of the disease and treatment.

PCN188 STRESS-RELATED COMORBIDITIES AND LOSS OF PRODUCTIVITY ASSOCIATED WITH PROVIDING CARE TO ADULTS WITH MULTIPLE MYELOMA

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OBJECTIVES: Little is known about the effect of caregiving for people with multiple myeloma (MM) on work productivity, activity impairment, depression of quality of life (HRQoL) constructs (e.g., functioning and QoL) were mediated by fatigue. CONCLUSIONS: Corroborating across-trial and across-tumor results demonstrate the consistent mediating effect of fatigue which links disease- and treatment-associated cancer symptoms to HRQoL. Evaluating only direct effects of symptoms on HRQoL will underestimate the patient symptom burden. Interpretation of causal cascades will better inform patients, families, and clinicians about the HRQoL consequences of the disease and treatment.

CONCLUSIONS: The study assessed caregiver burden using validated instruments including, the Work Productivity and Activity Impairment (WPAI) questionnaire, the Quality of Well-Being (QWB) assessment, and the Patient Health Questionnaire-9 (PHQ-9) to indicate greater depression severity) and Generalized Anxiety Disorder-7 (GAD-7; range 0-21, higher scores indicate greater anxiety severity). The results are summarized using descriptive statistics where appropriate. The 145 caregivers (mean age 50.7% (n=88) were female and the mean age was 51.9 (SD=12.6) years. Of these, 72.4% were White, 78.6% married, and 65.5% employed. Caregivers, on average, had been providing care to the MM patients for 4 years (range=0-27.7), and reported providing 31.5 (SD=24.3) hours of care per week. Patient characteristics were as follows: Diagnosed 5.1 (SD=6.6) years prior to study enrollment, 44.8% female, 59.9 (SD=13.9) years old, on a multiple-drug regimen (1.9 drugs (SD=1.0)) for MM. A total of 54% provided care on their third or later treatment regimen. In univariate analyses, caregivers reported a mean (SD) absenteeism from work due to impairment of 14.5% (14.6%) impairment while at work (presenteeism) of 47.0% (31.7%), overall work impairment of 51.5% (35.1%) and activity impairment of 44.4% (31.3%) in the past 7 days. Mean (SD) scores on the GAD-7 and PHQ-9 were 6.6 (4.9) and 7.6 (5.9) respectively. CONCLUSIONS: There is a significant caregiver burden associated with caring for a person with MM, impacting productivity and daily activities. Caregivers also experience mild depression and anxiety symptoms.

PCN189 PSYCHOMETRIC VALIDATION OF THE FACT-M QUESTIONNAIRE IN PATIENTS WITH MERKEL CELL CARCINOMA

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OBJECTIVES: Assessment of patient-reported outcomes in oncology clinical trials is required to demonstrate treatment benefit from a patient perspective. However, the Merkel Cell Carcinoma (MCC) is an ultra-rare skin cancer. The objective of this research was to assess the feasibility and validity of the FACT-M questionnaire in patients with MCC. METHODS: Patients with stage IV chemotherapy-refractory MCC completed the FACT-M in a single-arm, open-label, multicenter, international phase 2 trial (NCT01255647). Internal consistency reliability and construct validity of the FACT-M were assessed at baseline and the ability to detect change in tumor size was assessed from baseline to week 7. Minimal important differences (MIDs) were computed using distribution and anchor-based methods. RESULTS: Baseline assessments were available in 70 patients (mean age: 70 years; 74.3% male). FACT-M domains showed acceptable psychometric properties: high internal consistency reliability (Cronbach’s alpha: 0.81 – 0.96) and good convergent validity (correlations above 0.4 were observed for 88% of items of the melanoma scale and 85% of items of the MCC scale and other FACT-M domains). Higher scores (better HRQoL) on all FACT-M domains were observed in patients with better functioning (assessed by ECOG performance score), with statistically significant difference in physical well-being score (p=0.012) supporting clinical validity. Despite the small sample for responsiveness analysis (n=37), the majority of FACT-M scores showed sensitivity to changes in tumor size at week 7 with small to moderate effect sizes. Some evidence of floor/ceiling effects and potential measurement bias between items and domains (discriminant validity) was found. MIDs were consistent with previously reported values in the literature for FACT-M domains. CONCLUSIONS: The FACT-M demonstrated acceptable psychometric properties in MCC patients, thus making it a potential candidate for assessing HRQoL in MCC trials.
PCN191

HEALTH-RELATED QUALITY OF LIFE AMONG CANCER SURVIVORS STRATIFIED BY OPIOID EXPOSURE IN THE UNITED STATES

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OBJECTIVES: Health-Related Quality of Life (HRQoL) is critical to cancer patients in terms of care, making treatment decisions and survival. The aim of this study was to measure HRQoL among cancer survivors stratified by opioid exposure in the United States. METHODS: Data were obtained annually from 2008-2013 using the Medical Expenditure Panel Survey (MEPS). Cancer survivors were identified using questionnaires and clinical classification codes excluding non-melanoma skin cancer. The HRQoL was measured in terms of physical component summary (PCS) and mental component summary (MCS) scores using Short Form-12. The HRQoL among cancer survivors with opioid exposure were reported for the following classes: (a) with any opioid use (opioids, narcotic analgesic combinations), (b) no opioid use but at least one prescription for other pain medication (adjuvant analgesics and non-opioid pain medications), or (c) without opioid use or any prescription for pain medication. Data were analyzed using appropriate statistical procedures for the MEPS with its unique sampling design. RESULTS: A total of 23.1 million cancer survivors and 193.5 million individuals without cancer history were identified. The cancer survivors had significantly (p < 0.001) lower PCS and MCS scores, 43.9(SE=2.09) and 50.2(SE=1.46) compared to individuals who never had cancer, 50.5(SE=0.07) and 51.2(SE=0.05) respectively. About a quarter of cancer patients with pain had at least one prescription claim for opioids, 18.4% had no prescription for opioids but at least one claim for other pain medication and 46.6% had no prescription for a pain medication. For these three groups, the PCS and MCS scores were 49.2(SE=2.33), 43.9(SE=1.42), 47.3(SE=0.29) and 48.6(SE=0.27), 49.7(SE=0.35), 52.0(SE=0.18) respectively. CONCLUSIONS: A high percentage of cancer survivors take opioids for the disease or for treatment. The lower HRQoL scores indicate cancer survivors are in pain need to be screened appropriately for their physical and psychological concern.

PCN192

HUMANISTIC BURDEN OF DISEASE IN EARLIER STAGE METASTATIC (IIIB/C-IVM1A) VERSUS LATE STAGE METASTATIC (IVM1B/C) MELANOMA PATIENTS IN A REAL WORLD SETTING IN 5 EU COUNTRIES

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OBJECTIVES: To assess melanoma specific health-related quality of life (HRQoL) and health states in patients with earlier stage metastatic (IIIB/C-IVM1A) and late stage metastatic (IVM1B/C) melanoma. METHODS: Data were collected from the Adelphi Real World Advanced Melanoma Disease-Specific Programme®, a cross-sectional survey of 243 physicians and their patients. Patients were included if they were diagnosed between March and July 2016 in 5 major European countries (FR, GI, SP, IT & UK). A subset of 660 patients completed the Functional Assessment of Cancer Therapy Melanoma (FACT-M) and EuroQol-5D (EQ-5D) one time. Patients were classified into two groups: 332 patients had an ECOG status of 0 or 1 versus late stage metastatic patients (80%, 75% respectively). A greater proportion of late stage metastatic patients required caregiver support (42%) and had a longer median memory duration (6 months) versus earlier stage patients (30% and 5 months). Patients with earlier stage metastatic melanoma had better mean EQ-SD index scores versus late stage (0.75 (n=325), 0.67 (n=324); p=0.0120). Higher scores indicating better HRQoL were observed between the earlier and late stage metastatic melanoma patients for the FACT-M (136.4 (n=335), 108.8 (n=307); p=0.014) and subscales (except Emotional Well Being). Clinically meaningful differences between groups were classified by using published minimal important differences. CONCLUSIONS: Differences in HRQoL and health states were observed between earlier stage and late stage metastatic melanoma populations, highlighting the detrimental effect of developing late stage metastatic disease. These results suggest that treatments that delay progression of the disease are important to conserve patients HRQoL.

PCN193

RELATIONSHIP BETWEEN RECEIPT OF A WRITTEN SURVIVORSHIP CARE PLAN AND HEALTH-RELATED QUALITY OF LIFE: AN ANALYSIS OF THE NATIONAL HEALTH INTERVIEW SURVEY

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OBJECTIVES: Little is known about the relationship between cancer survivorship care planning and quality of life outcomes of survivors. The purpose of this study was to examine the association between receipt of written documentation of care advice for follow up care or documentation of all cancer treatments on Health Related Quality of Life (HRQoL). METHODS: Adults aged 18+ years with a history of cancer were identified from the 2010 National Health Interview Survey. Patients currently receiving cancer treatment and those who were diagnosed with cancer prior to age 18 were excluded (final sample 2,329). Logistic regression was used to assess the association between receiving advice from a health care professional about how to care after cancer treatments post completion of cancer treatment (format (WA) (n=1327) and receiving a written documentation of all cancer treatments (WTx) (n=1783) and general HRQoL, physical health status, and mental health status. Analyses were adjusted for SOC Status, and participation in counseling or support groups. The general HRQoL outcome was dichotomized (excellent or very good or good vs fair or poor). All analyses were weighted to account for the sampling scheme. RESULTS: Neither WA nor WTx were associated with a general HRQoL (OR = 0.81, 95% CI 0.64-1.24 and OR = 0.78, 95% CI 0.56-1.10, respectively). CONCLUSIONS: Receipt of WA is associated with decreased odds of reporting excellent or very good mental health. Future work should investigate this relationship.

PCN194

HUMANISTIC BURDEN OF DISEASE IN EARLIER STAGE METASTATIC (IIIB/C-IVM1A) VERSUS LATE STAGE METASTATIC (IVM1B/C) MELANOMA PATIENTS IN A REAL WORLD SETTING IN 5 EU COUNTRIES

Bjorner JB3

Amgen, Thousand Oaks, CA, USA, 3Adelphi Real World, Cheshire, UK

OBJECTIVES: To assess melanoma specific health-related quality of life (HRQoL) and health states in patients with earlier stage metastatic (IIIB/C-IVM1A) and late stage metastatic (IVM1B/C) melanoma. METHODS: Data were collected from the Adelphi Real World Advanced Melanoma Disease-Specific Programme®, a cross-sectional survey of 243 physicians and their patients. Patients were included if they were diagnosed between March and July 2016 in 5 major European countries (FR, GI, SP, IT & UK). A subset of 660 patients completed the Functional Assessment of Cancer Therapy Melanoma (FACT-M) and EuroQol-5D (EQ-5D) one time. Patients were classified into two groups: 332 patients had an ECOG status of 0 or 1 versus late stage metastatic patients (80%, 75% respectively). A greater proportion of late stage metastatic patients required caregiver support (42%) and had a longer median memory duration (6 months) versus earlier stage patients (30% and 5 months). Patients with earlier stage metastatic melanoma had better mean EQ-SD index scores versus late stage (0.75 (n=325), 0.67 (n=324); p=0.0120). Higher scores indicating better HRQoL were observed between the earlier and late stage metastatic melanoma patients for the FACT-M (136.4 (n=335), 108.8 (n=307); p=0.014) and subscales (except Emotional Well Being). Clinically meaningful differences between groups were classified by using published minimal important differences. CONCLUSIONS: Differences in HRQoL and health states were observed between earlier stage and late stage metastatic melanoma populations, highlighting the detrimental effect of developing late stage metastatic disease. These results suggest that treatments that delay progression of the disease are important to conserve patients HRQoL.
PCN196

EORTC-8D UTILITY VALUES IN PATIENTS WITH PHILADELPHIA NEGATIVE (PH−) RELAPSED/REFRACTORY (R/R) B-CELL PRECURSOR ACUTE LYMPHOBLASTIC LEUKEMIA (B-CELL ALL) RECEIVING BLINATUMOMAB VERSUS STANDARD OF CARE (SOC) CHEMOTHERAPY IN A RANDOMIZED, OPEN-LABEL PHASE 3 STUDY (TOWER)

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OBJECTIVES: The TOWER trial demonstrated improved survival and beneficial effects on health-related quality of life (HRQoL) for blinatumomab compared with SOC chemotherapy in patients with Ph− R/R B-cell ALL (Topp, 2016). To inform economic evaluations of blinatumomab in this setting, a post-hoc analysis was conducted to estimate utility values for patients with Ph− R/R B-cell ALL receiving blinatumomab and SOC chemotherapy in TOWER. METHODS: Utility values were estimated using the EORTC-8D, a cancer-specific preference-based measure of HRQoL derived from the EORTC QLQ-C30 (Rowen 2011). Utility values were classified into four health states (baseline, initial [post-baseline and pre-assessment of response], response, and refractory), and by time to death (t<0.5, 0.5≥t<1 month). Because of small numbers, post-relapse assessments were excluded. GLM/GEE regression was employed with covariates for health states interacting with treatment assignment and time to death. RESULTS: Among patients randomized to blinatumomab (N=271) and SOC (N=134), 260 blinatumomab and 105 SOC patients had valid EORTC-8D utility values for one or more assessments for the states of interest (total number of valid assessments=1,421 for blinatumomab and 376 for SOC). Baseline utility values were similar for blinatumomab vs. SOC (Mean [SE] 0.750 [0.009] vs. 0.766 [0.009], p=0.824). Utility values for blinatumomab vs. SOC for the initial state (0.766 [0.009] vs. 0.778 [0.009], p=0.001), response state (0.834 [0.013] vs. 0.747 [0.020], p=0.003), and refractory state (0.742 [0.014] vs. 0.673 [0.017], p=0.001). There was a nominal decrease in mean [SE] utility during the one month before death (-0.027 [0.015], p=0.28) independent of treatment. CONCLUSIONS: Utility values in TOWER were higher for patients receiving blinatumomab than SOC chemotherapy for all post-baseline health states. These findings are consistent with the benefits of blinatumomab vs. SOC on survival, response, and HRQoL observed in TOWER.

PCN197

WORK PRODUCTIVITY AND ACTIVITY IMPAIRMENT IN WOMEN WITH HR+/HER2− ADVANCED/METASTATIC BREAST CANCER

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OBJECTIVES: To assess work productivity and activity impairment among women with HR+/HER2− advanced/metastatic breast cancer (ABC/MBC) in a real world setting. METHODS: Work productivity and activity impairment were assessed in the ABC/MBC population (n=925) in the Developmental Research Database of MKTXS Value Assessment Platform (MKVASP). Patients were employed at the time of completion of the WPAI. Mean (SD) number of patients randomized to blinatumomab (n=305) or endocrine therapy alone (n=300) were employed at the time of completion of the WPAI. Mean (SD) number of patients randomized to blinatumomab (n=271) and SOC (n=134) were employed at the time of completion of the WPAI. The proportion of late diagnostic stage, no significant increase was noted (C.I.: 2.08%−3.16%). A total of 8,790 patients underwent elective LAR with a cancer in Taiwan overtime. We also examined the influences of availability of targeted therapies on clinical outcomes of colorectal cancer in Taiwan overtime. Among 8,790 patients with HR+/HER2− ABC/MBC in the US and 5 major EU countries (N=739) were recruited as part of a multicenter study and completed the 6 month Work Productivity and Activity Impairment (WPAI) questionnaire. For early diagnosis colorectal cancer screening (Fecal Immunochemical Testing) has been promoted and implemented on a large scale by Health Promotion Administration in Taiwan since 2010. Besides, targeted therapies (bevacizumab, cetuximab, panitumumab, regorafenib) have gradually become available since 2015. There was a relative decrease of 1.85% in incidence rate at 3 years following the screening. Proportion of early diagnostic stage did not significantly increase as expected, while proportion of late diagnostic stage substantially reduced 15.32% (C.I.: 1.2−21.69%, 8.96%) at 3 years after the screening. Following the first targeted therapy (bevacizumab) became available in 2005, the five-year survival rate relatively increased 6.49% (C.I.: 4.59%, 8.39%), however, mortality rate also increased 8.79% (C.I.: 2.28%, 15.30%) at 3 years after the use of targeted therapies. CONCLUSIONS: The study found that the implementation of large-scale colorectal cancer screening was helpful to decrease the proportion of late diagnostic stage, no significant increase of proportion of early diagnostic stage was found though. Despite targeted therapies were beneficial for increasing survival rate, the overall mortality did not reduce. Better use of targeted therapies is needed to be considered in Taiwan.

PCN200

CLINICAL AND ECONOMIC ASSESSMENT OF DIFFUSE LARGE B-CELL LYMPHOMA (DLBCL) THERAPIES USING A PROPRIETARY VALUE ASSESSMENT PLATFORM

Shen B1, Narayanan S1

OBJECTIVES: To assess clinical and economic value of current and pipeline products indicated for DLBCL. METHODS: MKTXS Value Assessment Platform (MVAP) was used to evaluate Rituximab, Cyclophosphamide, Hydroxydaunomycin Oncovin, and Prednisone combination (RCHOP), and pipeline agents studied in combination with RCHOP, lenalidomide, ibrutinib, and pembrolizumab. A targeted interviewing process was conducted (using Pubmed and clinicaltrial.gov) to collect evidence on clinical (efficacy, safety, administration, evidence availability) and economic (need, competition, delivery) categories. Each category consists of attributes driving value, for example, efficacy included, among others, overall survival (OS) and progression free survival (PFS). Categories were weighted by importance to US Payer, therapies were scored against RCHOP, and value plotted on an X-Y axis. RESULTS: Clinically, RCHOP (Intravenous (IV)) received the highest score due to its performance on all efficacy attributes, and on safety (manageable adverse events (AEs)) in clinical categories, lenalidomide combination outperformed RCHOP on efficacy (OS, PFS) ibrutinib and pembrolizumab are in early development, and performed worse than lenalidomide due to lack of evidence (no OS, PFS), and poorer safety profile. Pembrolizumab (IV) received (more AEs expected) RCHOP received highest economic score due to less competition (provider familiarity, uptake). Lenalidomide and ibrutinib offer the next highest value due to easier delivery (oral versus IV), while pembrolizumab lagged behind due to lack of evidence regarding clinical endpoints in advanced disease. CONCLUSIONS: Effectively communicating superior efficacy and benign safety profile, with an oral formulation can differentiate lenalidomide against DLBCL options, but evidence generated by newer agents should be carefully monitored. RCHOP can also leverage its oral formulation, but, due to its poor safety profile, and pembrolizumab early stage in development, the manufacturer should engage in cross functional (including clinical, health economic/market access, commercial) teams to internally assess value, and fine-tune future trial designs and strategy. A strong evidence generation plans that highlight product value against competitors.
PCN201
METASTATIC CASTRATION RESISTANT PROSTATE CANCER TREATMENT PATTERNS CHANGES WITH THE INTRODUCTION OF ABIRATERONE IN 2012 IN QUEBEC
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OBJECTIVES: This study aimed to describe how real-world clinical practice was changed with the introduction of abiraterone in Quebec in 2012. METHODS: We conducted a retrospective cohort study in two of McGill University’s academic hospitals. We selected 308 patients treated for mCRPC from January 2010 to June 2014. Data on mCRPC treatments and patients’ clinical and demographic characteristics was extracted. Descriptive statistics, Kaplan-Meier method and Cox proportional-hazard regression were used to describe drug utilization over time, to estimate time to initiate them and to identify predictive factors of receiving them. RESULTS: The median age at crPC diagnosis was 74.6 ± 5.2% of patients were diagnosed with mCRPC before 2012. Half of all patients had doxetaxel and 1.2% had abiraterone as first-line vs 30% and 26%, respectively, in the post-2012 group. Overall, 84% of patients had doxetaxel and 48% had abiraterone in the pre-2012 group. Patients with metastases at crPC diagnosis: bone (HR: 2.4; 95% CI 1.4 – 4.1) and visceral (HR: 3.3; 95% CI 1.8 – 6.2), those younger than 80 at crPC diagnosis (HR: 1.9; 95% CI 1.3 – 1.8) and those diagnosed with mCRPC pre-2012 (HR: 1.7; 95% CI 1.3 – 2.3) were more likely to have doxetaxel. Patients with bone (HR: 1.9; 95% CI 1.1 – 3.2) and visceral metastases (HR: 2.4; 95% CI 1.3 – 4.7) at crPC diagnosis and those diagnosed with mCRPC post-2012 (HR: 5.0; 95% CI 3.3 – 10.0) were more likely to have abiraterone. Median time to initiate doxetaxel was delayed in post-2012 group comparatively to pre-2012 (8 – 41) vs 5 (1-16 months, respectively). CONCLUSIONS: The introduction of abiraterone reduced doxetaxel utilization as first-line treatment in patients with mCRPC. It is not comparable to patients with advanced melanoma since the approval of checkpoint inhibitors (CI) and targeted therapies (TT). The study used a retrospective cohort design and does not account for the MS PharmMx patient database. Metastases extent, age, moment of diagnoses with mCRPC were predictive factors of receiving doxetaxel and abiraterone.

PCN202
REAL-WORLD DATA ON MULTIPLE MYELOMA IN BRAZIL: PATTERNS OF CARE IN THE PRIVATE HEALTHCARE SYSTEM
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OBJECTIVES: Multiple Myeloma (MM) is a rare malignancy, accounting for only 0.8% of all cancers and 10% of hematologic malignancies. The aim of this retrospective study was to describe treatment patterns and therapy utilization trends in Quebec, Canada. METHODS: We searched Événements Kantar Health electronic claims private market database Auditorin (which represents 7% of private and 4% of public healthcare systems) for MM patients in treatment between March 2013-Mar2016. We retrieved data on demographics, disease stage, chemotherapy regimens, supportive treatment, stem cell transplantation (SCT) and laboratory results. Analyses were conducted using descriptive statistics. Results: We retrieved data on 2,324 patients, with median age of 65 years (IQR:55-75) of which 53.9% were female. Per Durie Salmon system, 5.5% had stage I disease, 14.9% stage II and 29.5% stage III. First-line therapy data was available for 254 patients. Median treatment time was 121 days (99-1224). Forty-one patients (16.1%) had received at least one line of therapy. Median age for SCT patients was 60 years (IQR:51-63) versus 67 years (IQR:56-77) for the non-SCT group (p<0.05). There was a significant difference between the mean time between 1st and 2nd line therapies for SCT (855 days), 1st and 3rd (855 days), 1st and 4th (125 days), 2nd and 3rd (114 days), 3rd and 4th (128 days). CONCLUSIONS: RWD from Auditorin database data is able to describe treatment patterns and therapy utilization trends in Brazil. The study used a retrospective cohort design and does not account for the MS PharmMx patient database. Metastases extent, age, moment of diagnoses with mCRPC were predictive factors of receiving doxetaxel and abiraterone.

PCN203
REAL-WORLD TREATMENT PATTERNS AMONG PATIENTS WITH HODGKIN LYMPHOMA IN THE UNITED STATES
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OBJECTIVES: The objective of this study is to describe treatment patterns in patients with advanced melanoma since the approval of checkpoint inhibitors (CI) and targeted therapies (TT). METHODS: This study analyzed and included treated patients with advanced melanoma since the approval of checkpoint inhibitors (CI) and targeted therapies (TT). RESULTS: The study included 5,347 patients diagnosed with advanced melanoma since the approval of checkpoint inhibitors (CI) and targeted therapies (TT). Among CI users, use of nivolumab monotherapy (first-L0T:4.7%-25.8%; second-L0T:7.3%-44.6%) and in combination with ipilimumab increased (first-L0T:4.1%-14.5%; second-L0T:4.5%-26.8%), whereas use of pembrolizumab monotherapy increased (first-L0T) and decreased in second-L0T (48.2%-17.9%) from 2015Q2. From 2012-2016Q1, TT use decreased in first-L0T (26.6%-13.4%) and second-L0T (35.8%-6.5%). Among TT users, use of dabrafenib and trametinib combination increased (first-L0T:58.1%-80.0%; second-L0T:15.4%- 25.0%), whereas use of vemurafenib/dabrafenib/trametinib combination decreased (first-L0T:84.9%-6.7%; second-L0T:96.6%-5.0%) from 2012-Q6. The median duration of CI and TT use was 57 and 121 days for first-L0T, and 64 and 137 days for second-L0T, respectively. Among patients receiving CI first-L0T, 34.7% received second-L0T (58.1%; CI: 29.8% TT). Similarly among patients receiving TT first-L0T, 39.8% received second-L0T (50.9%; CI: 41.3% TT). CONCLUSIONS: The study used a retrospective cohort design and does not account for the MS PharmMx patient database. Additional data segregated by BRAF status are needed to determine optimal treatment sequencing.

PCN204
TREATMENT PATTERNS AMONG PATIENTS DIAGNOSED WITH ADVANCED MELANOMA IN A COMMERCALLY INSURED POPULATION
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OBJECTIVES: The objective of the study is to describe treatment patterns in patients with advanced melanoma since the approval of checkpoint inhibitors (CI) and targeted therapies (TT). METHODS: The study used a retrospective cohort design with the MS PharmMx patient database database. Metastases extent, age, moment of diagnoses with mCRPC were predictive factors of receiving doxetaxel and abiraterone.

PCN205
TREATMENT PATTERNS AND TRENDS OF PATIENTS DYING OF PROSTATE CANCER IN QUEBEC: A POPULATION-BASED STUDY
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OBJECTIVES: The management of metastatic castration-resistant prostate cancer (mCRPC) has evolved considerably with the inclusion of docetaxel-based chemotherapy, bone-targeted therapies and more recently abiraterone for docetaxel-refractory patients. Our study aimed to analyze contemporary mCRPC management patterns and therapy utilization trends in Quebec, Canada. METHODS: The cohort included patients dying of prostate cancer (PCa) between January 2001 and December 2013 and selected from the public healthcare insurance databases, the Regie de l’Assurance Maladie du Quebec (RAMQ) and Med-Echo databases. Patient selection was based on PCa-related death and/or therapy utilization according to the Canadian Urological Association guidelines. Multivariate logistic regression was performed to identify factors associated with the use of chemotherapy, bone-targeted therapies and palliative radiotherapy (RT) before death from PCa. RESULTS: Overall, 3,106 patients were identified in our cohort. The median age at death was 78 years old. Most (83%) received mCRPC-specific treatments including chemotherapy, abiraterone or enzalutamide, while 17% of patients were managed only with maximum androgen blockade, despite diagnosis of PCa-related death. Logistic regression analyses indicate that patients dying after 2005 were more likely to have received chemotherapy (OR: 1.51; 95%CI 1.22-1.85) and bone-targeted therapy (OR: 1.97; 95%CI 1.64-2.37). Age was a significant predictor of utilization of chemotherapy, bone-targeted therapy and palliative RT (ORs ranged from 0.96 to 0.98, p < 0.05). CONCLUSIONS: Patients age was a strong determinant of mCRPC management. The study showed a negative impact in the probability of chemotherapy, bone-targeted therapy or palliative RT utilization. While chemotherapy is still used only in a minority of patients, the introduction of new therapies such as bone-targeted therapy, abiraterone and docetaxel for treatment selection over time.
PCN206
RETROSPECTIVE REVIEW OF CANCER PATIENTS IN INDIA: ANALYSIS OF PATIENT CHARACTERISTICS AND TREATMENT METHODS
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OBJECTIVES: To review the patient characteristics and treatment methods of breast cancer patients in a tertiary care hospital in India.

METHODS: This was a retrospective review of electronic medical records from a tertiary care hospital in Mumbai, India. Patients ≥18 years of age hospitalized for breast (BC), oral (OC), and ovarian cancer (OVC) treatment between January 2014 and May 2015 were included in the study. Descriptive and inferential statistics were used to analyze and compare differences between patients.

RESULTS: A total of 323 cancer patients met the study criteria (BC = 146 patients, OC = 132 patients, OVC = 45 patients). The mean age for OVC patients was the highest (OVC: 52.17 +/− 13.0 years, OC: 51.81 +/− 12.20 years, BC: 51.07 +/− 13.34 years). Across all three cancer types, majority of them underwent a surgical procedure at the hospital. BC patients that had surgery, majority of them (n = 90) underwent a modified radical mastectomy or a breast conservation surgery (n = 74). Among BC patients that had surgery, majority of them (n = 50) underwent a modified radical neck dissection or a combined mandibulocanthelotomy and neck dissection operation (n = 30). Among OC patients that had surgery, majority of them underwent a total abdominal hysterectomy bilateral salpingo oophorectomy (n = 14). CONCLUSIONS: Majority of the cancer patients were subscribed to RGJAY scheme. The common reason for hospital admission was abnormal growth and majority of them underwent surgery.

PCN207
HEALTHCARE RESOURCE UTILIZATION DURING MULTIPLE MYELOMA TREATMENT IN THE STOCKHOLM REGION OF SWEDEN
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OBJECTIVES: To estimate healthcare resource utilization (HRU) by line of therapy (LOT) for multiple myeloma (MM) patients in a high-volume Swedish university clinic.

METHODS: The study population comprised all MM patients diagnosed January 1st 2010 to September 30, 2014 at the Karolinska University Hospital in Sweden. Patients were followed from date of treatment initiation to end of study period, death, or change in LOT. HRU was based on hospital admissions and acute/planned outpatient contacts (visits and telephone calls) for MM. We calculated summary descriptive statistics (mean, standard deviation [SD], rates per month) of patient characteristics and HRU by LOT.

RESULTS: Of 403 MM patients identified, 398 (98.8%) were treated with a 1st LOT (2nd LOT: 193 [47.9%]; 3rd LOT: 86 [21.3%]). The majority of the patients were male (9.3). Monitoring outcomes were greater one month post-vs. pre-index date (mean: 1.3, SD: 0.8) had LFT monitoring one month post- vs. pre-index date, respectively. For CBC: CT (92.1% vs. 65.9%; mean [SD]: 2.9 [1.5] vs. 1.0 [1.0]), ET (60.9% vs. 80.0%; mean [SD]: 1.0 [1.4] vs. 1.6 [0.9]), CET (50.4% vs. 67.5%; mean [SD]: 1.5 [1.4] vs. 1.1 [0.9]). Monitoring outcomes were higher one month post- vs. pre-index date. Overall, n = 483 [65.1%], (mean: 2.3, SD: 1.4] vs. n = 399 [52.7%], (mean: 1.5, SD: 1.1) had CBC monitoring, and n = 481 (64.8%], (mean: 1.9, SD: 1.3] vs. n = 369 (49.7%), (mean: 1.3, SD: 0.8] had LFT monitoring one month post- vs. pre-index date, respectively. For ET: CT (92.1% vs. 65.9%; mean [SD]: 2.9 [1.5] vs. 1.0 [1.0]), ET (60.9% vs. 80.0%; mean [SD]: 1.0 [1.4] vs. 1.6 [0.9]), CET (50.4% vs. 67.5%; mean [SD]: 1.5 [1.4] vs. 1.1 [0.9]). LFT monitoring outcomes were higher one month post- vs. pre-index date. For ET: CT (92.1% vs. 65.9%; mean [SD]: 2.3 [1.2] vs. 1.5 [1.0]), ET (53.7% vs. 37.6%; mean [SD]: 1.8 [1.2] vs. 0.7 [0.5]), CET (50.4% vs. 67.5%; mean [SD]: 1.5 [0.5] vs. 1.3 [0.7]). CONCLUSIONS: There was an increase in monitoring among the study sample following first-line treatment initiation. These data may benefit payers integrating monitoring-related costs in cost-effectiveness calculations.

PCN209
CRITICAL ANALYSIS OF THE “REGIONAL HEALTH TECHNOLOGY ASSESSMENT REPORT ON IMPACTS OF BEVACIZUMAB USE IN ADULT PATIENTS WITH METASTATIC COLORECTAL CANCER (DIME, 2015)”
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OBJECTIVES: Analyze the results obtained in DIME-BID HTA for the treatment of metastatic colorectal cancer (mCRC). METHODS: a methodological analysis of the HTA presented by the DIME was performed. Focused on three parameters (research question, hypothesis, evidence and economic analysis). RESULTS: The efficacy of Bevacizumab, Johnson & Johnson, New Brunswick, NJ, USA, Johnson & Johnson, Diamond Bar, CA, USA.

PCN210
FACTORS INFLUENCING THE USE OF MASTECTOMY AMONG WOMEN WITH BREAST CANCER IN A COMMERCIALLY INSURED US POPULATION
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OBJECTIVES: The objective of this study was to determine the factors influencing the use of mastectomy as compared to breast conserving surgery (BCS) among women with breast cancer. METHODS: The study involved retrospective analysis of the Truven MarketScan Commercial database. Women aged 19-64 years who underwent mastectomy or BCS between July 1, 2013 and September 30, 2014 were identified, with the first date of surgical procedure classified as index date. A breast cancer claim in the six-month pre- and post-index date and continuous enrollment in the one-year pre- and post-index period were required for study inclusion. Multivariable logistic regression analysis was used to examine the factors influencing treatment with mastectomy as compared to BCS. RESULTS: The final study sample included 43,597 women with breast cancer. The overall mastectomy rate during the study period was 40.14%, with little variation observed from 2011 to 2014 (range 38.30–41.38%). Women aged 40-49 years (odds ratio [OR] 0.658, confidence interval [CI] 0.588-0.736), 50-59 years (OR 0.5333, CI 0.478-0.595), and 60-64 years (OR 0.493, CI 0.429-0.544) were significantly less likely to be treated with mastectomy as compared to those aged 19-39 years. Women who were obese (vs. non-obese) were less likely (OR 0.853, CI 0.78-0.924) to be treated with mastectomy. Women with a genetic susceptibility to breast cancer (OR 6.382, CI 5.453-7.946), claim for genetic testing (OR 1.748, CI 1.616-1.880), or with a family history of breast cancer (OR 1.436, CI 1.322-1.525) were significantly more likely to be treated with mastectomy. Factors including geographic region, time period, metropolitan statistical area classification, radiation therapy, chemotherapy, lymph node surgery, plan type, and confinement of evidence had a significant influence on treatment with mastectomy. CONCLUSIONS: The proportion of women with breast cancer undergoing mastectomy remained steady during the study period. Demographic, treatment-related, and comorbidity factors were found to influence treatment with mastectomy.

PCN211
ONCOLOGIST PERCEPTIONS OF CANCER TREATMENT ADVANCES, VALUE ASSESSMENT, AND COMMUNICATION OF INFORMATION ON UNAPPROVED USES OF DRUGS
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OBJECTIVES: The aim of this study was to document how oncologists in the United States perceive treatment advances, the communication of information on
unapproved uses of approved medicines, and assessing treatment value.

METHODS: Data were collected from a 20 minute on-line survey of United States oncologists recruited from a cancer care panel. The survey described their perceptions in an iterative process. RESULTS: Oncologists (n=202) believe the greatest progress in cancer care has been with immunotherapies and targeted therapies compared with those treatments currently not approved. As a result, they believe the majority considered immunotherapies (84%) and targeted therapies (82%) “very/ extremely” promising. More than three out of four oncologists surveyed (78%) would find it useful if more information about safety and efficacy of unapproved uses were available. Ninety-five percent of oncologists were interested in receiving this information from biopharmaceutical manufacturers. A similar proportion (77%) indicated that they would be more likely to refer patients to clinical trials if more information about safety and efficacy of unapproved uses was available. Those who used labels of unapproved uses were available identified the most important attributes of a value framework as the incorporation of the best available evidence, reflection of real-world treatment decision-making, and review by qualified experts. Nearly all respondents (~95%) were familiar with the ICER Value Framework and MSK Drug Abacus (19% and 24% respectively), compared to the ICER Value Framework and MSK Drug Abacus (19% and 24% respectively), compared to the ICER Value Framework and MSK Drug Abacus (19% and 24% respectively). It should be acknowledged that while the ICER and MSK tools are payer-focused and not developed for use by oncologists or patients, it remains important that those frameworks incorporate attributes that oncologists value. CONCLUSIONS: Innovative medicines represent an opportunity for treatment progress in cancer care. Facilitating the exchange of information and addressing gaps in current value assessment tools and can help move towards a value-driven healthcare system that improves patient outcomes.

PCN212

A RETROSPECTIVE REVIEW OF PATIENT CHARACTERISTICS AND TREATMENT METHODS OF BREAST CANCER PATIENTS IN INDIA

Abraham PS, Greene M

METHODS: Study was a retrospective review of electronic medical records from a tertiary care hospital in Mumbai, India. Patients ≥18 years of age hospitalized for breast cancer treatment between Jan 2014 and May 2015 were included in the study. Descriptive and inferential statistics were used to analyze and compare differences between patients. RESULTS: A total of 146 patients met the study criteria. Of these, 120 patients were in the age group of 18 to 64 years. The mean age for all the breast cancer patients was 51.07 ± 13.34 years. The mean age was lowest for patients with private insurance (90) while highest for patients with CGHS (CGHS = 64.69 ± 13.35 years). Majority (124/146, 85.0%) of patients were married. Majority of the patients had early stage breast cancer (108, 74.0%), while 16 (11.0%) patients had locally advanced breast cancer stage 2A and 2B (15.1%) patients had locally advanced breast cancer stage 3A to C. Of the total 120 patients that had surgery, majority of them (n=90) underwent a modified radical mastectomy (MRM) or a breast conservation surgery (n=10). CONCLUSIONS: Majority of the breast cancer patients were diagnosed during the early stages of the disease and were subjected to surgery. The common method of hospital admission was abnormal growth and the common procedure patients underwent was the MRM.

PCN213

PAYER DECISION MAKING FOR PHARMACOGENETIC TESTS: PRELIMINARY RESULTS

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OBJECTIVES: Genetic tests are the fastest growing sector of medicine and medical science, yet there is a dearth of research on access to cancer-related pharmacogenetic tests. The study explored payers’ views about management strategies for pharmacogenetic tests, and to describe criteria for coverage decisions, policy challenges and strategies used to overcome these challenges. METHODS: We conducted semi-structured interviews with representatives of seven US private payers and two US public payers. Interviews were recorded and transcribed verbatim. We performed qualitative content analysis, two independent research team performed open coding of the transcripts in an iterative process, building a provisional code book as coding progressed. RESULTS: Payers may not have established coverage policies for single gene tests but even without a policy in place they are following a pre-printing and rigorous enforcement of regulations requiring that sponsors post trial results on public domains such as ClinicalTrials.gov. This result suggests that payers are introducing prior authorization requirements for pharmacogenetic tests to better manage utilization because an established coding system for tests is lacking. Another key challenge from payers’ perspective is managing the use of and payment for gene panels. Laboratories provide different combination of genes in their panel tests, thus knowing which genes are tested a challenge. Some payers do not pay for large gene panels. CONCLUSIONS: Single pharmacogenetic tests are generally readily accessible. However, as we move from single gene tests to gene panels, payers have identified challenges, and ways of overcoming these challenges as the field evolves.

PCN214

EVALUATION OF DRUG PRICE TRENDS IN THE FEDERAL 340B DRUG DISCOUNT PROGRAM

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OBJECTIVES: The Federal 340B drug discount program provides access to significant drug price discounts for healthcare organizations serving disadvantaged patients. Currently there are no published studies documenting pricing trends in the 340B program. In this project, we analyzed drug price trends in the 340B program over a 10-year period. METHODS: Pharmacy purchase records were collected from a 340B-contracted pharmacy system in Los Angeles between 2006 and 2016. Data, including 340B drug price and average-wholesale price (AWP) prices were weighted by purchase volume in each year. The results were categorized by American Hospital Formulary Service (AHFS) Therapeutic Classification. All dollar values were weighted in 2016 terms. RESULTS: 340B prices declined relative to AWP over time across all drug classes. Overall drug price growth rate over 10- years was 16% for AWP and 19% for 340B (p < 0.08). The growth rate variations were similar after 2010. Among high cost drug classes, the 10-year price growth rates were 14% in AWP and 5% in 340B in select therapeutic classes (p = 0.01), 58% in AWP and 32% in 340B in antineoplastic drugs (p = 0.37), 16% in AWP and 4% in 340B in disease-modifying antirheumatic drugs (DMARD) (p = 0.07) and 14% in AWP and 15% in 340B in antidiabetic drugs (p = 0.09). For specialty drugs such as antineoplastic drugs, antiretroviral drugs and DMARDs, the 340B price growth rates were smaller than AWP growth rates after 2014. CONCLUSIONS: The relatively low drug price in the 340B program provides significant financial savings for eligible healthcare organizations. Eligible organizations with high specialty drug volume would benefit the most from the 340B program.

PCN215

DELAYS IN CLINICAL TRIAL DATA RELEASE ACROSS ONCOLOGY

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OBJECTIVES: Although much of the clinical trial data generated by pharmaceutical companies in oncology are eventually released, there are concerns regarding the speed at which this information is disseminated. Thus, we conducted a study examining the delays in publication of clinical trial results and the availability of clinically actionable data in company press releases. METHODS: We identified peer-reviewed publications and meeting presentations for all clinical trials values used in press releases issued by the top five companies in oncology between January 2011 and June 2016. RESULTS: Time to first publication from the availability of trial results was calculated. Availability of results was the earliest date among: initial press release, meeting presentation (minus either 120 or 90 days for regular or late-breaking abstract submission, respectively) or publication (minus 120 days). We conducted survival analyses using the log-rank test and Cox proportional hazards models. RESULTS: Across our sample of 76 clinical trials, the median time from the available of clinical trial results to first publication was 363 days. The vast majority (79%) of releases reported positive results. For those which reported negative result, there was a longer delay to publication (median of 559 vs. 348 days, log-rank p<0.005) and the press releases were significantly less likely to include quantitative data used. This result rejects the null hypothesis that delays in data release and press releases are independent. CONCLUSIONS: Our study reveals that there is a tremendous amount of information emanating from human subjects research on cancer drugs that is not finding its way into the public domain in a timely fashion. These delays negatively affect both patient outcomes and scientific innovation. We propose two solutions to ensure rapid dissemination of data, including more consistent use of independent scientific preprinting and rigorous enforcement of regulations requiring that sponsors post trial results on public domains such as ClinicalTrials.gov.

PCN216

PCODR UNDER CADTH – WHAT’S CHANGED?

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Sponsor, UK

OBJECTIVES: The pan-Canadian Oncology Drug Review (pCODR) was established in 2010 to assess oncology drugs and bring consistency to the assessment across provinces/territories. In April 2014, pCODR was transferred to the Canadian Agency for Drugs and Technologies in Health (CADTH). This research aims to see what effect this transfer has had on the number of appraisals and recommendation rates conducted by pCODR. METHODS: All publicly available pCODR reports were extracted up to 30th November 2016 and the drug, indication, date and outcome were extracted. Statistical comparisons were made using Student’s t-test. RESULTS: 76 appraisals have been conducted by pCODR, reflecting an average of 15.5/year (10 in 2012, 18 in 2013, 9 in 2014, 24 in 2015, and 15 in 2016). No significant change in the number of appraisals in CADTH transfer (14.2/year [32 from January 2012 to March 2014]) versus post-CADTH transfer (16.5/year [44 from April 2014 to November 2016]) (p=0.588). Overall, 79% of pCODR outcomes have been positive recommendations (defined as full recommendations 41%) or restricted recommendations [67%] with the remaining 21% being
“not recommended”. Annually, the highest recommendation rate was observed in 2013 (89%) and the lowest in 2012 (70%). There were no significant differences in recommendation rates across the three treatment eras. Data were collected using descriptive statistics and the chi-squared test for treatment recommendations pre-CADTH versus 77% post-CADTH, p = 0.427.

CONCLUSIONS: The number of technologies appraised by pCODR and recommendation rates (defined as the percent increase from year to year) for each technology, but no meaningful trends have been observed since the transfer of pCODR to CADTH. However, this transfer began in April 2014, with a second phase aimed at aligning pCODR and CADTH review criteria and best-practice review processes that only commenced in April 2015. Thus, the full effects of this transfer may not yet be clear.

PCN217
CHANG IN THE UTILIZATION OF BLOOD TRANSFUSION AFTER THE NATIONAL COVERAGE DETERMINATION FOR ERTHROPOIESIS-STIMULATING AGENTS IN CANCER
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OBJECTIVES: Erthropoiesis-stimulating agents (ESA) are commonly prescribed for cancer patients with chemotherapy-induced anemia or chronic kidney disease (CKD) patients with low levels of hemoglobin. ESAs are efficacious in increasing hemoglobin levels and reducing future requirements of blood transfusion. Due to safety concerns found in clinical trials, Centers for Medicare and Medicaid Services issued a National Coverage Determination (NCD) for ESAs in cancer to regulate ESA use. The objective of this study is to examine the utilization of blood transfusion in cancer patients before and after the NCD. METHODS: This study used the Surveillance, Epidemiology, and End Results (SEER)-Medicare linked database. A repeated cross-sectional design was implemented. Percentages of patients received blood transfusion in each month were compared before and after the NCD study used a interrupted time series CATS design with a control group, which is a valuable design to evaluate the effectiveness of policy at a clearly defined point in time. The ITS could examine two types of changes: intercept change and slope change. RESULTS: During the study period, the utilization of blood transfusion was decreased before the NCD and remained stable after the NCD in the treatment group. In the control group, the utilization of blood transfusion was similar before and after the NCD. According to the ITS, the utilization (intercept) was increased by 0.10% (P = 0.086) and the trend (slope) was increased by 0.01% per month but was not statistically significantly (P = 0.524).

CONCLUSIONS: The NCD only had a one-time effect on the utilization of blood transfusion. The monthly utilization of blood transfusion was increased by 0.10% (about a 10% increase). In addition to the impact on the utilization of ESAs, the NCD have resulted in an unintended consequence of increased utilization of blood transfusion.

PCN219
EFFECTS OF PHYSICIAN-HOSPITAL INTEGRATION ON TREATMENT PRODUCTIVITY: EVIDENCE FROM CHEMOTHERAPY IN LUNG CANCER
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OBJECTIVES: Over the past several years, hospitals in the United States have increasingly acquired physician-based oncology care. The more vertically integrated form of organization triggered by such changes can internalize the effects of decisions made by clinicians and hospital management individuals to optimize hospital-level complementary services, potentially leading to gains in treatment productivity. This study examines the impact of physician-hospital consolidation on productivity growth, using chemotherapy claims for patients with lung cancer in the 20% Medicare-eligible Files (2009-2013).

METHODS: This study extends prior studies that relied on self-reported binary measures of integration available in hospital-level surveys, we instead identify oncologists who switched from being office-based to being hospital-based, using the billing structure of Medicare, and define a continuous measure of change in the share of services provided by these “switched” oncologists for each hospital. The total factor productivity of hospitals, obtained from a patient-level log health production function, is then activity growth, using chemotherapy claims for patients with lung cancer in the 20%

RESULTS: 2,949 mTNBC patients (median [interquartile range] age, 53 [49-61] years) were included. Taxanes and/or anthracycline were the most commonly (45%) used FT, often in combination with other agents (30% of FT). Median [interquartile range] time from mDTx to FT initiation was 20 [6-49] days. Progression to a second regimen occurred in 54% and 68% of patients after 12 and 36 months of FT initiation, respectively.

CONCLUSIONS: Real-world treatment patterns indicate that mTNBC patients often start with a taxane- and/or anthracycline-containing combination therapy and move on to non-cross-resistant therapy as a second regimen.

PCN222
BICALUTAMIDE TREATMENT PATTERNS IN ELDERLY PROSTATE CANCER PATIENTS: A HISTORICAL COHORT STUDY USING THE SURVEILLANCE, EPILOGOLOGY AND END RESULTS PROGRAM (SEER) CANCER DATABASE
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OBJECTIVES: Bicalutamide (Bic), an androgen receptor inhibitor, is indicated for the treatment of stage D2 metastatic prostate cancer as a combination treatment for luteinizing hormone-releasing hormone (LHRH) analog (a form of androgen deprivation therapy [ADT]). Although newer hormonal agents have been approved since the first phase of the Comprehensive Cancer Network guidelines for advanced disease. Our objective was to characterize contemporary real-world use and duration of BIC treatment before and after ADT in elderly prostate cancer patients.

METHODS: The SEER-Medicare database was used to identify men aged >66 years enrolled in Medicare and diagnosed with prostate cancer between 1/1/2007 and 12/31/2011. Patients treated with BIC after diagnosis were selected and followed until 12/31/2013 or death. Descriptive statistics were used to evaluate patient characteristics, disease progression, and treatment patterns. The impact of the support of 7195 patients treated with BIC, 70.7% were non-Hispanic white and 16.6% had metastatic disease at time of diagnosis. Upon initial treatment with BIC, 25.4% of patients had been diagnosed with metastatic prostate cancer. Among all cohort members, 9.8% never had ADT, 1.9% underwent bilateral orchiectomy, 0.4% were ever treated with LHRH antagonists alone, 85.6% received LHRH agonists, and 3.0% received both LHRH antagonists and agonists after diagnosis. Of the total cohort, 96.1% began BIC within 12 months of disease diagnosis and 90.7% were treated during the “flare prevention” period (6 months pre- to 2 months post-LHRH agonist initiation). For the remainder of the cohort (n = 5067, 64.0%), median duration of BIC use was 6.9 months (mean [standard deviation], 10.7 [11.1] months).

CONCLUSIONS: Almost two-thirds of prostate cancer patients treated with BIC identified in the SEER-Medicare
database had a median treatment duration of < 7 months, for androgen suppression beyond flare prevention. Review on BC use patterns and duration after the introduction of newer hormonal agents is warranted.

PCN223
AN ASSESSMENT OF ATTITUDES AND BEHAVIORAL TRENDS RELATED TO CONSIDERATION OF TREATMENT COST AND VALUE AMONG PROVIDERS IN ONCOLOGY CARE MODEL PARTICIPATING PRACTICES
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OBJECTIVES: The Oncology Care Model (OCM) is one of several alternative payment models identified by the US Innovation Center. OCM practices have invested into payment arrangements that include financial and performance accountability for episodes of cancer care. This research assesses attitudinal and behavioral trends related to consideration of treatment cost and value among providers in OCM practices. It also considers emerging evidence needs in the context of value-based oncology and how these may be served by manufacturers.

METHODS: There are 190 practices participating in the OCM. Primary research was conducted with providers in 2014, with additional surveys of a subset from a base of these practices. Respondents completed a survey assessing attitudinal and behavioral trends related to consideration of treatment cost and value within their practices. The study included: awareness of cost and health economic evidence; referencing of emerging oncology value frameworks; discussion of these elements with peers and patients; and consideration of these elements in development of oncology pathways and/or prescribing.

RESULTS: Providers in OCM practices indicated growing awareness, discussion and consideration of treatment cost and value. Although drugs were not currently considered to be a top focus area for cost savings, providers nonetheless discussed quantity and this trend is more pronounced in OCM sites. These providers seek health economic data and analysis to support their clinical decision-making. This may include medical resource utilization and patient-reported outcomes (e.g., functionality) in well-defined patient populations.

PCN224
TREATMENT PATTERN OF CETUXIMAB FOR COLORECTAL CANCER IN REAL WORLD SETTING BY USING CHINESE ADMINISTRATIVE DATABASES
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OBJECTIVES: The differences in treatment patterns for metastatic colorectal cancer (mCRC) patients have not been extensively studied in Chinese practice settings. This study evaluated the treatment patterns of cetuximab in the real-world setting in China.

METHODS: This study used administrative data from the Qingdao City and Zhejiang Province from 2015 to 2016. All patients with metastatic colorectal cancer (mCRC) treated with cetuximab were included. The outcome of cetuximab was analyzed for 2 years following the initiation of chemotherapy. RESULTS: There are 105 cases that received cetuximab in the median time of adding cetuximab is 359 days (quarter range: 85.0–710.1 days). When health insurance or patient status was provided, frequency of concurrent OCMs was important, with introduction of a different risk for OCM and/or eventual referral to Medicare Part B payment policies. CONCLUSIONS: There is a gradual but important shift in mindset among oncologists in which treatment cost and value is becoming a better understood standard and this trend is more pronounced in OCM sites. These providers seek health economic data and analysis to support their clinical decision-making. This may include medical resource utilization and patient-reported outcomes (e.g., functionality) in well-defined patient populations.

PCN225
IMPACT OF PAYER ON HEALTHCARE RESOURCE UTILIZATION AND COSTS AMONG BREAST CANCER PATIENTS IN INDIA
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OBJECTIVES: To evaluate the impact of the type of payer on health care utilization and the costs of patients treated for oral cancer at a tertiary hospital in India.

METHODS: This was a retrospective review of electronic medical records for 36 patients (30 with private insurance (PI) and 6 with no insurance) who were hospitalized for breast cancer treatment between Jan 2014 and May 2015. Patients >18 years of age hospitalized for breast cancer treatment between Jan 2014 and May 2015 were included in the study. Descriptive and inferential statistics were used to analyze and compare differences between patients. Regression models were also used to determine significant predictors of costs in the regression model.

CONCLUSIONS: Significant differences were found in resource utilization and costs among breast cancer patients. Patients covered by private insurance incurred higher costs but received more resources, which could lead to better care, compared to patients with other insurances.

PCN226
IMPACT OF PAYER ON HEALTHCARE RESOURCE UTILIZATION AND COSTS AMONG ORAL CANCER PATIENTS IN INDIA
Abraham PS1, Greene M1, Egual T1, Rodriguez-Monguio R2, Seoane-Vazquez E1
1MCPHS University, Boston, MA, USA, 2University of Massachusetts Amherst, Amherst, MA, USA

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CONCLUSIONS: Significant differences were found in resource utilization and costs among breast cancer patients. Patients covered by private insurance incurred higher costs but received more resources, which could lead to better care, compared to patients with other insurances.
Local Health Units (LHUs) from 3 separate regions: Veneto, Turin, and Lombardy. Resource use/costs were estimated from administrative databases provided by the LHUs of these regions and chemotherapy regimens from hospital electronic medical records (EMR) provided by the LHU from Veneto. RESULTS: A total of 306 patients were enrolled: 248 (81.0%) non-squamous NSCLC (NSqNSCLC) and 58 (19.0%) squamous NSCLC (squNSCLC). For patients with NSqNSCLC and squNSCLC, respectively, the average age was 66.9, 68.8 years, 64.1%, 81.0% were male, the most common co-morbidities were cardiovascular disease: 34.3%, 48.3% and metabolic disorders: 12.9%, 20.7%. Among non-sqNSCLC and squNSCLC patients, respectively, 193/248 (78.7%) received chemotherapy. In the LHU from Veneto, the most common first-line therapy was pemetrexed/platinum (49/243 (45.2%) patients). 46/39 (49.5%) received second line treatment. Erlotinib was most commonly used (15/23 patients) among squNSCLC patients, 46/58 (79.3%) patients received chemotherapy. In Veneto, the most common first-line therapy was a gemcitabi-ne-platinum (18/23 (78.3%) patients). 9/23 (39.1%) received second line treatment. Docetaxel monotherapy was most commonly used (7/79%) patients. 106/124 (85.5%) had a NSCLC initial hospitalization. Mean number of inpatient days was 34.0 days per patient. Total healthcare cost related to the first line of chemotherapy was €7,453 of which €3,812 was for NSCLC hospitalizations. 21/28 (Tuscany and Lombardy) squNSCLC patients (75.0%) had a NSCLC initial hospitalization. Mean numbers of inpatient days was 29.2 days per patient. Total healthcare cost related to the first line of chemotherapy was €5,257 of which €3,736 was for NSCLC hospitalizations. CONCLUSIONS: LHU databases provide an important means for assessing patient treatment patterns and resource use/costs and are encouraged to make their data available.

PCN229 EFFICACY AND SAFETY OF DIFFERENT PHARMACEUTICAL ETOPOSIDE PRESENTATIONS USED IN ENDOMETRIAL CANCER TREATMENT
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OBJECTIVES: Etoposide is a chemotherapy drug used to treat small cell lung cancer, ovarian cancer, testicular cancer, leukemia and lymphoma. The indication to the use of etoposide in the treatment of patients with endometrial cancer has been recently questioned. The objective of this study was to evaluate the current use of etoposide and other antineoplastic agents for endometrial carcinoma treatment.

METHODS: Data was collected from patients that received chemotherapy for endometrial cancer at the Instituto Nacional de Câncer (INCA) between January 2012 and December 2017. Etoposide use in the treatment of endometrial cancer was collected in the hospital electronic medical records (EMR) from the six Brazilian LUs that participated in the study. The chemotherapy regimens were classified into three categories: chemotherapy agents alone, chemotherapy plus endocrine therapy and chemotherapy plus targeted agents. The chemotherapy agents were classified into standard and investigational agents. The end of follow-up was February 23, 2015.

RESULTS: A total of 3,812 patients were classified according to the chemotherapy regimen used: 1,194 (31.2%) patients received chemotherapy alone, 1,568 (40.9%) patients received chemotherapy plus endocrine therapy and 1,050 (27.3%) patients received chemotherapy plus targeted agents. Among chemotherapy agents alone, a total of 3,716 was for NSCLC hospitalisations. 21/28 (Tuscany and Lombardy) sqNSCLC patients had high LDH level. 25% ipi/nivo and 41% dab/tram patients had high LDH level. 25% ipi/nivo and 59% dab/tram patients received combination therapy as first-line. 21/40 ipi/nivo patients did not complete the 4-dose ipi induction therapy, and 23/40 discontinued ipi-nivo during follow-up (median 185 days). The 3, 6 and 12 months discontinuation rates for ipi/nivo were 23% and 40%. 53/98 patients discontinued dab/tram during follow-up (median 235 days). The 3 and 6 months discontinuation rates for dab/tram were 14% and 31%. CONCLUSIONS: ipi/nivo and dab/tram are widely used for patients with NSCLC in real-world practice. The most common reasons for discontinuation were patient-related and due to disease progression.
characteristics or treatment. Patients were classified as having received or not received guideline- discordant locoregional treatment (GCT) based on receipt of surgery or radiation. NCCN guideline recommended regional chemotherapy, radiation, and hormone therapy regimens identified factors associated with receiving GCT. RESULTS: The final sample included 74,047 patients from 18 SEER registries. Patients were 67% non-Hispanic white, 2% African American, 10% Hispanic, and 13% Hispanic white. Two percent were uninsured, 12% were Medicaid beneficiaries, and 85% were insured, non-Medicaid. The receptor subtype at diagnosis was 11% HER2+/HR-, 4% HER2+/HR+, 72% HER2-/HR+, and 12% HER2- HR+. Overall, 87.6% of patients received GCT insured, non-Medicaid patients were 76% more likely to receive GCT (OR 1.76, 95%CI:1.56-1.98) and Medicaid patients were 25% more likely to receive GCT (OR 1.25, 95%CI:1.10-1.42) compared to uninsured patients. Race/ethnicity of African American, Asian/Pacific Islander, and Native Americans were associated with decreased likelihood of receiving GCT (OR 0.77, 95%CI:0.70-0.82). HER2+/HR- status was associated with increased likelihood of receiving GCT (OR 1.46, 95%CI:1.37-1.55). CONCLUSIONS: Insurance status, receptor subtype, and race/ethnicity were significantly associated with receipt of GCT for ESCR. More research is needed to examine how these relationships may be influenced by additional variables not included in the SEER database.

PCN234 HIGHER PATIENT COST SHARING IS ASSOCIATED WITH PRESCRIPTION ABANDONMENT AND DELAY IN FILLS OF NOVEL ORAL ONColytics PRESCRIPTIONS

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1Society of Pennsylvania, Philadelphia, PA, USA, 2Massachusetts General Hospital, Boston, MA, USA

OBJECTIVES: Increased availability of novel oral oncology has had important implications for the delivery, financing, and outcomes of cancer care. Oral oncology are expensive and associated with out-of-pocket costs which may interfere with cancer treatment initiation. Our study is the first to the best of our knowledge to examine associations between recent years wherein aggressive cost-sharing strategies have become more prevalent. METHODS: Utilizing 2014-2015 Integrated DataVerse data, we examined patients with a new adjudicated prescription for one of 42 oral oncology. We examined the association between out-of-pocket costs for the index prescription and abandonment (i.e., failure to purchase index adjudicated prescription, with no alternative oral or infusible oncologic prescription obtained within 90 days) and delayed initiation (i.e., failure to purchase index adjudicated prescription but same or alternative oncologic obtained within 90 days). We used logistic regressions controlling for sociodemographic, clinical, and treatment characteristics to estimate adjusted outcome rates. Extensive sensitivity and subgroup analyses were conducted. RESULTS: The sample included 74,839 patients. Medicare and commercial insurance enrollees. Risk-adjusted abandonment rates were higher among greater out-of-pocket cost categories: 9% for the $10 group vs. 13% for the $50-100 group, 29% for the $100-500 group, and 45% for the $>2000 group, P < 0.001 for all comparisons. Delayed initiation was also more frequent among patients in higher cost-sharing categories (5% in ≤$10 group vs. 19% in >$2000 group, P < 0.001). Sensitivity and subgroup analyses by type of insurance, pharmacy, and cancer identified similar associations. CONCLUSIONS: Higher cost sharing was associated with higher rates of prescription abandonment and delayed initiation of oral oncologic prescriptions. Our findings suggest cost sharing as a substantial barrier to prompt initiation of lifesaving treatments.

PCN235 CANCER CONCERNS AND ONCOLOGY CARE MANAGEMENT IN THE US

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OBJECTIVES: Cancer is costly, managed by a variety of treatments that include chemotherapy, radiation, surgery, immunotherapy, and targeted therapies. Pharmaceutical treatments are shifting from traditional chemotherapies toward targeted immunotherapies and the potential cost implications requires payor medical and pharmacy directors to focus on, adapt and evaluate these new agents and pathways rapidly as they become available.

PCN236 A DESCRIPTIVE ANALYSIS OF THE HEALTH CARE UTILIZATION AND COSTS OF PATIENTS DIAGNOSED WITH LYMPHOMA IN THE US MEDICARE POPULATION

Gobooga A1, Lin Y1, Wang Y1, Xie L1, Yue H1, Baser O1

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OBJECTIVES: Examine the health care utilization and costs incurred by patients diagnosed with lymphoma in the US Medicare population. METHODS: Patients diagnosed with lymphoma (International Classification of Diseases, 9th Revision, Clinical Modification diagnosis codes 204.xx, 207.xx, 202.xx, and 208.xx) were identified using 100% national Medicare data from Q1N2009-31DEC2013. The first diagnosis date was designated as the index date, and patients were required to have continuous medical and pharmacy benefits 12 months pre- and post-index date. Study outcomes included demographic and clinical characteristics as well as health care costs and utilization for patients diagnosed with lymphoma. RESULTS: A total of 299,349 lymphoma patients were included in the study. The mean age was 77 years. A majority of the patients were female (53.49%) and non-Hispanic white (91.24%). Most patients resided in the South (34.8%), followed by Northeast (23.3%). Advisors/pPlans could cover their management of cancer therapies and treatments, 48.7% of the plans/PCN236

CA

A DESCRIPTIVE ANALYSIS OF THE HEALTH CARE UTILIZATION AND COSTS OF PATIENTS DIAGNOSED WITH MYELODYSPLASIA SYNDROME IN THE US MEDICARE POPULATION

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OBJECTIVES: To examine the health care utilization and costs incurred by patients diagnosed with myelodysplastic syndrome (MDS) in the US Medicare population. METHODS: Patients diagnosed with MDS (International Classification of Diseases, 9th Revision, Clinical Modification diagnosis codes 280-282) were identified using 100% national Medicare data from Q1N2009-31DEC2013. The first diagnosis date was designated as the index date, and patients were required to have continuous medical and pharmacy benefits 12 months pre- and post-index date. Study outcomes included demographic and clinical characteristics as well as health care costs and utilization for patients diagnosed with lymphoma.
Among BC patients, patients with private insurance (PI) received the highest 11.8, CGHS health care costs, including inpatient ($6,482), ER ($285), physician of (MDS). Health care utilization was assessed, including the equipment (DME; 39.91%) claims. Patients with MDS incurred higher mean health care costs, including inpatient ($6,482), ER ($285), physician of (94.00%), outpatient hospital (80.81%), skilled nursing facility (SNF; 8.07%), hospice (2.04%), home health agency (HHA; 16.27%), and durable medical equipment (DME; 39.91%) claims. Patients with MDS incurred higher mean health care costs, including inpatient ($6,482), ER ($285), physician of (94.00%), outpatient hospital (80.81%), skilled nursing facility (SNF; 8.07%), hospice (2.04%), home health agency (HHA; 16.27%), and durable medical equipment (DME; 39.91%) claims. Among sub-sets of patients with 6-months (n=3,309) or 12-months (n=2,103) of continuous enrollment, mean total costs were $101,119 ($95,807) and $118,431 ($143,357), respectively. CONCLUSIONS: Patients received SOR in (first-line), however a variety of agents are used post-SOR despite no approved standard of care in second line. Given the limited number of approved treatment options overall and substantial PFFM costs, there is a clear need for more effective aHCC treatments.

PCN242 REAL-WORLD TREATMENT PATTERNS AND COSTS AMONG ADVANCED HEPATIC CELL CARCINOMA (aHCC) PATIENTS TREATED WITH SYSTEMIC CANCER THERAPIES
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1Truven Health Analytics, an IBM Company, Cambridge, MA, USA, 2Brund-by-Myers Squibb, Princeton, NJ, USA, 3University of Arkansas for Medical Sciences College of Pharmacy, Little Rock, AR, USA, 4Truven Health Analytics, an IBM Company, Ann Arbor, MI, USA, 5Truven Health Analytics, an IBM Company, Ann Arbor, MI, USA
OBJECTIVES: To describe the patient characteristics, pharmacologic treatment patterns and costs among commercially insured patients diagnosed with aHCC.
METHODS: Newly diagnosed aHCC adults were identified using the Truven MarketScan Research Databases between 1/1/2008-9/30/2015 (CD-9 CM 155.0.x, 155.2x; on ≥1 untreated or ≥2 outpatient claims). Continuous enrollment was required in 6-months prior- and post-first diagnosis (index date). A claim for systemic therapy after the index date was required. Patients with prior diagnosis of any other primary/secondary cancers were excluded. Outcomes included a descriptive assessment of patient characteristics, patterns of systemic therapy use, and total costs.
RESULTS: In total, 1,034 patients with aHCC were included in the analysis. Average age was 63.1 (±10.0) years, 55.8% were male, and 31.1% were from the South (38.9%) or Midwest (24.1%) region. The mean Charlson Comorbidity Index scores were 4.9 (standard deviation = 3.49). The most common chronic comorbid conditions included hypertension (78.36%), pre-diabetes mellitus (33.07%). Health care utilization was assessed, including the proportion of patients with inpatient (26.89%), emergency room (ER; 28.00%), physician claims (39.71%) identified hospital (80.81%), skilled nursing facility (SNF; 8.07%), hospice (2.04%), home health agency (HHA; 16.27%), and durable medical equipment (DME; 39.91%) claims. Among sub-sets of patients with 6-months (n=3,309) or 12-months (n=2,103) of continuous enrollment, mean total costs were $101,119 ($95,807) and $118,431 ($143,357), respectively. CONCLUSIONS: Patients received SOR in (first-line), however a variety of agents are used post-SOR despite no approved standard of care in second line. Given the limited number of approved treatment options overall and substantial PFFM costs, there is a clear need for more effective aHCC treatments.

PCN243 ASSOCIATION BETWEEN CANCER INFORMATION SEEKING VIA INTERNET AND CANCER FATALISTIC BELIEFS AMONG AMERICANS USING HEALTH INFORMATION NATIONAL TRENDS SURVEY
Achariy M, Bhundur NR, Faghih H, Stasko J, Poland A, Trueblood J, Zakeri H1
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OBJECTIVES: To determine association between internet cancer information seeking behavior and cancer fatalistic beliefs among young women. We hypothesized that the behavior would mitigate cancer fatalistic thoughts on cancer prevention and treatment. METHODS: A pooled cross-sectional study was conducted among US adults (≥18 years) using Health Information National Trends Survey 2012 and 2014 data. Participants were categorized into two groups: with and without cancer history. The behavior of interest was whether they sought cancer information for themselves via internet (the eSeekers) or that of past 12 months (the non-eSeekers). We examined association between cancer information seeking behavior and each fatalistic belief. Adjusted multivariable logistic regression was then employed to explore associations between socio-demographic factors and each fatalistic belief. Adjusted multivariable logistic regression was then employed to examine association between cancer information seeking behavior and each fatalistic belief. RESULTS: Of the total 5,454 participants, 1,022 (18.7%) reported using internet for seeking cancer information. Greater proportions of the eSeekers were aged 35-64 years, college graduates, urban dwellers, and with either personal or family cancer history. The eSeekers also reported higher agreement on behaviors (such as diet, smoking, exercise) cause cancer (p<0.001). The eSeekers without cancer history were 38% less likely to believe that they were overwhelmed with many recommendations for preventing cancer (Adj.OR: 0.62, 95% CI: 0.44-0.86). However, internet cancer information seeking behavior was insignificantly associated with the other fatalistic beliefs across both groups. CONCLUSIONS: Information seeking is a desired behavior for cancer prevention. However, we did not observe significant associations between the behavior and two out of the three cancer fatalistic beliefs across participants with and without cancer history.
identifies four areas of ambiguity within FDAMA114, seeks to understand if the Cures Act provided sufficient clarity, and captures the Payer and Provider Access Decision Maker (PADM) perspective on the credibility and believability of HCEI. METHODS: Secondary research was conducted to identify four phrases in FDAMA114 considered ambiguous to Payer and Provider ADMs. Each identified phrase was analyzed in relation to guidance provided in the Cures Act. Primary research was conducted with Payer and Provider ADMs to understand the extent to which the Cures Act addressed ambiguity in FDAMA114 and impacts the perceived credibility and believability of HCEI. RESULTS: The Cures Act stated new cancer, women receiving treatment for gynecological cancer, cancer who underwent hysterectomy. In the questionnaire we measured health status, experiences to encourage a national conversation about the rising costs of cancer care. RESULTS: The Cures Act stoked new interest in FDAMA114 by pharmaceutical companies. Specifically, the four primary areas of uncertainty in FDAMA114 identified were acknowledged through changes brought by the Cures Act. However, Payer and Provider ADMs do not recognize a meaningful advancement in reducing the ambiguity around HCEI communications. Moreover, stakeholders acknowledged that the lack of coordination and consistency between pharmaceutical companies further enhances the low perception of credibility and believability around HCEI. CONCLUSIONS: HCEI continues to present an opportunity to optimize a data-driven approach to confronting rising healthcare costs. Even with recent revisions to FDAMA114 through the Cures Act, ambiguity and uncertainty still remain with Payer and Provider ADMs. In the context of HCEI, standardization for the communication of HCEI to improve its overall credibility and believability.

PCN245
ASSESSING THE MOTIVATION FACTORS AND REASONS FOR NON-ATTENDANCE AT CERVICAL CANCER SCREENING AMONG ROMANY MINORITY POPULATION Pakai A1, Bogdáné Basa E1, Csaík Z2, Zirková M1, Horváthné Kívés Z2, Vajda R1
1University of Pécs, Pécs, Hungary, 2University of Pécs, Pecs, Hungary
OBJECTIVES: The aim of our study was to assess the main reasons for romany women to stay away from cervical cancer screening, factors that affect screening attendance, and if the level of knowledge about cervical screening had any influence on the motivation for screening attendance. METHODS: We used a paper and pencil questionnaire to assess the participation rate and habits) among women who were selected by random sampling for a study in Baranya county, Hungary. The aim of our study was to explore the habits and attitudes to cervical cancer screening among women aged between 18 and 70 years. METHODS: A quantitative, cross-sectional study was conducted using self-administered questionnaire (socio-demographic data, motivation to take part in screening, participation rate and habits) among women who were selected by random sampling for a study in Baranya county, Hungary. The sample size was 116. Data were processed by SPSS 22.0 program, using descriptive statistical analysis, χ²-test and multivariate logistic regression (p<0.05). RESULTS: 51.2% of women attended screening within a year, 17.7% of them continued this practice more than that year. Most of the women were not interested in screening within three years. Women living in reasonably good financial position (χ²=18.563, p<0.005) went to screening more often than their less well-off counterparts. CONCLUSIONS: Ongoing efforts are necessary to keep women away from screening.

PCN246
DEVELOPING A PHARMAECONOMICS PROGRAM IN AN ACADEMIC MEDICAL CENTER Prasad S1, Cohen H2, Adelson K1, Abdolghani O3
1University of New Haven, New Haven, CT, USA, 2Smilow Cancer Hospital and Yale School of Medicine, New Haven, CT, USA
OBJECTIVES: While the cost of cancer care continues to rise, the traditional approach to formulary management is no longer sustainable. Several FDA approved anti-cancer drugs in development provide marginal impact on patient survival, little or no improvement in quality of life, and raise questions about the true value of the drug. Value is a key consideration in discussions about reducing oncology drug costs. Unlike in other countries, the U.S. lacks a national program that provides comprehensive review of costly oncology medications. By existing standards, most cancer treatments are unlikely to be cost-effective. A national discussion is needed around the economic value placed on a year of life, what a value-based price is and how it is determined. The objective is to develop an evidence-based program in pharmacoeconomics at an academic medical center to look beyond the traditional approach to oncology formulary management. METHODS: The oncology pharmacy and therapeutics (R&T) subcommittee was identified as an initial strategic avenue for developing pharmacoeconomic analyses for new drug requests and conversion from one drug to another. The methodology are expected to be transparent and replicable, and key stakeholders from disease teams, pharmacy, and therapeutics data are expected to access to the of analytical framework, and applicability of results. Ongoing efforts include educating hospital leadership about the value of pharmacoeconomic analyses. Value-based drug formulary include cost-effectiveness and budget impact analyses. Additional areas for development are oncology care model, treatment pathways and medication policy determination. CONCLUSIONS: The inclusion of pharmacoeconomic analyses in the development of the oncology drug formulary program will require physicians and pharmacy champions in determining guiding principles of the program. Moving toward a pricing system that matches the value of a drug will be challenging. We share these experiences to encourage a national conversation about the rising costs of cancer care.

PCN247
PARTICIPATION IN CERVICAL CANCER SCREENING AND EXAMINATION OF ITS AFFECTING FACTORS AMONG WOMEN LIVING IN BARANYA COUNTY, HUNGARY Raszik R1, Boncz I1, Pakai A1, Győr M1, Csaik Z2, Danku N1, Horváth Kívés Z2, Vajda R1
1University of Pécs, Pécs, Hungary, 2University of Pécs, Pels, Hungary
OBJECTIVES: The aim of our study was to explore the habits and attitudes to cervical cancer screening among women aged between 18 and 70 years. METHODS: A quantitative, cross-sectional study was conducted using self-administered questionnaire (socio-demographic data, motivation to take part in screening, participation rate and habits) among women who were selected by random sampling for a study in Baranya county, Hungary. The sample size was 116. Data were processed by SPSS 22.0 program, using descriptive statistical analysis, χ²-test and multivariate logistic regression (p<0.05). RESULTS: 51.2% of women attended screening within a year, 17.7% of them continued this practice more than that year. Most of the women were not interested in screening within three years. Women living in reasonably good financial position (χ²=18.563, p<0.005) went to screening more often than their less well-off counterparts. CONCLUSIONS: Ongoing efforts are necessary to keep women away from screening.

PCN248
AVERAGE TIME TO PATIENT ACCESS FROM DRUG APPROVAL: AN ANALYSIS OF ONTARIO & QUEBEC Brenner S1, Lapierre M2, Faélic A1, Stewart D3
1Queens University, Kingston, ON, Canada, 2University of Ottawa, Ottawa, ON, Canada, 3Indian Institute of Technology, Kanpur, UP, India
OBJECTIVES: This study compares two provinces to provide insight into the time for provincial reimbursement from Health Canada approval for novel oncology drugs. METHODS: Health Canada’s “Notice of Compliance (NOC)” database was used to identify all new active substances approved between January 1, 2009 and December 31, 2016. The Pan-Canadian Oncology Drug Review (pCODR) and Institut National d’excellence en sante en et services sociaux (INESSS) databases were used to determine the date that Ontario and Quebec publically listed each drug. Prescription claims from a private pay direct drug plan database that includes all major insurance providers in Ontario and Quebec were provided by QuintilienMD to determine the date of first private claim. RESULTS: 43 oncology drugs were identified in both provinces. Access in Ontario (mean difference, Δ) was 17.4 (SD=23.8) days less than that in Quebec, which needs to be investigated further as time to first private claim could be impacted by various confounding factors. A limitation of this study is that access to drugs via clinical trial, compassionate use and pharma-sponsored programs would not be captured in this analysis.

PCN249
CHALLENGES OF PRICING STRATEGY FOR DRUGS BEING LAUNCHED IN MULTIPLE ONCOLOGY INDICATIONS Edathodu A1, Gonzalez AO2, Leung SK1, Mukku SR2
1University of Toronto & Princess Margaret Cancer Centre, Toronto, ON, Canada, 2University of Toronto, Toronto, ON, Canada
OBJECTIVES: Most oncology drugs have development plans that includes multiple indications and often the value they bring in some indications can be higher than others. This study aimed to understand what the best pricing strategy would be when the value is different across indications and how payer willingness to pay may be impacted when the time between the regulatory approval of the indications takes 1 year or more. METHODS: In-depth secondary research was conducted on 18 oncology drugs that were launched in 2 indications or more. This was followed by 1-1 interviews with senior clinicians, policy makers and national and regional payers in EU5. RESULTS: Observation of price changes indicated differences in response by market. The key difference was observed in net prices. This study found that different pricing plans can be developed for different indications, as well as different strategies. The inclusion of the highest net price for the indication that matches the value of a drug will be challenging. We share these experiences to encourage a national conversation about the rising costs of cancer care.
clinical benefit and budget impact, they were also vary of deliberate delaying tactics by pharma in manipulating launch sequence to influence price. The analysis shows that in order to ensure the price of one indication is not impacted by that of a follow-on indication, a minimum of 18 months between indications is expected. CONCLUSIONS: Even though delaying a drug’s initial launch in one indication to garner a higher price in another, there often have resulted in a lower price than what they might have achieved by pursuing ‘natural’ launch sequence. Companies developing drugs in oncology should aim to come to market with minimal upfront access to maximise revenue and avoid conflicts with regulatory authorities, clinicians and patient groups.

PCN250 ARE HTAS FOR ONCOLOGY AGENTS TAKING LONGER TO COMPLETE? TRENDS IN TIME TO AN HTA DECISION IN 6 MAJOR MARKETS
Jaks A 2, Pötynen A 2, Bastian A 2

Objective: To determine how the time required for health technology assessment (HTA) after regulatory approval has changed. METHODS: Oncology drugs approved between 2005-2015 by the EMA, 2013-2015 by Health Canada, and 2009-2015 by TGA were matched on indication with HTAs from G-BA, HAS, NICE, SMC, pCDR, and PBAC. The date of the first reimbursement decision was subtracted from the date of the regulatory approval to determine the time taken to complete HTA and to issue reimbursement decision. Trends over time were analyzed using regression analysis. RESULTS: On average it takes 321 days from regulatory approval to issue a reimbursement decision for oncology drugs. Since 2005, the time from regulatory approval to the first reimbursement decision for has lengthened (increased) as more indications become available each year. The time for reimbursement varied (i.e., longer time to issue a decision), while G-BA’s time to decide has been steadily declining over the past decade. This decrease in time to reimbursement of new oncology drugs has not. CONCLUSIONS: DELAYS in patient access to life-saving oncology therapies appear to be getting longer over the past decade. This may be due to changes in HTA processes, the time it takes manufacturers to prepare and submit their dossiers, or the time to finalize negotiations between companies and payers. For example, negotiating patient access schemes for higher cost cancer therapies may require more time. The cost-effectiveness analyses (i.e., NICE, SMC, pCDR, PBAC) have demonstrated lengthy trends, while G-BA, an agency that does not consider cost during the evaluation, has not.

PCN251 DO LONGER HTA REVIEW TIMES FOR ONCOLOGY PRODUCTS REFLECT WORSE OUTCOMES? A REVIEW OF 482 HTAS ACROSS 5 MARKETS
Jaks A 2, Pötynen A 2, Bastian A 2

Objective: To determine how reimbursement decision type affects the time required for health technology assessment (HTA) agencies to issue a decision in oncology. METHODS: Oncology drugs approved between 2005-2015 by the EMA, 2013-2015 by Health Canada, and 2009-2015 by TGA were matched on indication with HTAs from G-BA, HAS, NICE, SMC, pCDR, and PBAC (n=482). Resubmissions were excluded. The date of the first reimbursement decision was subtracted from the date of the regulatory approval to determine the time to reimbursement decision. Reimbursement decisions were categorized as “recommend (with restrictions),” “recommend without restrictions,” or “do not recommend.” An analysis of variance test was used. RESULTS: On average it took 304, 382, and 353 days to issue “recommend,” “recommend with restrictions,” and “do not recommend” decisions, respectively. Although demonstrating a trend, there was no difference in the time to a decision by the type of decision (p=0.16). All agencies (except SMC) required more time for “recommend with restrictions” decisions than “recommend” decisions. It took longer, on average, for pCDR, HAS, and NICE to issue a “do not recommend” decision than a “recommend” or “recommend with restrictions” decision. CONCLUSIONS: The most positive decision (“recommend”) takes the shortest time regarding the decision. All agencies, except for SMC, “recommend with restrictions” and “do not recommend” decisions require longer time, reflecting challenges in negotiations with manufacturers or the time needed to determine restrictions. For example, negotiating with manufacturers on patient access schemes or allowing the manufacturer to refile. CONCLUSIONS: A comment appeal, or counter a preliminary decision could require additional time to reach a conclusion. The time it takes agencies to issue decisions post regulatory approval can lead to delaying patient’s access to oncology treatments.

PCN252 VALUE FRAMEWORKS IN ONCOLOGY: UNDERSTANDING AND IMPLICATIONS TO PHARMA
Slomiany M, Madhavan P, Richardson SE

Objective: GIK reviewed the capabilities and limitations of five of the most notable value frameworks to emerge in recent years, to compare and contrast the relative value that each conveys as well as their application among the intended stakeholders. METHODS: GIK contrasted the methodologies of ASCO Value Framework (version 2.0), NCCN Evidence Blocks, MSKCC DrugAbacus, ICER Value Assessment Framework and ESMO Magnitude of Clinical Benefit Scale with respect to the input, scoring approach and output. In addition, GIK gleaned stakeholder insight on these frameworks and their potential application from stakeholders as well as a review of existing data. RESULTS: GIK noted several framework-specific themes related to trial analysis, breadth of evidence, evidence weighting, scoring and value to stakeholders. GIK’s dialogues with physicians and meta-analysis of existing data revealed level of awareness and use of value frameworks in practice. For example, while the ASCO value framework appears nascent in clinical practice, physicians believe they will be more purposeful in the future as they become more established and the outputs more widely accepted. As value frameworks become more established and the outputs more widely accepted.

PCN253 EVOLVING TREATMENT PATTERNS IN METASTATIC MELANOMA IN CANADA IN 2016
Khan A 1, Merital T 2, Orme J 2

Objective: To determine how the time required for health technology assessment (HTA) decision type affects the time required for health technology assessment (HTA) agencies to issue a decision in oncology. METHODS: Oncology drugs approved between 2005-2015 by the EMA, 2013-2015 by Health Canada, and 2009-2015 by TGA were matched on indication with HTAs from G-BA, HAS, NICE, SMC, pCDR, and PBAC (n=482). Resubmissions were excluded. The date of the first reimbursement decision was subtracted from the date of the regulatory approval to determine the time to reimbursement decision. Trends over time were analyzed using regression analysis. RESULTS: On average it takes 321 days from regulatory approval to issue a reimbursement decision for oncology drugs. Since 2005, the time from regulatory approval to the first reimbursement decision for has lengthened (increased) as more indications become available each year. The time for reimbursement varied (i.e., longer time to issue a decision), while G-BA’s time to decision has been steadily declining over the past decade. This decrease in time to reimbursement of new oncology drugs has not. CONCLUSIONS: DELAYS in patient access to life-saving oncology therapies appear to be getting longer over the past decade. This may be due to changes in HTA processes, the time it takes manufacturers to prepare and submit their dossiers, or the time to finalize negotiations between companies and payers. For example, negotiating patient access schemes for higher cost cancer therapies may require more time. The cost-effectiveness analyses (i.e., NICE, SMC, pCDR, PBAC) have demonstrated lengthy trends, while G-BA, an agency that does not consider cost during the evaluation, has not.

PCN254 ADVANCES IN BREAST CANCER TREATMENT RENDER SCREENING MAMMOGRAPHY NOT COST-EFFECTIVE FOR AVERAGE-RISK WOMEN?
Shen Y 1, Dong W 1, Xu Y 1, Shih YT 1

Objective: To determine how reimbursement decision type affects the time required for health technology assessment (HTA) agencies to issue a decision in oncology. METHODS: Oncology drugs approved between 2005-2015 by the EMA, 2013-2015 by Health Canada, and 2009-2015 by TGA were matched on indication with HTAs from G-BA, HAS, NICE, SMC, pCDR, and PBAC (n=482). Resubmissions were excluded. The date of the first reimbursement decision was subtracted from the date of the regulatory approval to determine the time to reimbursement decision. Trends over time were analyzed using regression analysis. RESULTS: On average it takes 321 days from regulatory approval to issue a reimbursement decision for oncology drugs. Since 2005, the time from regulatory approval to the first reimbursement decision for has lengthened (increased) as more indications become available each year. The time for reimbursement varied (i.e., longer time to issue a decision), while G-BA’s time to decision has been steadily declining over the past decade. This decrease in time to reimbursement of new oncology drugs has not. CONCLUSIONS: DELAYS in patient access to life-saving oncology therapies appear to be getting longer over the past decade. This may be due to changes in HTA processes, the time it takes manufacturers to prepare and submit their dossiers, or the time to finalize negotiations between companies and payers. For example, negotiating patient access schemes for higher cost cancer therapies may require more time. The cost-effectiveness analyses (i.e., NICE, SMC, pCDR, PBAC) have demonstrated lengthy trends, while G-BA, an agency that does not consider cost during the evaluation, has not.


PCN255
THE REPORTING OF ADVERSE EVENTS AND DEATHS USED FOR ECONOMIC MODEL INPUTS IS INCONSISTENT THROUGHOUT ONCOLOGY TRIALS

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OBJECTIVES: Cost-effectiveness analyses require accurate and uniform data relating to adverse events (AEs) and deaths. The consistency of reporting of such data in peer-reviewed oncology trial publications was explored. METHODS: The consistency of reporting of non-mortality AEs and deaths was evaluated in published articles relating to 21 trials in the last 10 years in prematurely untreated diffuse large B-cell lymphoma (DLBCL) and 12 in relapsed/refractory small cell lung cancer (SCLC). RESULTS: The criteria used to report AEs, and the rate and the severity of AEs, community-wide, varied across the publications. In the 21 publications for DLBCL, 4 different criteria were used to report AEs and 17 papers (81%) clearly stated which criteria were used. The severity of AEs reported ranged from ‘all AEs’ to ‘grade ≥3’. The frequency of AEs ranged from ‘all’, to ‘common AEs’. As a result, AEs were reported in 18 different ways in the 21 studies. For SCLC, most publications (92%) specified the criteria used to report AEs. AEs were reported in seven different ways, ranging from ‘all’ to ‘grade ≥3’ occurring in ≥5% of participants’. The severity of AEs was not always reported. In DLBCL, 71% of publications reported the total number of deaths, but 62% reported the number of treatment-related deaths. For SCLC, 67% reported total deaths, and 58% specified toxicity- or treatment-related deaths. CONCLUSIONS: Within and across oncology indications, there is variation in the criteria used to report AEs, and the detail to which AEs are reported, making comparisons between treatments difficult. There is also a lack of clear reporting of deaths and treatment-related deaths. Greater consistency in the reporting of these important clinical endpoints would assist decision-making by health technology assessment agencies.

PCN256
BARRIERS TO CONDUCTING CLINICAL TRIALS AND ONCOLOGY RESEARCH IN COMMUNITY ONCOLOGY IN THE US

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OBJECTIVES: To assess multi-stakeholder expressed preferences around health care prioritization in the Brazilian National Committee for Technology Incorporation [CONITEC]. METHODS: In addition to systematic consideration of scientific evidence, healthcare decision making requires reconciliation of all competing interests. For this purpose, paraconsistent multi-criteria decision analysis (MCDA) approach enables exploration of stakeholders’ perspectives, regarding imperfect information and contradictory valuation, as well as explicit consideration of a broad range of criteria on which real-world decisions are made. A pilot MCDA approach was used to assess multi-stakeholder concerns about resource allocation based on health technology assessment (HTA) report provided by CONITEC. An appraisal group, at hospital level, was convened and “Erlotinib for Lung Cancer” was selected as a case study. A by-criterion HTA report was developed to synthesize evidence. The paraconsistent MCDA approach [a framework that can be used as the basis for inconsistent but non-trivial theories] was tested in 3 steps: selection, scoring and weighting of criteria. Interpretation was explored through discussion. RESULTS: Four criteria for assessing “Erlotinib for Lung Cancer” were identified from the HTA report: clinical effectiveness, cost-effectiveness, budget impact and clinical relevance. Scoring was elicited according to standard approach in annotated logics, considering the concepts of magnitude and confidence on the available evidence. Weights for the criterion representing their relative importance, appraised from the HTA report, were derived from a survey with the 8 members of the appraisal group. Scenario analyses were done varying criteria, scores and weights. The effect of different criteria and weights resulted in distinct recommendation, similar to the ones described in the HTA report. CONCLUSIONS: Feedback from participants revealed that the tool could help to promote a more structured and transparent approach to HTA. Further testing and validation are needed to advance the paraconsistent MCDA approach in healthcare decision making.

PCN257
IDENTIFYING THE HIGHEST BUSINESS OPPORTUNITY FOR FUTURE DEVELOPMENT AMONG KEY PATIENT SUBGROUPS IN NON-SMALL CELL LUNG CANCER (NSCLC)

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OBJECTIVES: Lung cancer is an increasingly segmented disease as more targeted and biological therapies are launched every year, particularly for non-small cell lung cancer (NSCLC). Accurate risk-benefit documentation is being used by key opinion leaders to inform value. Payers in developing guidelines and policies, it is pertinent to assess the current landscape, HTA evidence requirements, and clinical trial design of current/future competitors in order to identify the subgroup(s) with the highest business opportunity. METHODS: A targeted search was conducted to identify potential high priority indications. Abstracts from scientific conferences, manuscripts published in general oncology journals, and conference proceedings were reviewed. RESULTS: Four subgroup within metastatic NSCLC were identified: ALK+, EGFR-, adenocarcinoma, and squamous cell carcinoma. Within the crowded EGFR- and ALK- subgroups, multiple therapies have demonstrated meaningful improvements in PFS with considerable safety concerns. The adenocarcinoma and squamous cell carcinoma segments have few non-chemotherapy options recommended by NCCN, as a result with a growth of indicated patients, ALK- and EGFR- trials won’t provide without a substantial efficacy benefit or economic incentive (i.e., significant price discount).

PCN258
EXPLORING STAKEHOLDERS’ PERSPECTIVES WITH MULTI-CRITERIA DECISION ANALYSIS (MCDA): APPLYING A PARACONSISTENT FRAMEWORK TO HEALTH TECHNOLOGY ASSESSMENT (HTA)

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OBJECTIVES: Assess multi-stakeholder expressed preferences around healthcare prioritization in the Brazilian National Committee for Technology Incorporation [CONITEC]. METHODS: In addition to systematic consideration of scientific evidence, healthcare decision making requires reconciliation of all competing interests. For this purpose, paraconsistent multi-criteria decision analysis (MCDA) approach enables exploration of stakeholders’ perspectives, regarding imperfect information and contradictory valuation, as well as explicit consideration of a broad range of criteria on which real-world decisions are made. A pilot MCDA approach was used to assess multi-stakeholder concerns about resource allocation based on health technology assessment (HTA) report provided by CONITEC. An appraisal group, at hospital level, was convened and “Erlotinib for Lung Cancer” was selected as a case study. A by-criterion HTA report was developed to synthesize evidence. The paraconsistent MCDA approach [a framework that can be used as the basis for inconsistent but non-trivial theories] was tested in 3 steps: selection, scoring and weighting of criteria. Interpretation was explored through discussion. RESULTS: Four criteria for assessing “Erlotinib for Lung Cancer” were identified from the HTA report: clinical effectiveness, cost-effectiveness, budget impact and clinical relevance. Scoring was elicited according to standard approach in annotated logics, considering the concepts of magnitude and confidence on the available evidence. Weights for the criterion representing their relative importance, appraised from the HTA report, were derived from a survey with the 8 members of the appraisal group. Scenario analyses were done varying criteria, scores and weights. The effect of different criteria and weights resulted in distinct recommendation, similar to the ones described in the HTA report. CONCLUSIONS: Feedback from participants revealed that the tool could help to promote a more structured and transparent approach to HTA. Further testing and validation are needed to advance the paraconsistent MCDA approach in healthcare decision making.

PCN259
PAYER ACCEPTABILITY OF METASTASIS-FREE SURVIVAL AS PRIMARY END-POINT IN NON-METASTATIC CASTRATION-RESISTANT PROSTATE CANCER

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OBJECTIVES: Life expectancy of patients with non-metastatic prostate cancer remain low and strict endpoint validation guidelines seem to hinder acceptance. Therefore, pivotal trials in non-metastatic castration-resistant prostate cancer (M0 CRPC) have proposed metastasis-free survival (MFS) as an intermediate primary endpoint. While new oncology drugs may be conditionally approved by regulators based on attaining intermediate efficacy endpoints, their acceptance by payers seems to vary widely across regions and agencies. This research aimed to assess the acceptability of MFS by payers to demonstrate clinical benefit to patients. METHODS: A targeted search for products with MFS as an endpoint was performed. Health technology assessments (HTAs) of these products and analogs in early-stage oncology indications published from January 2011–March 2016 were obtained from HTA agencies around the globe [NICE, SMOC, G-BA, IQWiG, HAS, PRAC, and G-BA]. RESULTS: Six products in FFS indication and MFS as primary endpoint were identified: five in M0 CRPC and one in stage III melanoma; no products had been approved by regulators. Searches for products in analog indications resulted in 46 HTAs of seven products in 10 different indications. Notably, progression-free survival (PFS) was the primary endpoint in most (9/10) indications and its definitions closely resembled MFS in M0 CRPC. No included assessments demonstrated statistically significant survival benefits and all submissions relied on intermediate primary endpoints to demonstrate clinical benefit (ie, PFS, four objective response rate). A correlation between PFS gain of ≥ 5 months and positive recommendations was observed for most agencies, except in Germany (IQWiG and G-BA) and France (HAS), where the acceptance remains challenging. CHALLENGES: PTs and all submissions relied on intermediate primary endpoints to demonstrate clinical benefit (ie, PFS, four objective response rate). A correlation between PFS gain of ≥ 5 months and positive recommendations was observed for most agencies, except in Germany (IQWiG and G-BA) and France (HAS), where the acceptance remains challenging. CONCLUSIONS: PETs and all submissions relied on intermediate primary endpoints to demonstrate clinical benefit (ie, PFS, four objective response rate). A correlation between PFS gain of ≥ 5 months and positive recommendations was observed for most agencies, except in Germany (IQWiG and G-BA) and France (HAS), where the acceptance remains challenging.

PCN260
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PCN260 COMPARISON OF FACTORS INFLUENCING RECENT REIMBURSEMENT DECISIONS OF ADVANCED NON-SMALL-CELL LUNG CANCER THERAPIES ACROSS LEADING HTA AGENCIES
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OBJECTIVES: To compare the factors leading to favorable and unfavorable recommendations for advanced non-small cell lung cancer therapies across six HTA bodies: METHODS: We evaluated HTA reports published by NICE, SMRC, IQWiG, HAS, PBAC and pCODR on non-small lung cancer therapies to identify final decisions and the clinical and economic factors influencing these decisions. The decisions were classified as either positive or negative and to analyze the factors affecting decisions, recommendation summaries of HTA reports were assessed. RESULTS: A total of 25 HTA reports published between January 2016 and January 2017 were identified among which the decisions were positive for 68% submissions. Highest percentage of positive decisions were provided by SMRC (100%) and pCODR (100%). But in pCODR, all being conditional on cost-effectiveness improvement to an acceptable level. Major factors driving positive decisions were overall survival (OS) and added clinical benefit for IQWiG, pCODR and HAS, and cost-effectiveness versus relevant comparator(s) for NICE and CADTH. The leading factors for negative decisions included high ICER values mainly due to economic modelling issues for NICE and PBAC, and no added clinical benefit for IQWiG and HAS. The chief issues of economic modelling by HTA bodies involved inappropriate extrapolation of immature OS data, improper cross-over adjustment, non-inclusion of adverse event-related disutility and costs, underestimation of utility and costs due to post-progression overestimation of comparator drug costs, and underestimation of resource use costs. CONCLUSIONS: The current evaluations signaled that supporting data on OS benefit versus relevant comparators should be considered for reimbursement submissions by pharmaceutical manufacturers. In addition, robust economic models which incorporate appropriate cost and utility values and utilize sensitivity analysis for adjusting uncertainties could be useful to attain market access approvals.

PCN261 APPLICATION OF ONCOLOGY VALUE FRAMEWORKS TO THE 2ND LINE TREATMENTS IN RENAL CELL CARCINOMA (2L-RCC)
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OBJECTIVES: With multiple recent approvals, substantial progress has been made in the treatment of RCC patients who failed the initial therapy. Recently emerged US oncology value frameworks use heterogeneous methodologies, consider different evidence and target audience. Here we summarize the different approaches and outcomes of National Comprehensive Cancer Network Evidence Network Blocks (NCCN), American Society of Clinical Oncology Conceptual Framework (ASCO) and Memorial Sloan Kettering Cancer Drug-access (MSKCC), using example of 2L-RCC. METHODS: PGE curated data of standard care DA treatments with multiple publications of randomized controlled trials (RCTs) in 2L-RCC axitinib (AXI), cabozantinib (CAB), everolimus (EVE) (LEN+EVE), nivolumab (NIV), sorafenib (SOR). Relevant end-points from PGE database and 30-day costs derived from GHI (average sales prices/wholesaler acquisition cost) were used to calculate ASCO Net Health Benefit (NHB) and MSKCC value price; and compare with NCCN approach. RESULTS: MSKCC approach and the ASCO NHB were significant differences in the assessment of treatments evaluated by frameworks. NCCN assigned higher efficacy and safety score to NIV (6/5), while ASCO NHB was the highest for LEN+EVE (6/6/130). All regimens had the same NCCN affordability score (2/5) despite > 6x monthly costs variations. MSKCC does not include combination therapy nor CAB. For the remainder, the MSKCC price fell below the market price only when $150,000/1500 life year was used for pricing. Using a 20% discount for toxicity and a multiplier of 1.5 for other attributes yielded MSKCC price above the market price for all products except AXI. CONC (100%); At保姆 there is common themes among frameworks, heterogeneous methodologies and various data considerations lead to significant variability in value judgement and inconsistent recommendations. Further refinement of each framework is ongoing; however, it is clear that the main environment where growing evidence may change rapidly, a careful review of such evidence and transparent methodology are important to support clinical decision making.

PCN262 INTERNATIONAL COMPARISON OF HEALTH TECHNOLOGY ASSESSMENT DECISIONS IN PERSONALIZED ONCOLOGY THERAPIES
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OBJECTIVES: To identify the Health Technology Assessment (HTA) decision preferences of targeted therapies across the globe by comparing the decision rates and rationale of government-based HTA between Western and Eastern agencies. METHODS: A literature review was conducted to identify decision rates and rationale for targeted cancer therapies from five HTA agencies: NICE in UK, CADTH (pCODR) in Canada, PBAC in Australia, HIQA in South Korea and CDE in Taiwan. RESULTS: In 2L-RCC, each on cancer therapy was applied in 2L-RCC and was reviewed by different countries (% of patients with a cancer type — non — small cell lung cancer (NSCLC), breast, and colorectal cancer (CRC) — based on the GLOBOCAN 2012 report. 17 targeted therapies were selected, Bevacizumab and Alectinib for NSCLC and Ramucirumab for CRC were excluded due to absence of HTA reports in more than three HTA agencies. Consequently, four regimens in breast cancer and five in NSCLC and CRC were reviewed. RESULTS: Seventy HTA reports were identified and reviewed. 15 of 70 HTA reports were not available since the assessments were still in progress or never published. There were 39 positive decisions. The highest positive decision rate was 67% (n=37) including the conditional positive decision rate of 29% (n=10). Taiwan had the highest positive decision rate, 100% (n=7/7), while NICE was 50% (n=6/12). CRC therapies had the lowest positive decision rate, 52% (n=11/21), while NSCLC had a positive decision rate of 90% (n=18/20). The reasons of negative decisions included the uncertainty of the clinical outcome (n=6), no comparative effectiveness to standard or current therapies (n=5) and insufficient cost-effectiveness (n=4). CONCLUSIONS: Based on the selected countries, Asian countries (Korea and Taiwan) were more favorable to targeted therapies than Western countries. CRC and breast cancer had lower positive decision rates compared to general cancer therapy which was 65% and 75% in NICE and CADTH respectively.

PCN263 EVALUATING VALUE BASED FRAMEWORKS IN THE US MARKETPLACE: CHALLENGES IN REAL WORLD APPLICATION
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OBJECTIVES: To compare and contrast value-based frameworks (VBF) applicability in real-world decision making to their design as published in HTA reports. METHODS: All available VBFs for oncology therapies were used in a test case for refractory or relapsing multiple myeloma (MM) Regimens. Relevant trials included daratumumab, elotuzumab because they share a common comparator in clinical trials, lenalidomide plus dexamethasone. The output of each VBF was computed according to the most recent evidence from each reference oncology organization. RESULTS: NICE and CADTH were the leading HTA bodies, and were most affected by frameworks. NCCN assigned higher efficacy and safety score to NIV (6/5), while ASO-NHB was the highest for LEN+EVE (6/6/130). All regimens had the same NCCN affordability score (2/5) despite > 6x monthly costs variations. MSKCC does not include combination therapy nor CAB. For the remainder, the MSKCC price fell below the market price only when $150,000/1500 life year was used for pricing. Using a 20% discount for toxicity and a multiplier of 1.5 for other attributes yielded MSKCC price above the market price for all products except AXI. CONC (100%); At保姆 there is common themes among frameworks, heterogeneous methodologies and various data considerations lead to significant variability in value judgement and inconsistent recommendations. Further refinement of each framework is ongoing; however, it is clear that the main environment where growing evidence may change rapidly, a careful review of such evidence and transparent methodology are important to support clinical decision making.

PCN264 APPLYING THE ASCO VALUE FRAMEWORK NET HEALTH BENEFIT SCORE (NHB) TO METASTATIC PANCREATIC CANCER (mPaC) SOC THERAPIES ESTABLISHING CRITERIA FOR ASSESSING NEW NOVEL TREATMENTS
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OBJECTIVES: Pancreatic cancer is difficult to treat effectively and the optimal first-line treatment has not yet been defined. The objective of this research is to provide benchmark reference for the evaluation of newer therapies. The ASCO Value Framework NHB and the NCCN recommended chemotherapy treatment combinations were utilized to assess the clinical benefit of three treatment treatment regimens. METHODS: Phase III RCTs based on the NCCN recommended first line therapies for advanced mPC, were selected for analysis: MXACT, GEM + nab-Paclitaxel (GN-P), ACCORD, FOLFIRINOX and NCIC-CTG-E 5 + Eribulin (GEM-E). The ASCO framework was applied to calculate the clinical/toxicity and NHB scores of each regimen. We also calculated the monthly drug cost for each of these standard regimens based on the 2016 Medicare Part B Drug Payment Allowance. RESULTS: The NCCN guidelines list all regimens in Category 1 preferred chemotherapy combinations. All regimens delivered an NHB over GEM, FOLFIRINOX 29.1 pts; GN-P 21.4 pts; GEM-E 18.2 pts. The clinical benefit score for each regimen, FOLFIRINOX 41pts, GN-P 28pts and GEM-E 23 pts. The toxicity scores based on adverse events were higher in FOLFIRINOX, GN-P and GEM-E and lower in the GN-P group. Bonus points were achieved in GN-P based on drug use which warrants the highest NHB and was the least expensive. This assessment provides a reference for stakeholder evaluation and assessment of new therapies and for patient and provider therapy choice decisions.

VALUE IN HEALTH 20 (2017) A1-A38
IS NICE BEING NICE IN THEIR RE-EVALUATION OF ONCOLOGY DRUGS IN THE UNITED STATES AND EUROPEAN UNION, 2012-2016

OBJECTIVES: Since July 2016, NICE took over responsibility for the Cancer Drugs Fund (CDF) in England, which contained 25 drugs for 35 indications. NICE is currently evaluating all existing treatments in the CDF to determine their cost-effectiveness and if they should be recommended for use by NHS England, retained in the CDF to gather additional evidence or not recommended. This study investigates NICE’s evaluation of existing CDF treatments and its potential impact on funding and patient access. METHODS: Publicly available data sources were analyzed to determine the outcome of the 35 on-going NICE evaluations. Results: For oncology indications previously funded through the CDF, information was collected on the stage of the evaluation process for each product and the outcome of the NICE assessment (recommended; recommended with cost-containment measures; not recommended). RESULTS: Of the 35 indications, manufacturers agreed to receive transition CDF funding for 34 indications whilst NICE undertakes an evaluation of their treatments. To date, 19 indications have been assessed as having a high level of evidence as an assessment criteria for treatments entering the CDF, whilst NICE undertakes an evaluation of their treatments. To date, 19 indications have been assessed as having a high level of evidence as an assessment criteria for treatments entering the CDF, whilst NICE undertakes an evaluation of their treatments.

COMMUNITY ONCOLOGISTS’ PERCEPTION AND UNDERSTANDING OF BIOSIMILARS’ ROLE IN ONCOLOGY

OBJECTIVES: Biosimilars are highly similar drugs to innovator biologics and are uniquely regulated by the FDA, different from their reference biologic, small molecules, or generics. In light of these regulatory differences, data are needed to understand prescribers’ perceptions and barriers to use. The purpose of this study was to gather and elucidate these perceptions from practicing clinicians. METHODS: This descriptive study identified biosimilars-related attitudes among 61 community-based US oncologists of various geography and practice types. Data were collected at a live meeting with audience response technology. RESULTS: One quarter of responders stated lack of familiarity with biosimilars (25%) indicated that additional evidence is needed before prescribing them. 23% admitted no knowledge of regulatory processes while 19% stated that regulatory approval is similar to other anti-neoplastic. 78% believed that efficacy of biosimilars will be comparable to the reference product. 90% did not associate lower costs with lesser efficacy. 45% considered familiarity with the manufacturer as essential. Concerns about potential litigation was raised by less than 20%. 33% would treat biosimilars as generics with automatic substitution while 33% expect internal review. 3% were unwilling to prescribe biosimilars unless mandated by a payer. 57% identified cost reduction by prescribing biosimilars as important. 76% believed an 11-30% discount on reference drug necessary to prescribe biosimilars. Likelihood of prescribing a biosimilar to the following reference drugs was: trastuzumab in breast cancer - adjuvant (39%), metastatic (69%); bevacizumab in metastatic colon cancer (75%); rituximab - chronic lymphocytic leukemia (75%); non-Hodgkin lymphoma (60%) versus their reference biologics. CONCLUSIONS: While community oncologists appear receptive to biosimilars and are willing to incorporate them into their daily practice, significant educational gaps exist regarding efficacy and toxicity data, cost, reimbursement, and regulatory processes.

INITIAL UPTAKE AND UTILIZATION PATTERNS OF FILGRASTIM-SNDZ, THE FIRST US BIOSIMILAR

OBJECTIVES: The first US biosimilar, filgrastim-sndz (FIL-SNDZ), available since September 2015, is a granulocyte-colony stimulating factor (G-CSF) approved for prevention of treatment-related febrile neutropenia in patients with solid tumors or lymphoma receiving chemotherapy. In January 2017, FIL-SNDZ replaced FIL on the CVS Health formulary. We assessed FIL-SNDZ utilization versus other G-CSFs by quarter (Q) during the first year of FIL-SNDZ availability in the United States.

METHODS: Patients with claims for FIL-SNDZ, tbo-filgrastim (TR0-FIL), FIL, or pegfilgrastim (PEG); a cancer diagnosis; evidence of antineoplastic therapy; and medical and pharmacy benefits were identified for each Q, October 2015 through September 2016, for fully adjudicated claims. Demographic, disease, product type, and treatment setting were reported. RESULTS: In Q4 2015, 5133 patients received a G-CSF: 31 (1%) FIL-SNDZ, 221 (4%) TR0-FIL, 1315 (26%) FIL, and 3739 (73%) PEG. In Q2 2016, among 2571 patients receiving a G-CSF, 107 (5%) received FIL-SNDZ, 46 (2%) TR0-FIL, 508 (21%) FIL, and 3797 (76%) PEG. Patients could have received >1 G-CSF. The top 5 diagnoses for FIL-SNDZ were agranulocytosis, encounter for antineoplastic therapy/other aftercare, breast cancer, leukemia, or multiple myeloma. Of FIL-SNDZ recipients, the majority were commercial payer, excluding other G-CSFs: 39% (TR0-FIL), 33% (FIL), and 38% (PEG). Similar to other G-CSFs, outpatient use was most common for FIL-SNDZ (44% of claims), while 23% of FIL-SNDZ claims were covered by pharmacy benefit, the highest among G-CSFs. CONCLUSIONS: FIL-SNDZ use increased between Q4 2015 and Q3 2016 at the expense of FIL and TR0-FIL and despite an increase in PEG, based on switching between G-CSFs. FIL-SNDZ adoption commercially and by pharmacy benefit managers was higher compared with other G-CSFs. Further evaluation should assess FIL-SNDZ impact on G-CSF market size.
OBJECTIVES: Since September 2015, filgrastim-sndz (FIL-SNDZ), a biosimilar of filgrastim (FIL), has been approved in the US at approximately a 20% discounted price compared with FIL. FIL-SNDZ is approved for 5 out of 6 FIL indications, and is listed among the recommended granulocyte colony-stimulating factors (G-CSF) in the UpToDate Clinical Oncology (ASC0) cancer practice guidelines for prevention of treatment-related febrile neutropenia in patients with solid tumor or lymphoma receiving chemotherapy. Our objective was to identify physician documentation and utilization of FIL-SNDZ during patient office visits and compared to G-CSFs. METHODS: Physician records were extracted from January 1, 2016 through December 31, 2016 from RealHealthData, a US nationwide medical transcription database providing data within 24 hours of a clinical encounter visit to a patient. Counts were refreshed in May 2017. RESULTS: Counts of each mentioned G-CSF, unique patients, and most frequent provider type and state were: FIL-SNDZ: 72 (33 patients), general practitoner, Kansas; TBO-FIL: 1136 (420 patients), multispecialty, Texas; FIL: 4149 (2347 patients), general practitioner, Texas; FIL: 6994 (1391 patients), general practitioner, Pennsylvania. Most G-CSF mentions originated from general practitioners in Texas, Pennsylvania, and Virginia. CONCLUSIONS: Among 11,853 records reporting a G-CSF, 72 mentions (0.6%) of FIL-SNDZ occurred in the 15 months since entry into the US marketplace. Although provider type was similar, the current data underline the geographic disparity in utilization of FIL-SNDZ from that of other G-CSFs. The May 2017 update will confirm whether FIL-SNDZ utilization has increased, as is anticipated with growing awareness and understanding of biosimilars among US clinicians and payers.

PCN271 USE OF DIETARY SUPPLEMENTS AND CANCER FATALISTIC BELIEFS AMONG AMERICANS

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OBJECTIVES: To explore associations between fatalistic beliefs about cancer and self-reported dietary supplement (DS) use. METHODS: A cross-sectional survey among American adults was conducted using Health Information National Trends Survey-Food and Drug Administration 2015 data. Primary outcome was DS usage (yes/no). Predictors were sociodemographics (age, gender, race, education, marital status, income), comorbidities (history of cancer), and health beliefs (DS prevent cancer, DS treat cancer, behavior/lifestyle causes cancer, everything causes cancer, and cancer prevention not possible). The survey was fielded online in English. Analysis included weighted logistic regression. RESULTS: Of 5096 respondents, 1914 respondents (37%) used DS. Compared to non-DS users, a majority of DS users agreed statements including DS prevent cancer, DS treat cancer, behavior/lifestyle causes cancer, everything causes cancer, and cancer prevention not possible were used to explore associations with DS usage. Weighted bivariate descriptive analysis to compare sociodemographics between users/non-users of DS, and adjusted multivariate logistic regression analysis were conducted to examine the associations. CONCLUSIONS: The use of DS is predominantly affected by the perceived belief that cancer can be avoided or treated through DS. These positive findings highlight the need for research in exploring the roles of DS in cancer prevention and treatment.

PCN270 UPTAKE OF THE FIRST US BIOSIMILAR: FILGRASTIM-SNDZ UTILIZATION OBSERVED IN REAL-TIME TRANSCRIPTION DATABASE OF PATIENT OFFICE VISITS

Emersion Pharma Group, Philadelphia, PA, USA; Emersion Pharma Group, Southport, CT, USA

OBJECTIVES: Since September 2015, filgrastim-sndz (FIL-SNDZ), a biosimilar of filgrastim (FIL), has been approved in the US at approximately a 20% discounted price compared with FIL. FIL-SNDZ is approved for 5 out of 6 FIL indications, and is listed among the recommended granulocyte colony-stimulating factors (G-CSF) in the UpToDate Clinical Oncology (ASC0) cancer practice guidelines for prevention of treatment-related febrile neutropenia in patients with solid tumor or lymphoma receiving chemotherapy. Our objective was to identify physician documentation and utilization of FIL-SNDZ during patient office visits and compared to G-CSFs. METHODS: Physician records were extracted from January 1, 2016 through December 31, 2016 from RealHealthData, a US nationwide medical transcription database providing data within 24 hours of a clinical encounter visit to a patient. Counts were refreshed in May 2017. RESULTS: Counts of each mentioned G-CSF, unique patients, and most frequent provider type and state were: FIL-SNDZ: 72 (33 patients), general practitoner, Kansas; TBO-FIL: 1136 (420 patients), multispecialty, Texas; FIL: 4149 (2347 patients), general practitioner, Texas; FIL: 6994 (1391 patients), general practitioner, Pennsylvania. Most G-CSF mentions originated from general practitioners in Texas, Pennsylvania, and Virginia. CONCLUSIONS: Among 11,853 records reporting a G-CSF, 72 mentions (0.6%) of FIL-SNDZ occurred in the 15 months since entry into the US marketplace. Although provider type was similar, the current data underline the geographic disparity in utilization of FIL-SNDZ from that of other G-CSFs. The May 2017 update will confirm whether FIL-SNDZ utilization has increased, as is anticipated with growing awareness and understanding of biosimilars among US clinicians and payers.

PCN274 PRECISE PROGNOSIS, KEY TO END-OF-LIFE PLANNING AND REACHING MEDICARE QUALITY MEASURES; HOW THE VERISTRAT TEST CAN HELP

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OBJECTIVES: The 2015 Medicare Access and CHIP ReAuthorization Act (MACRA) will base physician payments on quality-of-care. This system will rely on specific outcomes and patient metrics to assign a composite performance score; however, there are inherent challenges to measuring and improving upon that score. Here, we reviewed the current standard of oncology end-of-life care, and how VeriStrat® testing and other tools can help physicians improve end-of-life care and reaching Medicare quality measures. METHODS: This study was conducted through a systematic literature review of clinical trials, survey-based studies, medical practice guidelines and reports on the following oncology topics: Estabishing prognosis (including advanced diagnostic laboratory tests), reference ranges and clinical indications, and patient quality-of-life. RESULTS: The review of Merit-based Incentive Payment System (MIPS) and Oncology Care Model (OCM) Quality measures identified specific quality metrics related to end-of-life care for oncology patients -end treatment at end-of-life, late or hospice referral, and hospital admissions- and underscored the importance of establishing and communicating prognosis. When informed of poor prognosis, patients and physicians were less likely to select aggressive treatments, more likely to engage in early palliative care and focus on comfort, all of which are correlated with decreased hospital admissions and improved quality-of-life. While knowing a patient’s prognosis is crucial, studies consistently demonstrate the difficulties of establishing prognosis through clinical factors (tumor stage, performance status). The collective literature shows advanced diagnostic laboratory tests such as the blood-based VeriStrat test (prognostic for survival outcomes in NSCLC patients). In combination, physicians using a more precise prognosis and patient goals of care can achieve better outcomes and patient quality-of-life. By combining prognostic testing and clinical factors, physicians and patients can optimize end-of-life care and measurement and improvement of composite performance score.

PCN275 ADHERENCE TO “CHOOSING WISELY” RECOMMENDATIONS FOR RADIATION THERAPY IN A COMMERCIALLY INSURED LOW-RISK ENDOMETRIAL CANCER POPULATION

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OBJECTIVES: The American Society for Radiation Oncology (ASTRO) “Choosing Wisely” (CW) recommendations note radiation interventions lacking evidence of
benefit in cancer care. This study characterizes adherence to the 2014 CW recommendation to ‘not recommend radiation following hysterectomy in low-risk endometrial cancer stage I, Grade 1’ using a novel linkage between the Western Washington Cancer Surveillance System (CSS) and claims from two large commercial insurance plans. No studies have previously evaluated adherence to this recommendation in a commercial insurance setting. retrospective chart reviews for patients with first primary diagnosis of Stage I (Grade 1-2) endometrial cancer (2008-2015) were linked with Premera Blue Cross and Regence Blue Shield claims. Included cases had coverage for ≥2 months before/after diagnosis and hysterectomy within 1 year before/after diagnosis. We used generalized estimating equations (GEE) clustered by institution to evaluate associations between demographic (age, race) and tumor characteristics (grade, dx year) and receipt of hysterectomy within 1 year of endometrial cancer identified endometrial cancer patients, 514 were Stage I & Grade 1/2, and 112 met all inclusion criteria. Mean age was 59.8, 91.9% were white, and 67.0% were Stage I. Overall, 12.5% were non-adherent. Non-adherence was 10.7% in Grade 1, 16.2% in Grade 2, and 16.0% in year 1 following hysterectomy. Post 1LT, 30 patients (13.8%) received MDS-Tx +/- MDS-SC; 56 patients (25.7%) received MDS-Tx alone. Most common MDS-Txs in 2LT were HMA monotherapy (90.0%) and azacitidine (23.3%), followed by lenalidomide +/- an HMA (23.3%) and antimitabolite chemotherapy (23.3%). Post 1LT, 33.5%, 9.6%, and 9.6% received transfusions, erythropoietic-, and granulocyte-stimulating agents, respectively. Death (33.5%) and progression to AML (22.5%) were the main outcomes post-1LT in patients not initiating MDS-Tx in 2LT. CONCLUSIONS: A majority of HR-MDS patients in routine care do not receive 2LT with an MDS-Tx. Of those who receive MDS-Tx, HMA's remain the predominant choice. MDS-Tx post-1LT progression is still utilized in most patients. Outcomes in patients not initiating 2LT are poor, highlighting the need for additional treatment options.

**PCN278**

**SIGNIFICANT VARIATION IN FIRST-LINE TREATMENT DURATION AMONG PATIENTS WITH METASTATIC COLORECTAL CANCER (mCRC) TREATED IN THE COMMUNITY SETTING**

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**OBJECTIVES:** Overall survival (OS) has significantly improved over the last decade for patients with metastatic colorectal cancer (mCRC) due to advances in systemic chemotherapy, targeted agents, and supportive care. Duration and sequencing of therapies have changed over time with OS. This study aimed to characterize duration of first line (1L) treatment among mCRC patients in the community setting. **METHODS:** Patients with mCRC diagnosed from 2012-2014 (ICD-9 codes 153.x, 154.x, or 154.0x and 154.1x and 197.x for cancer) were identified from a large US healthcare claims database consisting of 129 million unique covered patient lives. Patients were classified into treatment groups based on 1L treatment received. Treatment duration was defined as time from diagnosis (stage I-IV) to stop of 1L therapy. On average, 4,527 mCRC patients identified (mean age at diagnosis 61.2 years old; 54% were male, 96.5% white, 44.9% comorbidities), 2,413 patients were censored. The majority (75.6%) of patients were prescribed a biologic +/- fluoropyrimidine (FP) +/- chemotherapy, followed by 2,175 patients (95% CI: 202 days, 237 days) among those treated with FP + chemotherapy, followed by 1,787 patients (95% CI: 148 days, 280 days) among those treated with biologic +/- FP, and 141 days (95% CI: 133 days, 151 days) among those treated with FP monotherapy (<0.0001). **CONCLUSIONS:** These real world data show significant variation in the duration of 1LT among patients with mCRC. The choice of 1LT therapy may have an impact on the time to treatment discontinuation.

**PCN279**

**RETROSPECTIVE REVIEW OF ORAL CANCER PATIENTS IN INDIA: ANALYSIS OF PATIENT CHARACTERISTICS AND TREATMENT METHODS**

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**MICHS: University, Boston, MA, USA**

**OBJECTIVES:** To review the patient characteristics and treatment methods of oral cancer patients at a tertiary care center in India. **METHODS:** This was a retrospective review of electronic medical records from a tertiary care hospital in Mumbai, India. Patients ≥18 years of age hospitalized for oral cancer treatment in 2014 and May 2015. Descriptive and inferential statistics were used to analyze and compare differences between patients. **RESULTS:** A total of 132 patients met the study criteria. Of these, 108 patients were in the age group of 18 to 66 years. The mean age was lowest for patients with no insurance (NI) while highest for patients with CGHS (CGHS=66.60±7.16 years). PI=61±9.89 years, RGYAJ=51±9.12±9.43 years, NI=49±9.49±9.53 years. The majority of the patients (n=106, 80.3%) underwent a surgical procedure during their stay. The majority of the patients were subscribed to RGJAY payer scheme (RGJAY=105, 79.3%; NI=20, 15.2%; CGHS=5, 3.8%; PI=2, 1.5%). Abnormal growth was the most common reason for admission into the hospital (n=80, 60.6%). 21 (15.9%) patients with hypertension and 18 (13.6%) patients with diabetes were reported as major comorbidities during hospitalization. The majority of the patients had stage 3 or 4 oral cancer (99, 75.0%), while 30 (22.7%) patients had stage 1 or 2 oral cancer and 3 (2.3%) patients had stage 0 oral cancer. Of the total 106 patients that had surgery, the majority of them (n=50) underwent a modified radical neck dissection (MRND) or a combined mandibulectomy and neck dissection operation (n=30). **CONCLUSIONS:** Majority of the oral cancer patients were diagnosed during the advanced stages of disease and were older. Majority of the patients for hospital admission was abnormal growth and the common procedure patients underwent was MRND.
patterns of drug treatment for SCCHN in CANADA. METHODS: Real-world data were collected through a cross-sectional survey administered to oncologists across CANADA in 2014 to 2016. Complete patient history, demographics, and treatment patterns for 6-8 consecutive patients receiving drug treatment for SCCHN. RESULTS: Sixteen physicians provided data on 104 patients. First- or second-line treatment for SCCHN. The mean (SD) age was 61.8 (8.7) years; 24% were current smokers with a mean (SD) exposure of 26.2 (12.7) pack-years, and 66% were former smokers. The most common primary tumor site was oropharynx (48%); 66% of patients had stage IV cancer and 52% had received radiation therapy. Most patients (83%) received a platinum-based regimen as first-line treatment, with 44% receiving cisplatin monotherapy. Use of cetuximab-based regimens was limited to 17 patients (16%). Among 53 patients receiving second-line treatment, platinum-based regimen use was markedly lower (13%) than in first-line. The most common second-line regimens included cetuximab (44%), docetaxel (3%), paclitaxel (13%), and methotrexate (8%) monotherapies. A median (interquartile range [IQR]) of 49 (19-149) days between the end of first-line and the beginning of second-line treatment was reported. Among patients receiving second-line treatment, 87% had received a first-line platinum-based regimen. Nearly half (46%) of previously platinum-treated patients received cetuximab monotherapy as second-line treatment, whereas 13% received docetaxel monotherapy, 9% methotrexate monotherapy, and 9% another platinum-based regimen. Most patients (83%) who progressed to second-line had a median (IQR) of 55 (20-146) days between treatment lines. CONCLUSIONS: Real-world data on the treatment of SCCHN in CANADA showed high use of platinum-based regimens as first-line. Second-line treatment patterns varied, although cetuximab use was prevalent.

PCN281 PREDICTING TREATMENT STRATEGIES FOR ACUTE MYELOID LEUKEMIA ACROSS THE UNITED STATES, WESTERN EUROPE, AND JAPAN Higgibottom K1, DiBona vantona M2, Ilaqua J1 1iPsos Healthcare, Mahwah, NJ, USA, 2iPsos Healthcare, New York, NY, USA OBJECTIVES: National Comprehensive Cancer Network (NCCN) guidelines recommend first-line therapy (1LT) based on patient age. Patients younger than 60 years are recommended to receive a standard (or high) dose of a cytotoxic-based regimen whereas patients older than 60 years are recommended to receive a standard dose of cytarabine or lower intensity therapy (i.e., low dose cytarabine or hypomethylating agents [HMAs]). This study examined how these treatment strategies were implemented in the real world and across various regions. METHODS: A retrospective chart review was conducted. Medical claims data were obtained from Humana, Inc., Louisville, VA, USA, Comprehensive Health Insights, Inc., Louisville, KY, USA, and a commercial claims database from Germany, Italy, Spain, UK, and Japan between Q4 2015 and Q3 2016. Physicians, randomly selected patient charts and abstracted data on patient demographics, disease history, and treatment patterns. Only adult AML patients with complete dosing information who were using cytarabine or HMA agents were included (N=1,037; US: N=106, SEU: N=490, Japan: N=441). RESULTS: The mean age of the sample was 59.7 years (SD=14.9); 59.8% were white 36.6% female (64% platinum-based high dose cytarabine (~220 mg/m2), 20.5% were using standard dose cytarabine (~89 to ~220 mg/m2), 10.0% were using low-dose cytarabine (~89 mg/m2), and 36.8% were using HMAs. The strongest predictors of high dose cytarabine relative to HMAs were being treated in an academic center (OR=6.22), and having a low risk stratification (OR=1.96) (all p < 0.05). The strongest predictors of engaging in a "watchful waiting" approach can often be used across regions and identify the strongest predictors of this strategy. METHODS: A retrospective chart review of patients with MM was conducted by physicians in the United States (N=6,085) and SEU (France, Germany, Italy, Spain, UK; N=4,379) between Q4 2015 and Q3 2016. Physicians, randomly selected patient charts and abstracted data on patient demographics and disease and treatment history. Only patients with complete watchful waiting information were included. Regression models predicted watchful waiting and time spent waiting from available patient and physician variables. RESULTS: A total of 7,896 patients were included [mean age =68.7 years (SD=9.4), 58.2% male]. "Watchful waiting" was significantly more common in the SEU (11.4%) than in the US (5.4%) (p<.05). The strongest predictors of engaging in a "watchful waiting" period was having high risk disease (OR=9.64), having a low risk stratification (OR=1.21), being older (OR=1.02), and being a non-smoker (OR=1.51). A randomized multivariate regression model showed that length of watchful waiting (mean =20.5 months, median =12.0 months). However, although being treated by a hematologist or hematologist/oncologist were not associated with an increased likelihood of "watchful waiting" they were both predictors of shortening the period if it did occur (bs = 1.92 and 0.55, respectively, p<.05). CONCLUSIONS: "Watchful waiting" was relatively uncommon in the study sample, though more common in Western Europe than in the US. Specific cancer sites noted, Germline mutations, were the strongest predictors though other physician and patient level factors contributed.

PCN284 EVALUATION OF TREATMENT PATTERNS AMONG PATIENTS WITH MULTIPLE MYELOGENOUS CELL LYMPHOMA (DLBCL) Galaznik A1, Bell J1, Seal B1, Ogbonnaya A2, Hennenfent K3, Hamilton L3, Eaddy M2 1Humana, Inc., Louisville, VA, USA, 2Comprehensive Health Insights, Inc., Louisville, KY, USA, 3Comprehensive Cancer Network, Louisville, KY, USA OBJECTIVES: Treatment guidelines for DLBCL recommend a combination of chemotherapy agents with rituximab in first-line therapy (1LT). For patients with refractory/refractory relapsed, high-dose chemotherapy with stem cell transplant, consolidation and maintenance therapy. METHODS: A retrospective chart review was conducted. Medical claims data were obtained from Humana, Inc., Louisville, VA, USA, Comprehensive Health Insights, Inc., Louisville, KY, USA, and four commercial claims databases from Germany, Italy, Spain, UK, and Japan between Q4 2015 and Q3 2016. Physicians, randomly selected patient charts and abstracted data on patient demographics, disease history, and treatment patterns. Only adult AML patients with complete dosing information who were using cytarabine or HMA agents were included (N=1,037; US: N=106, SEU: N=490, Japan: N=441). RESULTS: The mean age of the sample was 59.7 years (SD=14.9); 59.8% were white 36.6% female (64% platinum-based high dose cytarabine (~220 mg/m2), 20.5% were using standard dose cytarabine (~89 to ~220 mg/m2), 10.0% were using low-dose cytarabine (~89 mg/m2), and 36.8% were using HMAs. The strongest predictors of high dose cytarabine relative to HMAs were being treated in an academic center (OR=6.22), and having a low risk stratification (OR=1.96) (all p < 0.05). The strongest predictors of engaging in a "watchful waiting" approach can often be used across regions and identify the strongest predictors of this strategy. METHODS: A retrospective chart review of patients with MM was conducted by physicians in the United States (N=6,085) and SEU (France, Germany, Italy, Spain, UK; N=4,379) between Q4 2015 and Q3 2016. Physicians, randomly selected patient charts and abstracted data on patient demographics and disease and treatment history. Only patients with complete watchful waiting information were included. Regression models predicted watchful waiting and time spent waiting from available patient and physician variables. RESULTS: A total of 7,896 patients were included [mean age =68.7 years (SD=9.4), 58.2% male]. "Watchful waiting" was significantly more common in the SEU (11.4%) than in the US (5.4%) (p<.05). The strongest predictors of engaging in a "watchful waiting" period was having high risk disease (OR=9.64), having a low risk stratification (OR=1.21), being older (OR=1.02), and being a non-smoker (OR=1.51). A randomized multivariate regression model showed that length of watchful waiting (mean =20.5 months, median =12.0 months). However, although being treated by a hematologist or hematologist/oncologist were not associated with an increased likelihood of "watchful waiting" they were both predictors of shortening the period if it did occur (bs = 1.92 and 0.55, respectively, p<.05). CONCLUSIONS: "Watchful waiting" was relatively uncommon in the study sample, though more common in Western Europe than in the US. Specific cancer sites noted, Germline mutations, were the strongest predictors though other physician and patient level factors contributed.

PCN285 TREATMENT AND OUTCOMES IN RECURRENT/METASTATIC SQCCUM SQUAMOUS CELL CARCINOMA OF THE HEAD AND NECK: A CHART REVIEW STUDY IN FRANCE Cotter F1, Shaw JW2, Suret A3, Bashir K4, Mace C5, Shih J6, Bodinier J7, Alves L8, Levecq E9, Ross KN10, Myers S11 1Santo Domingo Clinic, Bahamas, USA, 2BF Medical Analytics, France, 3Hôpital Jeanne de Flandre, Lille, France, 4Poupey Clinic, Paris, France, 5Medical Analytics, Paris, France, 6SF Health, USA, 7SF Health, USA, 8SF Health, USA, 9SF Health, USA, 10SF Health, USA, 11SF Health, USA OBJECTIVES: Real-world drug treatment and outcomes in patients with recurrent or metastatic (R/M) squamous cell carcinoma of the head and neck (SCCCHN) after
platinum therapy are largely unknown. In light of emerging therapies, a retrospective chart review was conducted in France to characterize the experiences of patients with platinum-based regimens who have been previously treated with a platinum-based regimen. METHODS: Real-world data were collected through a chart review. Included were patients randomly selected from all adults aged ≥18 years diagnosed with ovarian cancer and undergoing treatment between January 1, 2013, and June 30, 2014 to meet an a priori sample-size calculation. Patients were followed through August 20, 2016 or until death. Clinical trial participants were excluded. Demographics and treatment data were analyzed descriptively. Overall survival (OS) was quantified using Kaplan-Meier analysis and censoring for death of chart abstraction in surviving patients. RESULTS: Twenty-three oncologists contributed data for a random selection of 204 patients. 86% were men and 97% were current or former tobacco users. The mean (SD) age was 65.0 (12.4) years. At rSACCHD discharge, 201 patients (98.5%) were treated first-line with a platinum-based regimen, and 117 (65%) of these patients progressed to second-line treatment. Second-line treatment among these 117 patients consisted largely of monotherapy with a taxane (33%), cetuximab (21%), or metothrexate (12%) irrespective of disease stage (ie, IVC vs non-IVC), and 98 (84%) patients were identified as being second-line platinum-refractory (ie, did not receive second-line platinum). Among those receiving second-line treatment, median OS from first-line initiation was 14.6 (95% CI 13.0, 16.3) months. CONCLUSIONS: More than half of the patients in this chart review received second-line treatment following first-line platinum-based therapy, but median survival remained well under 1.5 years. This study highlights the need for more effective treatments for a patient population with a significant level of unmet need.

PC286 RETROSPECTIVE ANALYSIS OF PATIENTS WITH OVARIAN CANCER RECEIVING TREATMENT AT A TERTIARY CARE HOSPITAL IN INDIA

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OBJECTIVES: To review the patient characteristics and treatment methods of ovarian cancer patients at a tertiary hospital in India. METHODS: This was a retrospective chart review of electronic medical records of a tertiary care hospital in Mumbai, India. Patients ≥18 years of age hospitalized for ovarian cancer treat- ment between Jan 2014 and May 2015 were included in the study. Descriptive and inferential statistics were used to analyze and compare differences between patients. RESULTS: A total of 45 patients met the study criteria. Of these, 38 patients were in the age group of 18 to 64 years. The mean age for all the ovarian cancer patients was 52.17 (95% CI 48.0%;75.9%) for inpatients and 56.50 (95% CI 52.8%;60.2%) for outpatients. The majority of the patients (n=33, 73.3%) underwent a surgical procedure during their stay at the hospital. Of the patients, 43 (95.6%) were subscribed to RGJAY payer scheme (RGJAY=22, 48.9%; NI=11, 24.4%; PI=10, 22.2%; CGHS=2, 4.4%). Pain was the most common reason for admission into the hospital (n=22, 48.9%). 11 (24.4%) patients with hypertension and 10 (22.2%) patients with diabetes were reported as major comorbidities during hospitalization. The majority of the patients had stage 2 or 3 ovarian cancer (16, 48.5%), while 11 (33.3%) patients had stage 1 ovarian cancer and 6 (18.2%) patients had stage 4 ovarian cancer. Of the total 33 patients that had surgery, majority of them underwent a total abdominal hysterectomy bilateral salpingo-oophorectomy (TAHBSO) (n=14). CONCLUSIONS: Majority of the ovarian cancer patients were diagnosed during the advanced stages of the disease and were subscribed to RGJAY scheme. The common reason for hospital admission was pain and the common procedure patients underwent was the TAHBSO.

MUSCULAR-SKELETAL DISORDERS – Clinical Outcomes Studies

PSM1 PREVALENCE OF BISHOPHOSPHONATE-ASSOCIATED OSTEONECROSIS OF THE JAW USING TRUVEN HEALTH ANALYTICS MARKETSCAN®: 2008-2014

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OBJECTIVES: To determine the prevalence of Osteonecrosis of the jaw (ONJ) cases among adult users of Bisphosphonates (BPs) and identify the potential risk factors that contribute to ONJ among BPs users. METHODS: Using TRUVEN HEALTH ANALYTICS MARKETSCAN® database, a study population of 837867 men and women aged between 18 years of age hospitalized for ovarian cancer treat- ment was included in the study. Descriptive and chi-square tests were also conducted to examine the association between risk factors and ONJ outcomes. RESULTS: Outcomes of interest included measures of osteonecrosis and implicated medications. Chi-square tests were also conducted to compare the sociodemographic characteristics of osteonecrosis patients who reported BP use to those using other drugs. RESULTS: 230 ADR reports involving osteonecrosis cases were identified from the total 754,231 ADR reports. Among the 230 osteonecrosis reports, 201 reports (87.4%) were attributed to BP use, while 27 reports (11.7%) were attributed to other drug use, 2 reports lacked drug informa- tion. The ROR for osteonecrosis and BP use was 82.57 (95%CI, 55.06-123.82), with a majority of cases (n=105) associated to alendronate use among the six different classes of BP. Among the 228 reports of osteonecrosis, females (n=167, 87.6%) were more likely to report BP-related osteonecrosis than males (n=24, 12.6%) (p<0.001). Concomitant medications that were used with BP were rare and included Amiodidine, Calcitron, Risedronate and Tiotropium bromide (each n≤12). CONCLUSIONS: The risk of BP use for drug-related osteonecrosis in ADR reports in South Korea were examined. The results imply that BP use needs to be carefully monitored for patients with susceptibility for osteonecrosis.

PSM2 BISHOPHOSPHONATES AND OSTEONECROSIS: ANALYSIS OF THE KOREA ADVERSE EVENT REPORTING SYSTEM

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OBJECTIVES: To examine if bisphosphonate (BP) use is associated with drug related osteonecrosis (ONJ) using adverse drug reaction (ADR) data reported in the Korea Adverse Event Reporting System (KAERS) from 2013 to 2015. METHODS: The KAERS database contained a total of 754,231 ADR reports from 38,974 patients, resulting in an average of 1.99reportspatient; the ADR reports include patient demographics, concomitant drugs, patients’ outcomes, recorded severity, reporting centers, and the results of causality assessments. The reporting odds ratio (RO) was calculated to estimate the association between osteonecrosis and implicated medications. Chi-square tests were also conducted to compare the sociodemographic characteristics of osteonecrosis patients who reported BP use to those using other drugs. RESULTS: 230 ADR reports involving osteonecrosis cases were identified from the total 754,231 ADR reports. Among the 230 osteonecrosis reports, 201 reports (87.4%) were attributed to BP use, while 27 reports (11.7%) were attributed to other drug use, 2 reports lacked drug informa- tion. The ROR for osteonecrosis and BP use was 82.57 (95%CI, 55.06-123.82), with a majority of cases (n=105) associated to alendronate use among the six different classes of BP. Among the 228 reports of osteonecrosis, females (n=167, 87.6%) were more likely to report BP-related osteonecrosis than males (n=24, 12.6%) (p<0.001). Concomitant medications that were used with BP were rare and included Amiodidine, Calcitron, Risedronate and Tiotropium bromide (each n≤12). CONCLUSIONS: The risk of BP use for drug-related osteonecrosis in ADR reports in South Korea were examined. The results imply that BP use needs to be carefully monitored for patients with susceptibility for osteonecrosis.

PSM3 A NETWORK META-ANALYSIS OF THE EFFICACY OF TREATMENTS IN BIOLGIC NAÏVE PATIENTS WITH MODERATE TO SEVERE RHEUMATOID ARTHRITIS AFTER INADEQUATE RESPONSE TO CONVENTIONAL DISEASE MODIFYING ANTI-RHEUMATIC DRUGS

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OBJECTIVES: To compare the efficacy of treatments in moderate-to-severe rheumatoid arthritis (RA) in biologic-naïve patients with inadequate response to conventional disease modifying anti-rheumatic drugs (cDMARDs). METHODS: MED- LINE, Embase, and Cochrane Central Register were searched for RCTs published in 01/1990 to 08/2016. Treatments included were tumor necrosis factor inhibitors (TNFis; etanercept, adalimumab, infliximab, certolizumab pegol, golimumab), rituximab, abatacept, interleukin 6 inhibitors (tocilizumab, sarilumab), and Janus Kinase inhibitors (tofacitinib and baricitinib). Outcome measures included: a) time to loss of response from the total 754,231 ADR reports. Among the 230 osteonecrosis cases, 201 reports (87.4%) were attributed to BP use, while 27 reports (11.7%) were attributed to other drug use, 2 reports lacked drug information. The ROR for osteonecrosis and BP use was 82.57 (95%CI, 55.06-123.82), with a majority of cases (n=105) associated to alendronate use among the six different classes of BP. Among the 228 reports of osteonecrosis, females (n=167, 87.6%) were more likely to report BP-related osteonecrosis than males (n=24, 12.6%) (p<0.001). Concomitant medications that were used with BP were rare and included Amiodidine, Calcitron, Risedronate and Tiotropium bromide (each n≤12). CONCLUSIONS: The risk of BP use for drug-related osteonecrosis in ADR reports in South Korea were examined. The results imply that BP use needs to be carefully monitored for patients with susceptibility for osteonecrosis.

PSM4 COMPARATIVE EFFICACY OF TARGETED IMMUNE MODULATORS AS MONOTHERAPY AND IN COMBINATION WITH CONVENTIONAL DMARDs IN RHEUMA- TOID ARTHRITIS

Synnott PG, Liu S, Agboola FO, Ollendorf D

2017 A1-A383
meta-analysis (NMA) was also performed to combine indirect evidence on ACR response, which was analyzed using a random-effects, multimodal likelihood model. RESULTS: Our literature search identified 68 nDMARDs and 2 DMARDs. All TiMs produced statistically and clinically-significant improvements in disease activity and ACR response relative to control. Anti-TNF, tofacitinib, tocilizumab and sarilumab therapy were superior to adalimumab in rates of clinical remission and ACR response, combination therapy with baricitinib + CD-MARD was also superior to adalimumab + CD-MARD in ACR20/50/70, but rates of clinical remission were similar between the two regimens. Abatacept, tofacitinib, etanercept, and adalimumab (all in combination with CD-MARDs) showed comparable rates of remission, ACR response, and radiographic progression. Thirty-nine RCTs were included in the NMA; results showed small incremental differences in ACR response between TiMs (for example, rates of ACR50-70 ranged from 16% with rituximab + CD-MARD to 22% with tocilizumab monotherapy), and a lack of statistically significant differences in most comparisons.

CONCLUSIONS: Among patients with an inadequate response to nDMARDs, all TiMs provide substantial benefits relative to nDMARDS alone. Distinguishing the benefits between TiMs is more difficult, although tocilizumab and sarilumab monotherapy were superior to adalimumab in head-to-head studies.

PM57

INITIATION OF BIOLGIC DISEASE-MODIFYING ANTIRHEUMATIC DRUG THERAPY AND ASSOCIATED CHANGES IN DISEASE ACTIVITY MEASURES IN ROUTINE CLINICAL PRACTICE

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OBJECTIVES: To evaluate changes in disease activity measures associated with biologic disease-modifying antirheumatic drug (DMARD) therapy in patients with rheumatoid arthritis (RA). METHODS: The Omega RA Disease Activity Data Registry (EMR) data (from a specialized rheumatology EMR) on ~75,000 patients diagnosed with RA, from across the US. This analysis included patients who a) were treated with non-biologic DMARD (nDMARD) between January 2013 and June 2016, b) had not received prior treatment with biologic DMARD, c) added or switched to a biologic DMARD, and d) had at least 2 disease activity measures. Disease activity measures included RF, HAQ, DAS28, CDAI, and DAS28 and established American College of Rheumatology cutpoints were used to define remission. To reduce the impact of subsequent treatment changes, data were censored at 12 months. Survival analyses were conducted to evaluate the time to remission as well as the time to a reduction in disease activity measures.

RESULTS: There were ~14,000 disease activity measures during the 12 month study period and none of the patients were in remission (ACR20/50/70) at baseline. Among 4,005 patients, 2,038 added or switched to another nDMARD and 2,014 added or switched to a bDMARD. A larger proportion of patients in the bDMARD group achieved remission and sustained remission compared to the nDMARD group (25% versus 19%; 14% versus 11%, p < 0.05). Time to remission was significantly shorter in the bDMARD group compared to the nDMARD group (mean = 5.2 vs 6.4 months; 6.0 vs 4.4 months, p < 0.001). CONCLUSIONS: Disease activity improved with changes in DMARD therapy, but the addition of DMARDs was associated with significantly shorter time to remission and sustained remission.

PM58

IMPACT OF SPIRONOLACTONE ON ACR RESPONSE VARIABLES IN RHEUMATOID ARTHRITIS PATIENTS

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OBJECTIVES: To determine the ACR response of spironolactone when added to biologic therapy and combination therapy in patients with rheumatoid arthritis (RA) who had failed to respond adequately to monotherapy or combination of conventional disease modifying agents. METHODS: A single-center study on 28 naive rheumatoid arthritis (RA) patients who failed to respond adequately on monotherapy or combination of conventional disease modifying agents. This study was conducted in 28 naive rheumatoid arthritis (RA) patients who added spironolactone to their current therapy despite core standard therapy with DMARDs. American College of Rheumatology (ACR) responses at zero week, week 12 and week 24 were calculated statistically. The data before and after spironolactone therapy were examined by 2-tailed paired student t-test. Results were considered significant at 95% level (p<0.05) and presented as mean ± SEM. RESULTS: All ACR (20, 50, 70, 90) core set variables were significantly improved after 6 months with spironolactone treatment when compared with baseline in 26 patient. Two patients dropped out the study. 23 patients (88.4%) achieved target response (ACR 20 response), measured as composite index which is based on standard criteria defined by the American College of Rheumatology and evaluated as reduction in at least 20% reduction of Tender Joint Count (TJC), Swollen Joint Count (SJC) and in addition to a 20% improvement in at least three of the five activity measures; patient & physician assessment of general health on VAS scale, pain intensity assessment, ESR and HAQ functional questionnaire. Sixteen (61.5%), eleven (42.3%), nine (34.6%) and four (15.3%) patients also achieved ACR 50%, 70%, 90% response respectively after 24 weeks treatment. CONCLUSIONS: The study suggests that when spironolactone added with DMARDs, impacts both clinically and biologically to the patients with RA. The addition of spironolactone to the treatment of patients who respond incompletely to DMARDs alone or in combination may be distinctly valuable in the management of RA.

PM59

REAL-WORLD HEALTH OUTCOMES ASSOCIATED WITH INFlixIMAB FOR MODERATE-TO-SEVERE ANKYLOSING SPONDYLOARTHROPATHY IN A MEDIUM-SIZED CITY IN CHINA

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OBJECTIVES: To assess the real-world impact of infliximab on the disease activity and quality of life in Chinese patients with moderate-to-severe ankylosing spondylitis (AS) in a medium-sized city of China. METHODS: A cohort of Chinese patients with moderate-to-severe AS (Bath Ankylosing Spondylitis Disease Activity
Index (BASDAI) score greater than 4) were prospectively followed up at a tertiary care hospital in Zhuzhou, a medium-sized city in the central south of China, for their treatment and evaluation of quality of life associated with inflammatory joint disease. The disease severity of AS was measured by BASDAI and the quality of life was measured by SF-36. Conventional linear regression analyses with full adjustment of patient baseline characteristics compared ICT versus cDMARDs for the changes of BASDAI, EQ-5D utility values, and SF-12 physical and mental scores over 22-week follow-up. RESULTS: A total of 31 patients (75.4%) were included. Six patients dropped out (3 patients receiving ICT and 11 patients receiving cDMARD). The ICT group was associated with significantly younger age (34.0 years vs. 43.9 years, p = 0.016) but a higher proportion of urban resident health insurance (74.2% vs. 59.0%, p = 0.002) at baseline than the cDMARD group. Relative to cDMARD, ICT was associated with significantly reduced BASDAI score (coefficient -2.910, p = 0.001), improved EQ-5D utility value (coefficient 0.383, p = 0.001), and increased SF-12 physical score (coefficient 15.597, p = 0.003) in the multiple linear regression models. CONCLUSIONS: Patient social economic status could strongly impact the utilization of inflammatory joint disease for moderate-to-severe AS in Chinese patients. The inflammatory treatment led to a significant improvement of quality of life associated with moderate-to-severe AS in a medium-sized city of China.

PMS10
EFFECTIVENESS OF A PATIENT CENTERED CARE MODEL IN PATIENTS WITH RHEUMATOID ARTHRITIS RECEIVING ONLY CONVENTIONAL DMARDs IN COLOMBIA
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OBJECTIVES: The aim of study was to describe the change in Disease Activity Score 28 (DAS28) in patients with rheumatoid arthritis (RA) receiving only conventional treatment under a patient centered care model (PCC) in a specialized rheumatology center. METHODS: A retrospective review of clinical records of patients with RA and treated with conventional treatment in a rheumatology center in Colombia. Patients were followed-up during 24 months using a treat-to-target strategy (T2T); a PCC model means that a patient should be seen by rheumatologist, physical and occupational therapist, physiatrist, nutritionist and psychologist, at least three times a year according to disease severity. Clinical follow-up was carried out at index date to 245,456 participants who never developed complications, adjusted hazard ratios for hip fracture in those with 1, 2 or 3 complications, hip fracture risk in those with 1 complication (incidence: 67/10,000 person-years, women; 35/10,000 person-years, men). In participants with 1, 2 or 3 complications, hip fracture incidence was 47, 126, and 266 per 10,000 person-years in women and men, respectively. CONCLUSIONS: We observed a global improvement of DAS28 in patients receiving only conventional therapy, followed under T2T strategy and a PCC model. Those results should be used by decision makers in order to do cost-savings for health systems.

PMS11
CONFLICTING COMPARATIVE EFFECTIVENESS EVIDENCE OF HYALURONIC ACID USING REAL WORLD DATA EVIDENCE. AN UPDATE USING A HIGH DIMENSIONAL PROPENSITY SCORE MATCHING APPROACH
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OBJECTIVES: Recent evidence from large observational studies suggest that intraarticular HA injections are associated with a delay in total knee replacement among patients with knee osteoarthritis (OA). However, this recent sponsored evidence is limited considering residual confounding and potential selection bias. The purpose of this study was to evaluate the effectiveness of intra-articular HA injections for knee OA management. METHODS: A nested cohort of persons with knee OA visiting a specialist and a recent history of knee replacement medication use was created using the LifeLink Plus claims (2010-2015) to compare the risk of composite (any) knee surgical interventions, total (TKR) / unicompartmental knee replacement (UKR) and TKR only among HA users and two comparison groups: corticosteroid (CS) users and HA/CS non-users. A high dimensional propensity score (hdPS) was used to match HA users with HA/CS non-users and with CS users on background covariates. The risk of surgical interventions among HA users relative to the comparison groups was assessed using Cox proportional hazards models. A wide range of sensitivity analyses were also conducted including falsification tests. RESULTS: Among 13,849 participants, 797 were HA users, 5,327 were CS users, and 7,725 were HA/CS non-users. After hdPS matching, we observed no significant surgical interventions that did not differ between HA users and HA/CS non-users (HR=0.88, 95% CI 0.67-1.1) and CS users (HR=0.89, 95% CI 0.65-1.12). A sensitivity analysis that restricted the sample to patients who had any type of knee surgery (an approach used in recent studies), showed a similar result, HR=0.9 for those receiving HA/CS non-users compared to HA users (HR=0.87, 95% CI 0.79-0.95). CONCLUSIONS: There were no significant differences in the risk of surgical interventions among HA users compared to HA/CS non-users and CS users after accounting for residual confounding using a high dimensional propensity score.

PMS12
RISK FACTORS AND ECONOMIC BURDEN OF COMPLICATIONS AFTER AN OSTEOARTHRITIC HIP FRACTURE IN CHINA
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OBJECTIVES: To investigate the incidence and its risk factors following an osteorhaptic hip fracture, and quantify and compare the healthcare resource utilization and direct medical costs among patients with and without complications. METHODS: Data was obtained from Tianjin Urban Employee Basic Medical Insurance database (2009-2014). Patients aged ≥50 years, had ≥1 diagnoses of hip fracture during 2010 and 2012, and had continuous enrollment during 12-month before (baseline) and 24-month after follow-up the first identified hip fracture were included. Using a case-crossover design, we identified those identified within the hip fracture, while surgical complications were identified within the 24-month follow-up. All-cause healthcare resource utilization and direct medical costs were measured and compared between patients with and without complications. Logistic regression was applied to identify risk factors associated with any complication. RESULTS: 1,675 patients were identified (mean age=70.5 years, 58.4% female). 66.9% (N=1120) of them had at least one complications during the identified period. Cerebral infarction was the most common medical complication (17.7%), followed by constipation (13.9%) and pneumonia (13.3%), while the most common surgical complications were osteoarticular (20.9%) and subsequent hip fracture (11.4%). Compared with those without complications, patients with complications had higher all-cause total costs ($8381 vs. $5946, p < 0.001) during the 24-month period, with longer length of hospitalization (39.0 vs. 25.6, p < 0.001) and more outpatient visits (96.3% vs. 87.2%, p < 0.001). Patients aged older (Cox Odds Ratio [95% CI]: 1.05 [1.01-1.09]), had comorbidities including chronic heart disease (1.38 [1.04-1.84]), peripheral vascular disease (1.53 [1.05-2.22]), or hemiplegia (5.38 [2.75-10.50]), and had higher baseline all-cause direct medical cost (1.04 [1.00-1.09]) were more likely to have complications. CONCLUSIONS: Complications following an osteorhaptic hip fracture is associated with increased economic burden in China. The most common complications were cerebral infarction, constipation, pneumonia, and osteoarticular. Effective strategies should be made to prevent osteorhaptic fractures and their complications.

PMS13
MICROVASCULAR COMPLICATIONS AND RISK OF HIP FRACTURE IN PATIENTS WITH TYPE II DIABETES
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OBJECTIVES: People with type II diabetes (T2DM) have increased risk of microvascular complications and fracture. How microvascular complications are related to hip fracture has not been established. We investigated hip fracture risk by numbers of different microvascular complications in T2DM using the Taiwan National Health Insurance Research Database. METHODS: Among people with newly diagnosed T2DM, 2000-2005, 247,177 participants (48% female) who develop at least one complication 1-yr after T2DM diagnosis (“exposed”) were 1:1 matched at index date to 245,456 participants who never developed complications. Index date was referred to the first complication diagnosis date among the exposed. Matching factors included age, sex and T2DM duration time. Participants were followed to the first occurrence of inpatient hip fracture diagnosis, disenrollment or 12/31/2013. We calculated hip fracture incidence. Cox proportional-hazards regression models estimating adjusted rate ratios and 95% confidence interval (CI) for hip fracture. Sex-specific models included age, T2DM duration and cardiovascular disease. RESULTS: Median age for T2DM diagnosis was 57. Among the exposed, first fracture occurred at age 62. Over 4.2-year of follow-up, hip fracture occurred in 2258 women and 1034 men without complications (incidence: 42/10,000 person-years, women; 18/10,000 person-years, men) and 3727 women and 211 men with any complication (incidence: 67/10,000 person-years, women; 35/10,000 person-years, men). In participants with 1, 2 or 3 complications, hip fracture incidence was 47, 126, and 266 per 10,000 person-years in women and men, respectively. CONCLUSIONS: Microvascular complications increase hip fracture risk in T2DM, particularly people with multiple complications. Bone health management should be considered for people with complicated T2DM.

PMS14
365 DAY SURVIVAL PREDICTION IN PATIENTS WITH SECOND HIP FRACTURE
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OBJECTIVES: Patients with second hip fractures are at increased risk of death. The aim of this study was to analyze the 365 days survival in patients with second hip fractures. METHODS: Patients aged 60 years and over treated with primary femoral neck fractures in the year 2000 and suffered from contralateral hip fracture between 01 January 2011 to 31 December 2012 were included in the database of the Hungarian National Health Insurance Fund. The following prognostic factors were evaluated: age, gender, comorbidities, location of second hip fracture, type of surgical intervention, local complication after second hip fracture, and day of hospital admission were studied. The 365 days mortality was calculated.
for each group. Predictors for 365 day survival were evaluated by Kaplan-Meier survival analysis and log-rank test. Statistical analyses were performed using the SSPS software (version 19.0). RESULTS: 312 patients met the criteria. The mean survival time was 113.22 days. The 30 day mortality rate was 8.3%. The 30 day survival rate was longer in men vs. female (13.57 vs. 12.57 days). However there was no significant difference found in 30 day survival of patients with different gender (p=0.818), location of second hip fracture (p=0.805), type of surgical intervention (p=0.666), complications after second hip fracture (p=0.254), and day of hospital admission (p=0.795). CONCLUSIONS: The 30 day mortality rate was high, but the investigated prognostic factors didn’t show significant correlation with patients’ survival. Further analyses of risk factors are needed to clarify their role in the survival of patients with second hip fracture.

MUSCULAR-SKELETAL DISORDERS – Cost Studies

PMS15

POTENTIAL IMPACT OF THE BIOSIMILARS INTRODUCTION OF 3 ANTI-TNFFS IN THE EUROPEAN MARKET

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OBJECTIVES: Patents of infliximab, etanercept and adalimumab have expired in Europe, with patent of infliximab expected to expire in Europe in 2018. Biosimilars of former two are available in the US. This study’s objective is to assess the potential savings of introducing infliximab, etanercept and adalimumab biosimilars in Europe. METHODS: ODS: Savings for each anti-TNF were estimated from the year of biosimilar entry in Europe (2015 for infliximab, 2016 for etanercept and 2018 for adalimumab) up to 2020. As of 2020, patients treated with biosimilars were assumed to be treated with the same biosimilar drug as the originator drug. Savings for each anti-TNF were estimated using assumptions of approximately 60% market share for infliximab biosimilars, 20% for etanercept and 45% for adalimumab biosimilars. Savings were calculated in the following manner: savings were estimated based on the assumption of 10% increase in annual sales and it was assumed a 10% increase in 2017 and a 5% increase in subsequent years. Inclusion of adalimumab and etanercept biosimilars in Europe was assumed to increase patient share sizes. Daily dosage of drug was determined by drug instructions and it was used to calculate the average dose. Two scenarios were modeled: etoricoxib covered or not covered by the public health insurance. RESULTS: China’s target osteoarthritis patients was estimated to be 10.02 million. Chinese and many international guidelines had established etoricoxib as the drug of choice. Chinese medical insurance, naproxen, loxoprofen, dicofenac, sulindac, acetamin, etodolac, nabumetone, meloxicam, nimesulide, celecoxib, paracetamol tranadol, hydrochloride tramadol. The annual expenditure of etoricoxib (CNY/patient) was (1,784.38 CNY/patient), (1,984.38 CNY/patient) based on average bidding prices. Thus, including etoricoxib in the national reimbursement list could potentially increase 7.37 million, 15.88 million, 24.00 million, 32.88 million, 41.85 million CNY medical expenditure from 2015-2020. Sensitivity analyses showed the results were robust. CONCLUSIONS: The potential budget impact of Biosimilars has been estimated. Further studies are needed to determine the clinical effectiveness of the biosimilars, which might aid formulary adoption and uptake by health plan decision makers. The findings of this study have implications for policy makers and payers.

PMS16

POTENTIAL IMPACT OF THE BIOSIMILARS INTRODUCTION OF 3 ANTI-TNFFS IN THE EUROPEAN MARKET

Psachoulia E, Martin-Rincaneda MC, Levysohn A
Blegen International GmbH, Zug, Switzerland

OBJECTIVES: Patents of infliximab and etanercept have expired in Europe, with patent of adalimumab expected to expire in Europe in 2018. Biosimilars of infliximab are available in the US. Biosimilars of etanercept and adalimumab are available in Europe. METHODS: ODS: Savings for each anti-TNF were estimated from the year of biosimilar entry in Europe (2015 for infliximab, 2016 for etanercept and 2018 for adalimumab) up to 2020. As of 2020, patients treated with biosimilars were assumed to be treated with the same biosimilar drug as the originator drug. Savings for each anti-TNF were estimated using assumptions of approximately 60% market share for infliximab biosimilars, 20% for etanercept and 45% for adalimumab biosimilars. Savings were calculated in the following manner: savings were estimated based on the assumption of 10% increase in annual sales and it was assumed a 10% increase in 2017 and a 5% increase in subsequent years. Inclusion of etoricoxib in China was assumed to increase patient share sizes. Daily dosage of drug was determined by drug instructions and it was used to calculate the average dose. Two scenarios were modeled: etoricoxib covered or not covered by the public health insurance. RESULTS: China’s target osteoarthritis patients was estimated to be 10.02 million. Chinese and many international guidelines had established etoricoxib as the drug of choice. Chinese medical insurance, naproxen, loxoprofen, dicofenac, sulindac, acetamin, etodolac, nabumetone, meloxicam, nimesulide, celecoxib, paracetamol tranadol, hydrochloride tramadol. The annual expenditure of etoricoxib (CNY/patient) was (1,784.38 CNY/patient), (1,984.38 CNY/patient) based on average bidding prices. Thus, including etoricoxib in the national reimbursement list could potentially increase 7.37 million, 15.88 million, 24.00 million, 32.88 million, 41.85 million CNY medical expenditure from 2015-2020. Sensitivity analyses showed the results were robust. CONCLUSIONS: The potential budget impact of Biosimilars has been estimated. Further studies are needed to determine the clinical effectiveness of the biosimilars, which might aid formulary adoption and uptake by health plan decision makers. The findings of this study have implications for policy makers and payers.

PMS17

BUDGET IMPACT ANALYSIS OF ETORICOXIB IN THE TREATMENT OF OSTEOARTHRITIS IN CHINA

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OBJECTIVES: To estimate the potential budget impact of Etoricoxib in the Treatment of Osteoarthritis from the public health insurance payer’s perspective in China from 2017-2023. METHODS: A budget impact model was developed in the context of national reimbursement drug list with a five-year time frame in accordance with the ISPOR BIA guideline. The target patient population of Osteoarthritis patients was estimated with official national population statistics and the prevalence of osteoarthritis among elderly patients residing in urban and resident and employed groups because of different reimbursement level. The national hospital sales data of last year were used to forecast the annual growth and patient-related cost estimates. During the decision-making process, naproxen, loxoprofen, dicofenac, sulindac, acetamin, etodolac, nabumetone, meloxicam, nimesulide, celecoxib, paracetamol tranadol, hydrochloride tramadol. The annual expenditure of etoricoxib (CNY/patient) was (1,784.38 CNY/patient), (1,984.38 CNY/patient) based on average bidding prices. Thus, including etoricoxib in the national reimbursement list could potentially increase 7.37 million, 15.88 million, 24.00 million, 32.88 million, 41.85 million CNY medical expenditure from 2015-2020. Sensitivity analyses showed the results were robust. CONCLUSIONS: The potential budget impact of Biosimilars has been estimated. Further studies are needed to determine the clinical effectiveness of the biosimilars, which might aid formulary adoption and uptake by health plan decision makers. The findings of this study have implications for policy makers and payers.
rhodomyelosis requiring hospitalization due to statin drug-drug interactions and estimated total annual costs of $17,2 million with an estimated 23 patients expired. A determination one-way sensitivity analysis indicated that incidence rate of rhodomyelosis as the most influential model parameter. 

**CONCLUSIONS:** Statin drug-drug interactions may result in rhodomyelosis that has significant costs and mortality.

**PMS20**

**EVALUATING THE ECONOMIC BURDEN AND HEALTH CARE UTILIZATION OF RHEUMATOID ARTHRITIS PATIENTS IN THE US DEPARTMENT OF DEFENSE POPULATION**

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**OBJECTIVES:** To examine the economic burden and health care utilization of rheumatoid arthritis (RA) patients in the US Department of Defense (DoD) population. 

**METHODS:** Patients diagnosed with RA (International Classification of Diseases, 9th Revision, Clinical Modification diagnosis code: 714) were identified using patient specific discharge data. RA patients were included if they met the American College of Rheumatology (ACR) 1987 criteria for at least 7 of the 10 criteria. Patients with RA were included if they had at least one outpatient claim for RA-related medications within the year prior to the index date. 

**RESULTS:** Eligible RA and non-RA patients (N=32,512) were identified. A total of 56,987 RA-related visits were recorded for the RA patients, with a mean total cost of $19,567 per patient per year. The incremental cost of RA patients compared to non-RA patients was estimated to reduce mean annual RA-related cost by $893 (-14.7%) for abatacept treatment compared to TNFi treatment. A sensitivity analysis showed that the incremental cost of RA patients lead to large improvements in functional status and lower RA-related medical costs compared to TNFi treatment. 

**CONCLUSIONS:** Our results suggest that the economic burden of RA patients lead to large improvements in functional status and lower RA-related medical costs compared to TNFi treatment.

**PMS21**

**ECONOMIC IMPACT OF BIOLOGIC DMARD TREATMENT FOR ACPA+ AND RF+ PATIENTS: A COMPARISON OF ABATACEPT AND TNF INHIBITORS BILOGIC DMARDs**


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**OBJECTIVES:** Anti-citrullinated protein antibodies (ACPA) and Rheumatoid Factor (RF) are markers used to diagnose rheumatoid arthritis (RA). Patients that are both ACPA+ and RF+ (hereafter Double+) have more severe disease and improved clinical response to abatacept treatment compared with other patients. This study estimates changes in RA-related medical cost after initiation of treatment with abatacept or tumor necrosis factor inhibitor (TNFi) biologic disease modifying antirheumatic drugs (csDMARD) among RA patients (N=1,569) . After csDMARD cohort was expiring. A deterministic one-way sensitivity analysis indicated that incidence rate of rhodomyelosis as the most influential model parameter. 

**RESULTS:** In our three-step simulation model, we first measured RA-related costs for Double+ patients using IMS PharMetrics Plus health insurance claims data linked to electronic medical record data (2010-2015). Second, we measured the changes in functional status comparing patients who initiated treatment with abatacept versus TNFi in terms of Clinical Disease Activity Index (CDAI). Finally, we monetized functional status improvement among these patients. 

**CONCLUSIONS:** The adjusted average total expenditure of the RA population over the five sample years in 2014 US dollars was $9,363.40 compared to $17,919.30 in the non-RA sample (p<0.001). 

**PMS22**

**HEALTHCARE UTILIZATION AND COSTS FOR RA PATIENTS ON BIOLOGICS COMPARED TO THOSE ON CONVENTIONAL SYNTHETIC DMARDs: RESULTS FROM A NATIONWIDE POPULATION-BASED COHORT STUDY IN TAIWAN**

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**OBJECTIVES:** This study aimed at assessing the changes in healthcare utilization and cost differences between patients treated with conventional synthetic and biological disease modifying antirheumatic drugs (csDMARD and SBDMARD) for rheumatoid arthritis (RA) in Taiwan. 

**METHODS:** Two cohorts of severe RA patients were identified from National Health Insurance claims database. The csDMARD cohort was patients who had medication claim for cyclosporine ≥ 30 mg/day with concomitant use of ≥ 2 csDMARDs for ≥ 28 days within 56 days after cyclosporine use during 1997-2003 (N=1,569). After csDMARD cohort was determined, the SBDMARD cohort was selected if patients had ≥ 1 claim for SBDMARD during 2003-2011 (N=1,530). 

**RESULTS:** Incremental number of hospitalization days decreased by 75% (from 2.3 days for csDMARD to 0.58 day for SBDMARD). The incremental total costs and RA medication costs were increased by 3.66 times ($3,457 vs. US$589, p=0.001) and 4.78 times (US$1,012 vs. US$467, p=0.001), respectively, for SBDMARD compared to csDMARD. However, the sum of incremental healthcare utilization costs and incremental non-RA medication costs was decreased by 64% (from US$1,302 for csDMARD to US$467 for SBDMARD). 

**CONCLUSIONS:** The introduction of biologics in the treatment of RA has significantly reduced the hospitalization days for RA patients. Incremental costs of healthcare utilization and non-RA medication also decreased for SBDMARD compared to csDMARD.

**PMS23**

**TRENDS IN HEALTHCARE EXPENDITURES, UTILIZATION, AND HEALTH STATUS AMONG US PATIENTS WITH RHEUMATOID ARTHRITIS FROM 1998-2014: A REPORT FROM THE MEDICAL EXPENDITURE PANEL SURVEY**

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**OBJECTIVES:** The research was conducted to estimate the annual expenditures, healthcare utilization, and change in health status for patients who sought health care services for rheumatoid arthritis (RA) based on nationally representative sample from the Medical Expenditure Panel Survey (MEPS). 

**METHODS:** Adult respondents were sampled from the years 1998, 2002, 2006, 2010, and 2014. Patients with RA were identified and compared to those without RA. Annual expenditures and utilization were recorded for the inpatient setting, office-based setting, pharmacy, and emergency department. 

**CONCLUSIONS:** Despite having lower physical and mental health scores, RA-related expenditure represents a considerable economic burden on the US health care system. Pharmacy is the primary area of expenditure.

**PMS24**

**CLINICAL RESPONSE AT WEEK 52 AND COSTS IN PATIENTS WITH RHEUMATOID ARTHRITIS USING BIOLOGICAL THERAPY IN A SPECIALIZED CENTER IN COLOMBIA**


**Biomab, center for rheumatoid arthritis, Bogota, Colombia, 2SIESI investigation and research, Bogota, Colombia, 3Biomab, Colombia**

**OBJECTIVES:** Rheumatoid Arthritis (RA) is a chronic autoimmune disease with a prevalence of 1% in general population. Due to the course of disease patients have progressive disability that causes productivity losses and early retirement leading to great expenses for society. Biological treatment for RA has been proved as an effective treatment but it is associated with high costs. We describe the costs of biological therapy in patients with RA in a specialized center. 

**METHODS:** We conducted a real-world, retrospective, cross-sectional study, we included patients with biological therapy, they were followed for 52 weeks and treated according to Disease Activity Score 28 (DAS28). Descriptive epidemiology was done, means were analyzed using t-Student performing a normality test for DAS28 and overall therapy costs were assessed. 

**RESULTS:** 684 patients were included, mean DAS28 at beginning of therapy was 3 ± 1, the majority of patients received Adalimumab 16% followed by Etanercept 25 mg 12%, Tocilizumab, Infliximab and Rituximab 11%, Abetxept IV 10%, Etanercept 50 mg, Cetuximab and Rituximab 7%, Tocilizumab SC 2%. The most expensive biological treatment was Golimumab (USD 12,770/year) followed by Cetuximab (USD 10,557), Etanercept 25 mg and 50 mg (USD 10,311 and USD 9,790), Infliximab (USD 9,565), Tocilizumab (USD 8,795). Abetxept IV (USD 8,330 Infliximab (USD 6,564) and Rituximab (USD 4,427). When the progression of the disease was compared at week 52, most of patients went from a DAS28 of 3 ± 1 to a mean DAS28 of 4 ± 1. 

**CONCLUSIONS:** The therapies in the treatment of RA is effective but continues to be associated with high costs of biological therapy is to carefully evaluate patients that will receive this medications, nonetheless further research based on cost-effectiveness analysis is needed to verify these results.
PMS25
ADVERSE EVENT DATA AS PROXY TO DETERMINE TOTAL MEDICAL COSTS FOR TNF-ALPHA INHIBITORS

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OBJECTIVES: Adverse drug events (ADEs) lead to 700,000 ER visits and are the fourth most commonly reported in the U.S. with economic costs paramount in understanding total medical cost and differential economic impacts between therapies. This study examined downstream medical costs associated with infections from the use of TNF-Alpha inhibitors. The goal was to establish whether ADE costs can be compared with claims databases to model safer and more cost-effective drug decisions.

METHODS: We analyzed ADE and claims data for six TNF-Alpha inhibitors from August 2015 through July 2016. We included: 1) ADE and claims data from the Adverse Reaction Health Economic (ARHEQ) and 2) ADE and claims data from FAERS; 3) drug usage information from Evaluate Pharma; and 4) claims data from VEA Trust.

RESULTS: Of our focus on infections, we observed that the most common adverse event was infection, followed by blood disorders. The results were most sensitive to variation in PsARC response rates, resulting in higher total medical costs. Deterministic sensitivity analyses of the biologic treatments costs were $156, $79, and $57 and ambulance transportation were $30, $19, and $19 for certolizumab, adalimumab, and etanercept, respectively. Future work will examine other drug classes regarding the use of ADE analytics as a proxy for drug benefit design.

PMS26
COST-EFFECTIVENESS ANALYSIS OF SECUKINUMAB IN PSORIATIC ARTHRITIS: A CANADIAN PERSPECTIVE

Goeree R1, Gladman D2, Chiva-Razavi S3, Gunda P4, Graham CN5, Miles L5, Nikoglou E6, Kelley SD1, Johnson JR1, Thornton D1, Skar D1, Varsos GV1, Feyer F2
1Flexion Therapeutics, Burlington, MA, USA, 2Boston Strategic Partners, Inc., Boston, MA, USA

OBJECTIVES: The present study investigated the cost-effectiveness of secukinumab, a novel, intra-articular, extended-release formulation of ustekinumab in patients with active psoriatic arthritis (PsA) from a Canadian healthcare system perspective.

METHODS: A 1-year, multi-state decision-disease model was developed to assess the long-term cost-effectiveness of secukinumab in PsA. The model was populated with evidence from clinical trials (NCT01487161, NCT02116972, NCT02357459) evaluating an investigational intra-articular corticosteroid formulation (FX006 40 mg) for treatment of knee OA pain. In this model, the pharmacological agents most commonly identified were: PMS25's ADE to lower cost and improve safety. Future work will examine other drug classes regarding the use of ADE analytics as a proxy for drug benefit design. A145

PMS25
ADVERSE EVENT DATA AS PROXY TO DETERMINE TOTAL MEDICAL COSTS FOR TNF-ALPHA INHIBITORS

Davis J1, Dimboli M1, Bartholow T2, Lukaszewski A1, Davis J1
1Advera Health Analytics, Inc, Santa Rosa, CA, USA, 2VEA Trust, Madison, WI, USA

OBJECTIVES: Adverse drug events (ADEs) lead to 700,000 ER visits and are the fourth most commonly reported in the U.S. with economic costs paramount in understanding total medical cost and differential economic impacts between therapies. This study examined downstream medical costs associated with infections from the use of TNF-Alpha inhibitors. The goal was to establish whether ADE costs can be compared with claims databases to model safer and more cost-effective drug decisions.

METHODS: We analyzed ADE and claims data for six TNF-Alpha inhibitors from August 2015 through July 2016. We included: 1) ADE and claims data from the Adverse Reaction Health Economic (ARHEQ) and 2) ADE and claims data from FAERS; 3) drug usage information from Evaluate Pharma; and 4) claims data from VEA Trust.

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PMS30
A COST PER RESPONDER MODEL FOR ORAL TOFACITINIB AND BIOLOGIC TNF INHIBITORS IN RHEUMATOID ARTHRITIS DURING THE INITIAL 24 WEEKS OF THERAPY
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Rheum. Tel state University of N, Pacificayway, US, USA
OBJECTIVES: Current therapy for moderate to severe rheumatoid arthritis (RA) often utilizes a subcutaneous or infused tumor necrosis factor (TNF) inhibitor with methotrexate. Tofacitinib is an oral Janus kinase (JAK) inhibitor that is indicated for the treatment of RA. The addition of tofacitinib is priced similarly to injectable biologics and the purpose of this study is to evaluate the cost-effectiveness of tofacitinib, in combination with methotrexate, for the initial 24 weeks of treatment compared to currently available TNF inhibitors. METHODS: A cost per responder model was created for the initial 24 weeks of treatment with combination therapy of methotrexate and tofacitinib, in comparison with a control group of patients receiving methotrexate alone. The model was developed using data from an ongoing clinical trial and from the literature. The outcomes of the model were the number of responders and the costs of treatment. RESULTS: The cost per responder in the tofacitinib/methotrexate arm was $10,591 USD, and in the methotrexate alone arm, $11,280 USD. The incremental cost-effectiveness ratio (ICER) was $705 USD per responder gained. CONCLUSIONS: Tofacitinib is a cost-effective add-on therapy to methotrexate in the initial treatment of moderate to severe rheumatoid arthritis.

PMS31
COST SAVINGS ASSOCIATED WITH THE DECREASE OF USE OF BIOLOGICAL DMARDS DURING A 5 YEAR PERIOD
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OBJECTIVES: Pharmacological therapy in patients with rheumatoid arthritis (RA) includes conventional therapy (DMARDs) and biological therapy (BT). BT is strongly associated with high costs and has impacted the budget in Colombian Health System. We aim to describe the effectiveness of conventional DMARDs therapy in patients with RA by reducing the Disease Activity Score 28 (DAS28) in patients with moderate-severe disease activity during 5 years in a specialized center in RA and subsequently cost savings obtained. METHODS: We conducted a real-world, descriptive cohort study. We included patients who had moderate/severe disease activity in a specialized RA center in Bogotá, Colombia during 2012-2016. These patients were potential candidates for biological therapy and were followed-up under T2T standards. Clinical follow-up was done according to DAS28: every 3-5 weeks (DAS28 < 3.2), every 8 weeks (DAS28 < 5.1), and every 11-13 weeks (DAS28 < 3.1). Therapy had to be adjusted with DAS28 > 3.2 unless patient’s conditions don’t permit it. Descriptive epidemiology was done; the means were analyzed using Chi2 test performing a normality test for DAS28 distribution. RESULTS: 218 RA patients were included, 183 were females. The proportion of females was 64: 10. At baseline 616 (79%) had moderate disease activity and 160 (21%) severe disease activity, mean DAS was 4.7 ± 1.0. After a year of follow-up, 80% of patients achieved remission/low disease activity. The cost of biological therapy in Colombia finishing 2016 on average was $902 U.S dollars/year/patient, and for 613 patients amount in projected costs-savings of preventing use of biologics was approximately $5,640,213 USD/year/patient. CONCLUSIONS: The results of this cohort showed the effectiveness of conventional DMARDs therapy for the achievement of remission/low disease activity in patients with RA in a model with T2T strategy and a multidisciplinary approach, leading to significant cost savings for health system.

PMS32
COST-EFFECTIVENESS OF THERAPIES FOR EARLY RHEUMATOID ARTHRITIS IN THE CONTEXT OF THE EVIDENCE-BASED CLINICAL PRACTICE GUIDELINE FOR COLOMBIA
Díaz Rojas J1, Moreno A1, Ureño J1, Huervano C1, Davila F1, Quintana G1
1Universidad Nacional de Colombia, Bogotá, DC, Colombia, 2Universidad Nacional de Colombia, Bogotá, Colombia
OBJECTIVES: To evaluate the cost-effectiveness of two or more non-biological DMARDS versus biological-MTX in the context of the evidence-based clinical practice guideline for Colombia. METHODS: The analysis was conducted in development of the clinical practice guideline for early detection, diagnosis, and treatment of the Rheumatoid Arthritis in Colombia. A decision tree was constructed to determine the cost-effectiveness. The patients over the age of 16, with early rheumatoid arthritis or RA, with or without two or more poor prognostic factors and high activity of the disease during one year. The model compared two or more non-biological DMARDS versus a biological-methotrexate. Efficacy information was taken from the controlled clinical trial (Goekoop-Ruiterman et al., 2005) and the costs of procedures and medications from national tariff system. The perspective of the General System of Social Security in Health (third payer) was used. The remission of the disease was the outcome. RESULTS: The average cost of a case of remission in a year with DMARDS was $48,68 USD, and with biological-MTX was 10,591 USD. One additional case of remission in a year with biological-MTX versus 2 DMARDS has an incremental cost of 338,063.3 USD. In the sensitivity probability analysis with a threshold of 3 GDP per capita ($14,998 USD), the 70.27% of the estimates for biological-MTX was above the cost-effectiveness threshold, and 29.73% was a dominated strategy. Therefore, since it was less effective and more expensive than the alternative with DMARDS. CONCLUSIONS: The combination of a biological-MTX is not cost-effective in the Colombian context, for the first line treatment of early rheumatoid arthritis in adult patients with high activity and two more poor prognostic factors.

PMS33
COST-EFFECTIVENESS OF SINGLE-DOSE Zoledronic ACID FOR NURSING HOME RESIDENTS WITH OSTEOPOROSIS
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OBJECTIVES: Hip fracture sustained in nursing homes is an important source of mortality, disability, and health-care costs. The study aimed at evaluating the cost-effectiveness of routine administration of single-dose zoledronic acid in nursing home residents with osteoporosis. METHODS: A Markov cohort simulation model was developed. The target population was a hypothetical cohort of nursing home residents aged 85 years with osteoporosis. The analysis was conducted from a health care system perspective over a lifetime horizon. Two strategies were compared: a single intravenous dose of zoledronic acid 5mg (ZOL), and usual care (calcium and vitamin D) with no fracture prophylaxis. Data sources were published literature. The main outcome, hip fracture risk reduction by ZOL, was above the threshold of 25%. Probabilistic sensitivity analysis revealed that the ZOL strategy would be cost-effective in 11%, 24%, and 42% of simulations at willingness-to-pay thresholds of $50,000, $100,000 or $200,000 per QALY gained, respectively. CONCLUSIONS: Routine administration of single-dose zoledronic acid in nursing home residents is cost-effective. Further research is needed to confirm this finding.

PMS34
EXPLORATORY COST-EFFECTIVENESS EVALUATION OF DIFFERENT TREATMENT STRATEGIES FOR MENISCUS ROOT TEARS
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1George Washington University, Washington, DC, USA, 2Wing Trauma Research Center, Bethesda, MD, USA, 3Mayo Clinic, Rochester, MN, USA, 4Memorial Orthopaedic Surgical Group, Long Beach, CA, USA, 5Steadman Phillipson Research Institute, Vail, CO, USA
OBJECTIVES: Meniscal tears are common among patients over 50 years of age, and are the biomechanical equivalent of a total menisectomy, which typically leads to the rapid advancement of knee osteoarthritis. Studies have documented the clinical consequences of conservative therapy, meniscectomy and meniscus root repair, but limited information is available related to their long-term outcomes. Our objective was to explore the cost-effectiveness of these differing treatment strategies in the United States. METHODS: A Markov model was constructed to project strategy-specific progression to symptomatic osteoarthrosis (OA), total knee arthroplasty (TKA) and revision TKA in a cohort of 50-year-old patients presenting with no significant OA at time of treatment. Failure rates of repair and meniscectomy procedures were accounted for. Utilities, costs, and event rates were based on literature and public databases. Analyses considered a 10-year analysis frame, and explored the cost-effectiveness of these strategies across a range of different analysis horizons. RESULTS: Over 10 years, 45.8% of the meniscectomy and non-treated patients were projected to have undergone TKA, compared to 29.3% of repair patients. Discounted 10-year costs were $15,864 for repair, compared to $17,943 and $20,972 for no treatment and meniscectomy. Projected quality-adjusted life years (QALYs) were 7.03, 6.75, and 6.72, respectively, yielding repair to be associated with most favorable outcomes at concurrent cost savings of $2,079 compared to next best strategy. Repair was either cost-effective or dominant across a broad range of OA progression and repair failure rates. Analysis horizons of 2 years or longer found repair to be cost-effective, and dominant for horizons of 6 years or more. CONCLUSIONS: Our Markov model suggests that repair of meniscal root tears is associated with improved mid- and long-term outcomes and cost savings relative to both menisectomy and conservative therapy, making repair the most cost-effective strategy for meniscal root tears.

PMS35
THE COST-EFFECTIVENESS OF XIAN LING GU BAO FOR THE TREATMENT OF POSTMENOPAUSAL OSTEOPOROSIS IN CHINA: A DECISION-TREE MODEL
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OBJECTIVES: The multi-component Fufang (non-leguminous traditional Chinese herbal formulas with multi-interactive compounds) Xian Ling Gu Bao (XLBGB) in capsule form was officially approved by China FDA for the management of menopausal osteoporosis and related conditions based on its safety and efficacy evidence. This study was conducted to evaluate the cost-effectiveness of XLGB versus placebo in the management of postmenopausal osteoporosis from Chinese
OBJECTIVES: To develop a cost minimization analysis in the switch of RA treatment. We conducted a cost-utility analysis to compare combining anti-TNFs were obtained from Kaplan-Meier survival estimates of the 6-month follow-up, rituximab as a second-line treatment was associated with cost of $18,312 and effectiveness of 2 QALYs and was dominant over treatment with adalimumab, etanercept, and infliximab, which were associated with cost of $22,022, $19,880, and $17,296, respectively. CONCLUSIONS: Compared with placebo, XLBG is a cost-effective alternative for treating postmenopausal osteoporosis in China.

PM339 IMPACT OF RHEUMATOID ARTHRITIS ON EMPLOYMENT AND PRODUCTIVITY LOSS AMONG NON-INSTITUTIONALIZED INDIVIDUALS IN THE U.S.

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OBJECTIVES: Rheumatoid arthritis (RA) is a chronic inflammatory condition characterized by joint pain and swelling, which reduces productivity and overall quality of life. There is limited literature on nationally representative estimates of current RA-related burden. Our objective was to examine the impact of RA on employment and productivity among adults in the US. METHODS: Data from pooled cross-sectional study, we used the Medical Expenditure Panel Survey (MEPS) for the data years 2010-2014. We identified RA patients using the clinical classification of 50 and 45 years of age. We measured employment disability, days missed at work for work-related reasons, and days missed at work for non-work-related reasons for 2010-2014. Additionally, we measured productivity loss as limitation in work, housework or any activity. We used multiple logistic and negative binomial regression models to control for confounders such as demographic factors, overall health status, and over all health status. The wage estimates are for 2014 and value of home productivity for 2012. RESULTS: In descriptive analysis, more RA patients were older, female, not working due to illness, had more children at home and any activity. In adjusted analysis, compared to non-RA, the RA patient were 74% more likely to have employment disability (95% CI 1.34-2.27) leading to per capita wage loss of $6,990 (95% CI $4,418-$9,994); had 1.52 missed work days (p=0.02) corresponding to $160 per capita productivity loss. At home, RA patients spend 1.92 days in bed (p=0.01) with per capita productivity loss of $81. Additionally, RA patients were 24% and 44% more likely to have limitations in housework and any activity respectively. CONCLUSIONS: RA is highly associated with productivity loss both at home and in the workplace. These results will help inform interventions aimed at reducing the overall economic burden associated with RA in different at-risk groups.

PM450 HEALTH CARE RESOURCE USE OF MEDICARE BENEFICIARIES WITH PRIMARY OSTEOARTHRITIS (OA) OF THE KNEE – A CLAIMS DATA ANALYSIS

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OBJECTIVES: To estimate how health care resource use patterns have shifted over time for Medicare beneficiaries with primary knee osteoarthritis (OA) across 5 care delivery settings. METHODS: De-identified patient level claims data from 2009 and 2014 were provided by CMS. Datasets for primary care, home-health, inpatient, outpatient (including skilled nursing facilities and SNF) were generated. Knee OA patients were identified using ICD-10 codes 715.16, 715.36, 715.96, and excluding confounding comorbidities such as rheumatoid arthritis. Submitted costs for each of the year for were calculated (in 2014) for each site of care. RESULTS: In adjusted analysis, compared to non-RA, the RA patients were 74% more likely to have employment disability (95% CI 1.34-2.27) leading to per capita wage loss of $6,990 (95% CI $4,418-$9,994); had 1.52 missed work days (p=0.02) corresponding to $160 per capita productivity loss. At home, RA patients spend 1.92 days in bed (p=0.01) with per capita productivity loss of $81. Additionally, RA patients were 24% and 44% more likely to have limitations in housework and any activity respectively. CONCLUSIONS: Primary knee osteoarthritis is a significant economic burden for a substantial proportion of Medicare enrollees. Overall, most costs have increased between 2009 and 2014, despite adjustment for inflation. Further research into overall burden and cost drivers will assist in understanding treatment trends in the OA Medicare population.

PM451 HEALTH CARE RESOURCE USE AND COSTS IN COLOMBIAN EARLY RHEUMATOID ARTHRITIS PATIENTS

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OBJECTIVES: To establish the use of health resources (drugs, clinical laboratory, diagnostic and imaging, medical and pharmaceutical services and absenteeism) and costs related to the care of early rheumatoid arthritis (ERA) in a Colombian real world, UNDERSTANDING TREATMENT TRENDS IN THE OA Medicare population. METHODS: A cohort of 345 patients with ERA from two health care institutions in Bogota, Colombia, followed by two years (2013-2015). On the first appointment, patients were classified according to the disease activity (DAS), and were checked every three months. In this period, the use of resources and costs for each patient was identified. RESULTS: The total cost for 345 patients was $2,323,373 USD. According to DAS, the first appointment was classified in 16% as low severity, in 46% as medium severity, low 35%, moderate 42.9%, and high 35.9. The 21% of the patients received biological treatment, representing a cost of care equivalent to 86% of the total cost. In the second year, the distribution of DAS was: 16% low, moderate 55%, high 30.8%, and very high 8.2%, respectively. CONCLUSIONS: In this group, the drugs represent 42.5% of the cost, and the biologic 37.2%. The average cost per patient with biologicals was $27,505 USD and $1,160 USD for DAS. The average cost per patient without biologicals was $4,627 and $3,313 respectively. CONCLUSIONS: The most expensive stage was high, followed by the
mild to moderate for the two groups of the study. The group that received biologics on average is 23.7% more expensive than the DMARDs group.

MUSCULAR-SKELETAL DISORDERS – Patient-Reported Outcomes & Patient Preference Studies

PMS42
SWITCHING AND MEDICATION PERSISTENCE OF PATIENTS TAKING DISEASE MODIFYING ANTI RHEUMATIC DRUGS (DMARDS): A COMPARATIVE EFFECTIVENESS STUDY

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OBJECTIVES: Rheumatoid arthritis (RA) is a chronic autoimmune disorder that affects small joints of the hands and feet. It usually results in swollen and painful joints. In severe cases, there may be leathery and weakness which progresses with time. Despite the progress in the area of pharmacotherapy, drug response and treatment modalities can be erratic. Patients are typically switched to agents with similar action and efficacy. This study is aimed at determining the number and proportion of rheumatoid arthritis patients with a new start for tumor necrosis factor (TNF) alpha inhibitors within 6 months, and medication reminders. We investigated associations between persistence (time from index date to ADA discontinuation date) and a PMPs result in a higher persistence of ADA among Uruguayan patients with RA, demonstrating that it is an important tool for helping patients adhere to their medication. Additional studies are needed to evaluate PMP impact on disease control, patients’ and physicians’ preferences, and associated healthcare resource utilization.

PMS43
ADHRENAL PERSISTENCE EVALUATION FOR TUMOR NECROSIS FACTOR ALPHA INHIBITORS FOR RHEUMATOID ARTHRITIS I

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OBJECTIVES: The aim of this study was to translate and validate a Romanian version of the original English edition of the 19th Compliance Questionnaire for Rheumatoid Arthritis (CQ-R) through a Preference Studies (PMS42). The CQ-R is a validated tool for measuring patients’ adherence to their medications. The study aimed to translate the CQ-R into Romanian and validate its reliability and validity in a sample of patients with rheumatic diseases. The study was conducted in a sample of patients with rheumatic diseases in four centers in Craiova, Romania. The study included patients with RA who initiated ADA and opted-in to the PMP. Persistence analysis was conducted using the Kaplan-Meier method. The results showed that the persistence of ADA was significantly higher in patients who opted-in to the PMP than in patients who did not. The study concluded that the PMP is an effective tool for improving adherence to ADA therapy in patients with RA.

PMS44
IMPACT OF ABBVIE’S PATIENT SUPPORT PROGRAM (PSP) ON PERSISTENCE WITH ADA LUMIMABAL THERAPY AMONG PATIENTS WITH RHEUMATOID ARTHRITIS IN URUGUAY

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OBJECTIVES: AbBVie provides a PSP to adalimumab (ADA)-treated patients with laboratory tests, nurse support, injection training, pen disposal, and medication reminders. We investigated associations between PSP and rate of ADA persistence among ADA-treated patients with rheumatoid arthritis (RA) in Uruguay. METHODS: A retrospective study was conducted (03/2010–11/2014) among adults with RA who initiated ADA and opted-in to the PSP (PSP-users) versus patients who initiated ADA and did not opt-in to the PSP (non-users). All patients were evaluated using AbbVie’s PSP database and available dispensing data at 12 and 24 months following initial initiation. For PSP-users, the index date was the date of enrollment. ADA discontinuation was used as the primary endpoint for non-users. The difference in persistence (time from index date to ADA discontinuation date) between PSP-users and non-users was evaluated. Discontinuation was defined as no ADA dispensing for 3 consecutive months. No formal statistical tests were performed because all patients in the PSP-users cohort used the same PSP. Persistence analysis was conducted using the Kaplan-Meier method. The results showed that the persistence of ADA was significantly higher in patients who opted-in to the PSP than in patients who did not. The study concluded that the PMP is an effective tool for improving adherence to ADA therapy in patients with RA.

PMS45
TRANSLATION AND VALIDATION OF THE CQ-R FOR ROMANIAN PATIENTS WITH RHEUMATIC DISEASES

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OBJECTIVES: The aim of this study was to translate and validate a Romanian version of the original English edition of the 19th Compliance Questionnaire (CQ-R) for Rheumatology (CQ-R) and use it for Romanian patients with rheumatic diseases. The CQ-R is a validated tool for measuring patients’ adherence to their medications. The study was conducted in a sample of patients with rheumatic diseases in four centers in Craiova, Romania. The study included patients with RA who initiated ADA and opted-in to the PMP. Persistence analysis was conducted using the Kaplan-Meier method. The results showed that the persistence of ADA was significantly higher in patients who opted-in to the PMP than in patients who did not. The study concluded that the PMP is an effective tool for improving adherence to ADA therapy in patients with RA.

PMS46
HEALTH-RELATED QUALITY OF LIFE FOLLOWING A TRAUMATIC BRAIN INJURY: A RETROSPECTIVE OUTCOMES ANALYSIS FROM SAUDI ARABIA

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OBJECTIVES: In Saudi Arabia, trauma is associated with 18% of all fatalities, representing the leading cause of death. Among the wide spectrum of injuries, traumatic brain injuries (TBI), pose a pervasive threat as they significantly impact health outcomes. If not fatal, TBIs are associated with long-term disabilities and little is known on the burden of trauma-related disability in the country, and specifically due to TBI. Thus, the study aims to examine long-term health outcomes of TBI survivors treated at a level-1 trauma center. METHODS: We used a dataset from King Abdulaziz Medical City in Riyadh. To be included in the study, patients had to be hospitalized due to a TBI within years 2005–2014. Of the 1,620 patients (age=16-60 years) who met the inclusion criteria, a 50% random sample was selected. Patients were contacted via the phone and included in the study if they had no more than 1 month of daily living (ADL) were assessed. Univariate analyses were performed to examine patients’ characteristics and to estimate the prevalence of disability. Of the 760 patients contacted, 34% were reached and agreed to participate in the study. The overall sample was relatively young (mean age= 24.8; SD=9.8) and predominantly males (92.7%). The average time since the injury is 6.8 years (range=3-13, SD=2.6). Of the TBI patients, 25.4% reported some kind of ADL limitation in ADL, while 19.8% reported ADL limitations. Half of TBI patients in the study received at least one session of rehabilitation services. CONCLUSIONS: The fact that one of every four TBI patients becomes disabled poses a significant burden on population health and healthcare institutions. Further studies are warranted to elucidate the reasons for these findings. More importantly, the results highlight the need for further investment in injury prevention programs in order to reduce associated disabilities.
PM540

REAL-WORLD, MULTI-SITE, OBSERVATIONAL STUDY OF INFUSION TIME AND TREATMENT SATISFACTION IN RHEUMATOID ARTHRITIS (RA) PATIENTS TREATED WITH INTRAVENOUS GOLIMUMAB (GLM-IV) OR INFLIIXIMAB (IFX)

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OBJECTIVES: This study assessed infusion times associated with GLM-IV and IFX treatment in RA patients treated with GLM-IV or IFX infusion time variables including: total infusion time—time from infusion start to completion of infusion; time to completion of infusion—time from arrival to verbal discharge; clinic visit duration—time from infusion start to clinic visit end; and patient preparation and medication infusion times. Patient satisfaction was assessed by Treatment Satisfaction Questionnaire for Medication (TSQM)-IV and Study Short Form-36 (SF-36) questionnaires. Descriptive statistics and comparative tests (analysis of variance) were used to analyze data. RESULTS: A total of 906 patients were evaluated over 31 visits. Mean total infusion time was 65.1 (GLM-IV) and 153.1 minutes (IFX; P = 0.0001). Mean medication infusion times were 32.8 (GLM-IV) and 119.5 minutes (IFX; P < 0.0001). Mean infusion process times were 45.8 (GLM-IV) and 134.1 minutes (IFX; P < 0.0001). Higher overall patient satisfaction ratings were reported by GLM-IV than IFX patients for the following infusion time (P < 0.0001), visit time (P < 0.0003), and length of time the IV line was inserted (P < 0.0003). CONCLUSIONS: Shorter overall infusion time and medication infusion times in RA patients treated with GLM-IV compared to IFX. These differences were driven primarily by shorter medication infusion time. Shorter infusion time, shorter visit time, and shorter IV insertion time were associated with higher patient satisfaction ratings.

PM549

RHEUMATOID ARTHRITIS AND PATIENT BURDEN OF DISEASE

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OBJECTIVES: To determine if obesity is associated with poorer patient-reported outcomes in patients with Spondyloarthritis (SpA), who undergo any change in DMARD therapy. METHODS: We conducted a cross-sectional study using data of the PREcision medicine in Spondyloarthritis (ASAS) 2009 criteria. Demographics, clinical and PRO variables were collected. Patients were divided into three categories: normal (BMI < 23 kg/m²), overweight (23 kg/m² ≤ BMI < 27.5 kg/m²) and obese (BMI ≥ 27.5 kg/m²). The dependent variables were Pain Score, Bath Ankylosing Spondylitis Patient Global Score (BAS-G), Bath Ankylosing Spondylitis Disease Activity Score (BASDAI), Bath Ankylosing Spondylitis Functional Index (BASFI), Health Assessment Questionnaire (HAQ), Medical Outcomes Study Short Form 36 version 2 (SF-36) and Ankylosing Spondylitis Quality of Life questionnaire (ASQoL). A multivariate regression analyses were performed with these dependent variables and obesity categories, adjusting for confounders. RESULTS: Amongst 202 patients with SpA, 35% are overweight while 21% are obese. We found that patients in obese category had significantly poorer pain score (β: 12.81, 95%CI: 3.53±22.09) and BAS-G score (β: 10.43, 95%CI: 2.23±16.82) when compared to normal BMI patients. However, obesity was not associated with BASDAI (β: 0.53, 95%CI: -0.15 to 1.21), BASFI (0.30, 95%CI: -0.34 to 1.06), HAQ (β: -0.05, 95%CI: -0.17±0.07), ASQoL (β: -0.06, 95%CI: -1.60±1.48), Physical Component Summary (β: -1.03, 95%CI: -5.37±3.80) and Mental Component Summary (β: -2.40, 95%CI: -9.20 to 4.40) of SF-36. Baseline obesity was associated with pain score and BAS-G score but not with BASDAI, BASFI, SF-36 and ASQoL. Further study is needed to examine the causal relationship between obesity and poorer PRO.
OBJECTIVES: To create an evidence map of the different patient-reported outcome instruments used in studies of patients with ankylosing spondylitis, the geographies of these studies were conducted and the interventions assessed. METHODS: We searched the hecro.com database (www.hecro.com) for PRO studies on ankylosing spondylitis published between 1960 and December 7, 2016. Abstracts identified by the search were screened and the full texts of the different PRO instruments cited across the range of geographical locations and interventions. We presented the findings as an evidence map. RESULTS: We found a total of 128 abstracts that reported the use of 64 different PRO instruments. Interventions assessed were specifically related to ankylosing spondylitis or inflammatory arthritis, 27 were general instruments used to evaluate quality of life or utilities, 12 assessed non-disease-specific symptoms, in particular fatigue, or other conditions or diseases that were common comorbidities of people with ankylosing spondylitis, and three evaluated the impact of the disease on work productivity. The most frequently used tool was the BASDAI, cited in 66 abstracts, followed by the Bath Ankylosing Spondylitis Disease Activity Score (BASDAI), AS Questionnaire (34), Health Assessment Questionnaire (20) and the EQ-5D (19). The Netherlands was the most frequent location for the studies, with 16 abstracts, followed by the United States (14 abstracts), then Germany (12 abstracts). Interventions assessed were generally targeted therapies such as TNF inhibitors and physical therapies. CONCLUSIONS: A wide range of PRO tools have been used in studies of ankylosing spondylitis, with a wide range of interventions, but only nine tools and six countries were cited in more than 10 abstracts.

TREATMENT PATTERNS FOR PATIENTS WITH RHEUMATOID ARTHRITIS

PMS52 PRO INSTRUMENTS USED IN STUDIES OF ANKYLOSING SPONDYLITIS SINCE 1960

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OBJECTIVES: To create an evidence map of the different patient-reported outcome instruments used in studies of patients with ankylosing spondylitis, the geographies of these studies were conducted and the interventions assessed. METHODS: We searched the hecro.com database (www.hecro.com) for PRO studies on ankylosing spondylitis published between 1960 and December 7, 2016. Abstracts identified by the search were screened and the full texts of the different PRO instruments cited across the range of geographical locations and interventions. We presented the findings as an evidence map. RESULTS: We found a total of 128 abstracts that reported the use of 64 different PRO instruments. Interventions assessed were specifically related to ankylosing spondylitis or inflammatory arthritis, 27 were general instruments used to evaluate quality of life or utilities, 12 assessed non-disease-specific symptoms, in particular fatigue, or other conditions or diseases that were common comorbidities of people with ankylosing spondylitis, and three evaluated the impact of the disease on work productivity. The most frequently used tool was the BASDAI, cited in 66 abstracts, followed by the Bath Ankylosing Spondylitis Disease Activity Score (BASDAI), AS Questionnaire (34), Health Assessment Questionnaire (20) and the EQ-5D (19). The Netherlands was the most frequent location for the studies, with 16 abstracts, followed by the United States (14 abstracts), then Germany (12 abstracts). Interventions assessed were generally targeted therapies such as TNF inhibitors and physical therapies. CONCLUSIONS: A wide range of PRO tools have been used in studies of ankylosing spondylitis, with a wide range of interventions, but only nine tools and six countries were cited in more than 10 abstracts.

TREATMENT PATTERNS FOR PATIENTS WITH RHEUMATOID ARTHRITIS

PMS55 TREATMENT FAILURE, TREATMENT SWITCHING AND HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ANKYLOSING SPONDYLITIS: RESULTS FROM A REAL WORLD SURvey IN THE US

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OBJECTIVES: To describe the use and switching of biologics among ankylosing spondylitis (AS) patients, and the correlates of treatment failure. METHODS: US Rheumatologists and their AS patients completed surveys capturing reasons for switching biologics, including lack of efficacy (2 LE, initial non-response) and secondary lack of efficacy (2 LE, loss of response over time). Patients reported HRQoL (SF-36, EQ-5D, SF-36-work) productivity and activity impairment (WPAI). Current biologic was determined as ‘failed’ if, after 3 months, rheumatologist perceived disease severity had worsened, remained severe, was ‘unstable’ or, ‘deteriorating’, or they were dissatisfied with disease control, and/or did not consider treatment a success. RESULTS: 92 Rheumatologists and 534 patients participated in the validation survey. Median income received DMARDs (14.2%), followed by households with $15,000 or less median income received DMARDs (14.2%), followed by households with $15,000 (14.2%) or less and $30,000 - $39,999 (9.6%) was significant (p < 0.01). The model showed that receipt of DMARDs differs significantly between $30,000 (14.2%) or less median income

RESULTS FROM A REAL WORLD SAMPLE IN THE US

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OBJECTIVES: To describe use and switching of advanced therapy (AT; subcutaneous biologics, and small molecules (apremilast)), and the correlates of failure among PSA patients. METHODS: US specialists (Rheumatologists and Dermatologists) and their PSA patients completed surveys capturing reasons for switching AT, secondary lack of efficacy (1 LE, initial non-response), secondary lack of efficacy (2 LE, loss of response over time). Patients reported HRQoL (SF-36, EQ-5D, SF-36-work) productivity and activity impairment (WPAI) and disability (HAQ-DI). Current AT was determined as ‘failed’ if, after > 3 months, rheumatologist perceived disease severity had worsened, remained severe, was ‘unstable’ or ‘deteriorating’, or they were dissatisfied with disease control and/or did not consider treatment a success. RESULTS: 140 specialists and 628 patients participated in the study. Of 601 patients with full treatment data, 29.6% had never received AT, 52.7% 1.13% 2, and 6.3% > 3 ATs. Of 93 patients with known reasons for switching from 1st AT, 36.8% switched owing to 2 LE, 26.9% due to 1 LE. Despite 1 LE, patients (n=16) continued the 1st biologic for an average 12.6 months. Overall 17.4% patients were determined to be failing biologic treatment; 16.5% (43/261) on 1st biologic, 19.6% (9/46) on 2nd and 26.7% (4/15) on 3rd biologic. Failing biologics showed significantly worse EQ-5D utility (0.68 vs 0.85) and SF-36 physical component summary (PCS) 37.2 vs 46.2, mental component summary (MCS) 42.4 vs 50.2) and social function domain (SF; 59.0 vs80.6) scores (all p<0.0003). Patients failing biologics had greater work productivity impairment (higher WPAI activity score) than non-failing patients (71.7%, p<0.0003). CONCLUSIONS: Only a minority of biologic patients had ever switched biologic therapies. The main reasons for switching were loss or lack of efficacy. Despite treatment failure some patients did not switch biologics. Failing biologic treatment was associated with worse health utilities and HRQoL scores and lower work productivity.

PMS56 TREATMENT FAILURE, TREATMENT SWITCHING AND HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH PSORIATIC ARTHRITIS (PSA):

PMS57 BURDEN OF DISEASE ASSOCIATED WITH MOOD OR DEPRESSION IN PATIENTS WITH RHEUMATOID ARTHRITIS (RA)
systematically identified through MEDLINE, EMBASE and Cochrane databases. Literature was screened for eligibility by two independent reviewers based on pre-specified criteria. Twenty-three studies evaluating outcomes between biologic treatment and depression were included. Outcomes and depression were analysed and findings summarised using descriptive statistics.

RESULTS: Eighteen studies met eligibility criteria. The reported prevalence of depression in RA was in line with previous meta-analyses. Annual healthcare costs and hospitalisation rates were significantly higher (nearly double) in patients with RA and comorbid depression versus those with RA alone. Depression was a risk factor for sick leave episodes, suggesting an impact on work productivity. Depression was significantly associated with increased disease severity at follow-up visits (as measured by 28-joint Disease Activity Scores, tender joint counts, and patient global assessment scores). Depression was also associated with increased clinical improvement (disease activity, clinical disease activity index). Clinical depression was used as an enzyme of achieving clinical remission. Higher depressive domain scores on the MOODS-Spectrum were associated with significant worsening of Short Form-36 scales.

PHASE III GO ALIVE TRIAL
SUBJECTS WITH ACTIVE ANKYLOSING SPONDYLITIS: 28-WEEK RESULTS OF THE EFFECT OF GOLIMUMAB, AN ANTI-TNF MONOCLONAL ANTIBODY, ON GOUTURHEUMATOLOGICAL CONDITIONS

PM56
THE EFFECT OF GOLIMUMAB, AN ANTI-TNF MONOCLONAL ANTIBODY, ON GOUTURHEUMATOLOGICAL CONDITIONS

PM56
ASSOCIATION BETWEEN ALLOLPURONOL DOSE-TITRATION AND SERUM URIC ACID LEVELS IN GOUT PATIENTS: US ELECTRONIC HEALTH RECORD DATA

PM56
OBJECTIVES: To understand the dose-titration of allolpuronol relative to sUA levels. Allolpuronol is the most widely used uricosuric agent. The American College of Rheumatology guidelines recommend allolpuronol dose-titration to maintain serum uric acid (sUA) levels <6 mg/dl. METHODS: This retrospective study used the de-identified medical electronic health records database captures data including sUA and allolpuronol records among gout patients (ICD-9-CM: 274.xx) ≥18 years old with first gout diagnosis in 2007–2015. An episode was defined as an allolpuronol initial prescription or at least two consecutive prescriptions after an sUA test. Dose-titration was categorized as an episode with a dose-change (up-titration: ID < TD; down-titration: ID > TD), or no-dose-change (ID = TD). For multiple different doses recorded on the same prescription date, the sum of doses was taken as daily dosage. Episodes were considered uncontrolled when sUA ≥6 mg/dl. Descriptive episode-level analyses were performed. RESULTS: Within 64,609 episodes, 57 episodes were uncontrolled (sUA > 6 mg/dl: 38%; 8 to < 10 mg/dl: 15%; 10mg/dl: 4%). Seventy-one percent of uncontrolled episodes were no-dose-change, 21% were up-titrated, and 7% were down-titrated. Within no-dose-change episodes, 51% were uncontrolled and lower doses corresponded to higher percentages of uncontrolled episodes (<100mg/day: 88%; 100mg/day: 70%; >100–300mg/day: 49%; 300mg/day: 38%; >300mg/day: 36%). Seventy-eight percent of dose-change episodes were uncontrolled, of which 100 to 300mg/day (39%) was the most frequent dose titration. Overall, the most frequent TD was 300mg/day (52%) followed by 100mg/day (36%), >100 – <300mg/day (8%), >300mg/day (5%), and <100mg/day (<1%). CONCLUSIONS: Allolpuronol dose is not generally titrated regardless of sUA control. This pattern suggests a need for active management of patients with gout with uncontrolled sUA including consideration of new treatment options in addition to allolpuronol.

MUSCULAR-SKELETAL DISORDERS – Health Care Use & Policy Studies

PM56
FACTORS ASSOCIATED WITH INITIATION OF BIOLOGICS IN PATIENTS WITH AXIAL SPONDYLARHTRITIS IN AN URBAN ASIAN CITY: A PREPOND STUDY

PM56
OBJECTIVES: To identify factors associated with current advanced therapy (AT) use among patients with rheumatoid arthritis (RA). METHODS: Data were obtained
from the US 2016 Adelphi RA Disease Specific Programme. Rheumatologists (HCP, N=85) provided details about their RA patients (N=1,003) and patients voluntarily completed an associated survey (N=693). In a multi-attribute utility analysis, multiple concepts of patients with complete data on variables of interest (N=327). AT for RA was defined as current use of a tumor necrosis factor inhibitor (TNFi), non-TNF, or Janus kinase inhibitors (JAKi). Multivariable regression was used to examine predictors of current AT vs. conventional disease-modifying antirheumatic drug (DMARD) use. The following variables were included based on clinical relevance and univariable analyses: age, sex, RA duration at initiation of current therapy, treatment by specialty tier (IV or SC therapy), HCP-reported treatment goals, set, concern with side effects, cost factor in treatment decision (patient-reported); disease severity prior to treatment initiation, patient engagement/willingness to change therapy to current AT use was more common among patients whose HCP classified them as accepting of injectable therapies (OR=2.29, 95% CI: 1.21-4.31) and when patients expressed willingness to change therapy to meet treatment goals (OR=2.33, 95% CI: 1.33-4.07). In contrast, HCP perception of patients’ engagement/willingness to change therapy was unrelated to current AT use (OR=1.15, 95% CI: 0.64-2.06). CONCLUSIONS: Key predictors of AT use are patient willingness to switch and perceived acceptance of injectable therapies. This suggests that the patient voice is important in uptake of AT and may help to counter any inertia in appropriate treatment escalation.

PMS64
ANALYSIS OF FORMULARY COVERAGE AND COST OF BIOLOGIC DISEASE-MODIFYING ANTI-RHEUMATIC DRUGS IN MEDICAID PART D
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OBJECTIVES: This study examined the drug formulary coverage, usage restrictions (i.e. prior authorization, step therapy and quantity limits), and cost-sharing rates of biologic disease modifying anti-rheumatic drugs (DMARDs) in Medicare Part D in the period 2006 to 2015. METHODS: Study data were derived from the Centers for Medicare and Medicaid Services (CMS) Medicare Prescription Drug Plan Formulary and Pharmacy Network Files data. National Drug Code (NDC) information was derived from the U.S. Food and Drug Administration (FDA) NDC Directory. Descriptive statistics were performed. RESULTS: The FDA approved 10 biologic DMARDs in the period 2006 to 2015. In 2006, the mean percentage of Medicare Part D formularies covering all biologic DMARDs was 74.5%. The Medicare Part D prescription drug coverage reached its highest level (85.9%) in 2007 and it went down to 73.8% in December 2015. The percentage of formularies requiring prior authorization across biologic DMARDs ranged from 68.4% in 2006 to 93.1% in 2014. The use of step therapy varied by drug. No formularies required step therapy for adalimumab and rituximab; however, over 10% of formularies required step therapy for certolizumab, golimumab, tocilizumab, abatacept, tofacitinib, and etanercept in 2015. The percentage of formularies requiring quantity limits ranged from 0.0% (rituximab) to 47.4% (tofacitinib) in 2015. Placement in tier 5 increased from 7.9% in 2006 to 61.5% in 2015. Placement in tier 4 was 2-4 decreased during the study period. Concomiance was the most commonly used type of cost-sharing mechanisms; it was required by 62.3% of the plans in 2006 and 68.4% in 2015. CONCLUSIONS: All Medicare Part D formularies covered the biologic DMARDs during the period 2006-2015. The large majority of formularies placed prior authorization, step therapy and quantity limits on the utilization of biologic DMARDs. In addition, biologic DMARDs were increasingly placed in higher specialty tiers that required high cost-sharing rates.

PMS65
ANALYSIS OF THE IMPACT OF AFFORDABLE CARE ACT AND THE 2011 FDA DRAFT GUIDELINE ON OPIOID PRESCRIPTION IN PATIENTS WITH ARTHRITIS IN THE UNITED STATES, 2005 TO 2014
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OBJECTIVES: Given the rise in the population of arthritis and advances in the therapeutic options to manage arthritis, there are needs to evaluate the real-world pharmaco-therapeutic management of arthritis. Therefore, we evaluated retrospective cross-sectional trends in prescription drug utilization among adults with arthritis using a nationally representative data, the Medical Expenditures Panel Survey. METHODS: Study population comprised of bi-annual cross-sectional cohorts of individuals aged ≥ 18 years during calendar year of 2005 through 2014. Prescription drugs were classified based on therapeutic class and subclasses as per Multum Lexicon database. Chi-square statistics were used to examine differences in the proportion of particular prescription drugs utilization between those with and without arthritis. RESULTS: An annual-weighted individual with doctor-diagnosed arthritis rose from 44.3 million in 2005/06 to 63.5 million in 2013/14. For arthritis-related medications, we found a gradual increase in single opioid use (4.7% vs. 13.3%), a minor increase in glucocorticoids (8.6% vs. 10.0%), as well as opioid co-prescriptions changes in 2013/14. Topical steroid use increased (46.3% vs. 45.0%) in 2013/14 as compared to 2005/06. With respect to co-medications, we found a stable use proportion of individuals utilizing cardiovascular agents (56.4%), central nervous system agents, (57.0%), antibiotics (94.7%), and proton-pump inhibitors (19.7%) from 2005/06 to 2013/14, whereas, an increase in proportion of individuals utilizing anticonvulsant (12.8% vs. 18.4%), statins (29.1 vs.35.0%), and antidepressant (22.8% vs. 24.9%) from 2005/06 to 2013/14 among those with arthritis. Individuals with arthritis were more likely to receive cardiovascular, central nervous system agents, gastrointestinal agents, respiratory agents as compared to those without arthritis throughout 2005/06 to 2013/14. CONCLUSIONS: This study highlights a role of opioid and an appropriate and feasible alternative of other arthritis-related medication. In addition, high use of cardiovascular, psychotherapeutic agents, antibiotics, gastrointestinal and respiratory agents suggest a significant medication burden among individuals with arthritis.

PMS66
TRENDS IN PRESCRIPTION DRUG USE AMONG INDIVIDUALS WITH ARTHRITIS IN THE UNITED STATES, 2005 TO 2014
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OBJECTIVES: The utilization of anti-TNF biologics significantly increased after the implementation of the ACA and decrease following the 2011 FDA safety communication. CONCLUSIONS: The utilization of anti-TNF biologics significantly increased after the implementation of the ACA and decrease following the 2011 FDA safety communication.
arthritis was collected. Biological response modifiers (BRMs) are indicated for NSAID failure and DMARD failure cases, respectively. We compared the input costs of various BRMs: ankylosing spondylitis who had NSAID failure, 15 were given etanercept (24 injections/patient) and 20 were given infliximab (8 injections/patient). Mean reduction in Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) score in etanercept and infliximab group was 1.79 and 2.41 respectively (difference not statistically significant). The total input cost per patient of etanercept and infliximab was INR 1,56,984 and INR 2,55,360 respectively. The average cost incurred for per unit reduction in mean BASDAI score was INR 87,760 (1,56,984-1,79) for etanercept and 105,958 for infliximab. Though the gross input cost of infliximab was 1.62 (2,55,360/1,56,984) times higher, its cost per unit benefit offered was only 0.63 than etanercept. Similarly, in 28 cases of DMARD failure RA cases, 15 were given infliximab and 13 were given etanercept. The average cost incurred for per unit reduction in mean disease activity score (DAS-28) was INR 1,22,643 for etanercept and INR 1,78,573 for infliximab. Hence, the cost per unit benefit offered was 1.4 times higher than etanercept.

CONCLUSIONS: In view of its lower cost for comparable clinical effect, etanercept appears to be a more appropriate BRM. The case study demonstrates that pharmacoeconomic analysis of competing therapies can single out the appropriate treatment choice. However, for drawing generalizable conclusions, prospective studies with indirect costs and longer time horizon are required.

PMS71
ASSOCIATION BETWEEN DISEASE ACTIVITY LEVEL IMPROVEMENT AND REDUCTION IN HEALTHCARE RESOURCE UTILIZATION IN PATIENTS WITH RHEUMATOID ARTHRITIS RECEIVING TARGETED THERAPY
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OBJECTIVES: To evaluate the impact of change in patient-reported disease activity measurement assessed using the Routine Assessment of Patient Index Data 3 (RAPID3: 0-30) on healthcare resource utilization (HRU) in patients with rheumatoid arthritis (RA) receiving targeted therapy.

METHODS: Electronic medical records (EMR) from Reliant Medical Group (Worcester, MA, USA) were used to identify adult RA patients with at least two RAPID3 scores within 6 months of each other from 1/1/2008 to 6/30/2015. Change in RAPID3 score was calculated as the difference in RAPID3 score (range 0-30) at baseline and 6 (±1) months post-index and was categorized as good, moderate or poor response. All-cause and RA-related HRU outcomes, adjusted for RAPID3 response category and HRU outcomes, were used for the analysis.

RESULTS: The mean age of the study population (N=90) was 59.6 years and 73.3% were female. The mean RAPID3 score was 13.2 at baseline and 10.1 at 6 months post-index; 41 patients (45.6%) had good (N=24) or moderate (N=17) disease response. Compared to patients with poor response, patients with good/ moderate response had fewer mean all-cause medical visits (6.1 v. 11.0, p=0.003), RA musculoskeletal visits (2.1 v. 4.4, p=0.002), and RA-related medications (8.4 v. 13.4, p=0.007) during year of follow-up. The mean all-cause medical costs were $32,429 (SE: $4,564) and $52,365 (SE: $6,492) respectively.

CONCLUSIONS: Patients with good/moderate disease response to targeted therapy, as assessed by RAPID3, have reduced HRU, highlighting the association of patient-reported disease response and economic endpoints.

PMS72
TRENDS IN DIRECT AND OUT-OF-POCKET HEALTHCARE EXPENDITURES AMONG INDIVIDUALS WITH ARTHRITIS IN THE UNITED STATES, 2005 TO 2014
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OBJECTIVES: To generate up-to-date information since a decade ago about direct and out-of-pocket (OOP) healthcare expenditures among US adults with arthritis exists. Hence, we used nested retrospective cross-sectional trends in incremental direct and OOP healthcare expenditures among adults with arthritis using a nationally representative data, the Medical Expenditures Panel Survey.

METHODS: Study population included adults with arthritis, as diagnosed by the Arthritis and other Rheumatic Conditions using the MEPS complex survey design. Charleson comorbidity index, health, age, sex, education, income, race, poverty, enabling, need, personal health practice and external environment factors, and year of diagnosis. Multivariate regression models were used to estimate the incremental total and types of annual direct and OOP healthcare expenditures (adjusted to 2014 US dollars) of arthritis after adjusting for predisposing, enabling, need, personal health practice and external environment factors as per the Anderson Healthcare Behavior Model.

RESULTS: Annual weighted population of individuals with arthritis was 28.1 million in 2005/06, 33.1 million in 2013/14. The unadjusted annual average direct and OOP expenditure were $10,963 (Standard Error, SE: $292, aggregated: $485.7 billion) and $1,949 (SE: $57, aggregated: $86.3 billion) in 2005/06 while these were $10,036 (SE: $237, total: $63.7 billion) and $1,277 (SE: $37, aggregated: 74.8 billion) in 2013/14, respectively, among individuals with arthritis. The incremental direct expenditures among adults with arthritis were $1,061 (SE: $186) in 2005/06 which reduced to $562 (SE: $172) in 2013/14. As compared to the direct and OOP expenditure in 2005/06, visits and prescribed medication use and out-of-pocket medication expenditure significantly declined in 2013/14.

CONCLUSIONS: Although there was a decline in the intensity of incremental direct and OOP expenditures among individuals with arthritis in the recent years, arthritis still poses significant economic burden to the US.
treatment costs: Remicade, Humira, and Enbrel. Aligning Canadian drug prices with international levels, especially for Remicade, and using less expensive alternatives, as bioequivalents would lower drug costs for Canadians.

CONCLUSIONS: This report is designed to inform policy discussions on the price and reimbursement of this drug class at public and private payer level, including the pricing and uptake of emerging biosimilars.

PMS74
ANALYSIS OF THE FEMORAL FRACTURE REOPERATION RATE IN SÃO PAULO STATE
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OBJECTIVES: To estimate the burden of reoperation rate (clinical and economic) of hip fractures in São Paulo (Brazil). These fractures are associated with different implications to the patient, such as, high mortality rate in the first year (up to 34%), loss of function (after one year less than 40% of patients are able to walk again) and reoperation (6.3%).
METHODS: A longitudinal analysis was performed (2008-2015), using hospitalization records without patient identification, the Hospitalization Service (SIH) of DATASUS, which is a real world evidence database.
RESULTS: 29,188 primary and 1,903 reoperation procedures were performed in the period, resulting in an average reoperation rate of 6.6%. In 91.5% of the cases a second procedure operation was needed. 49% of the reoperation procedures were performed in the first year after primary surgery, 26% in the second year and 24% the third year. The procedures in people aged 70 years or older represented 68.9% of primary procedures. Up to 50 years, women represent 40.1% of cases. Over 50 years the relationship man vs. woman is inverted and 77.8% of surgical cases for fracture treatment were performed on women aged 60 years or older (6.7 days). The mortality rate was 3.72 for the surgical treatment of subtrochanteric fracture, 3.68 for transtrochanteric fracture and 1.15 for surgical treatment of delay on consolidation in the trochanteric region. The economic impact of reoperations was R$ 3.8 billion (Reais) in the period studied. CONCLUSIONS: The complications related to hip fracture often require reoperation. The reoperation rate found in SUS is similar to the reoperation rate published in the literature, 6.5% vs. 6.3%.

PMS75
TREATMENT PATTERNS AND HEALTHCARE RESOURCE USE OF RHEUMATOID ARTHRITIS PATIENTS TREATED WITH BIOLOGIC DIEASE-MODIFYING ANTIRHEUMATIC DRUGS IN SOUTH KOREA: RESULTS FROM THE HIRA HEALTH INSURANCE CLAIMS DATABASE
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OBJECTIVES: To characterize real-world patients, treatment patterns and costs amongst rheumatoid arthritis (RA) patients in Korea, specifically focusing the number of cases and visits per case, and to analyze the health costs of RA therapy and the effectiveness of therapy evaluated by DAS28.
METHODS: Our data came from the database of the National Health Insurance Fund, as the single home health financing agency, which was queried through the Central Statistics Office. The period examined was the year of 2013. The following indicators were analyzed: number of cases, type of visits, number of cases, visits per case.
RESULTS: The total number of cases in home care amounted to 133,342, the number of visits amounted to 1,298,834 in 2013. Within home care, the number of cases treated by joint replacement was recorded for 180,143 (44.3%), physical therapy for 76,271 (17.9%), speech therapy for 49,230 (11.7%), and physiotherapy for 14,200 (3.4%) cases. The most common procedures were: 1. joint replacement 180,143 (44.3%); 2. medical massage 148,444 (35.8%); 3. physical therapy 76,271 (17.9%); 4. speech therapy 49,230 (11.7%). The most common procedures were: 1. joint replacement 180,143 (44.3%); 2. medical massage 148,444 (35.8%); 3. physical therapy 76,271 (17.9%); 4. speech therapy 49,230 (11.7%). ONCLUSIONS: Within home care, therapy services by specialty play an essential role in the health care of Korea, among which the request of physiotherapy is extremely high. The number of cases and visits justifies the need of this type of service, currently maximized centrally, to receive more support.

PMS76
REAL-WORLD COSTS OF RHEUMATOID ARTHRITIS IN A SPECIALIZED CENTER IN BOGOTÁ COLOMBIA: RESULTS OF A REGISTRY DURING FIVE YEARS
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OBJECTIVES: Many studies have investigated socioeconomic and cost issues in rheumatoid arthritis (RA); the introduction of TNF blockers and other biological therapies since 2000 has proven efficacy, and however it has been associated with high costs compared with established DMARDs. The aim of this study was to analyze the costs and health outcomes on the low-cost DMARDs and biologics used by DAS28 over a 5 year period from the perspective of the health care system.
METHODS: The data of this study was taken from a registry in a RA speciality center in Colombia. We selected patients who were followed-up on disease activity and had a minimum of 12 follow visits during 2012-2016. These patients were followed-up under strictly T2T standards. Clinical follow-up was done according to DAS28. Therapy had to be adjusted with DAS28 > 3.2 unless patient’s conditions don’t permit it. The cost analysis was made considering the cost of medications, consultation with a multidisciplinary team, laboratory and radiological tests. The effectiveness was measured by improvement in DAS28 in PMS77

PMS77
UTILIZATION INDICATORS OF SPECIALIZED THERAPEUTIC SERVICES (NUMBER OF CASES AND VISITS) IN HUNGARIAN HOME CARE
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OBJECTIVES: The primary aim of our study was to analyze the therapy services being used by patients, focusing the number of cases and visits per case, and to analyze the costs of these services in Hungarian home care.
METHODS: Our data came from the database of the National Health Insurance Fund, as the single home health financing agency, which was queried through the Central Statistics Office. The period examined was the year of 2013. The following indicators were analyzed: number of cases, type of visits, number of cases, visits per case.
RESULTS: The total number of cases in home care amounted to 133,342, the number of visits amounted to 1,298,834 in 2013. Within home care, the number of cases treated by joint replacement was recorded for 180,143 (44.3%), physical therapy for 76,271 (17.9%), speech therapy for 49,230 (11.7%), and physiotherapy for 14,200 (3.4%) cases. The most common procedures were: 1. joint replacement 180,143 (44.3%); 2. medical massage 148,444 (35.8%); 3. physical therapy 76,271 (17.9%); 4. speech therapy 49,230 (11.7%). The most common procedures were: 1. joint replacement 180,143 (44.3%); 2. medical massage 148,444 (35.8%); 3. physical therapy 76,271 (17.9%); 4. speech therapy 49,230 (11.7%). ONCLUSIONS: Within home care, therapy services by specialty play an essential role in the health care of Hungary, among which the request of physiotherapy is extremely high. The number of cases and visits justifies the need of this type of service, currently maximized centrally, to receive more support.
utilization indicators of therapy services by specialty (number of patients and visits) in hungarian home care

PAMS79

utilization indicators of therapy services by specialty (number of patients and visits) in hungarian home care

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objectives: the primary aim of our study was to analyze the therapy services by specialty focusing the number of patients and visits in hungarian home care. our data came from the database of the national health insurance fund, as the single health financing agency, which was queried through the central statistics office. the period examined was the year of 2016. the following indicators were analyzed: number of visits, type of visits, number of patients, visit per case number of patients and number of patients per case. the rate of patients per case amounted to 1.298.834 in 2016. within home care, the number of patients managed by specialized therapeutic service accounted for 31.739 (53.7%). within this service, the role of colomian patients by physiotherapy amounted in 27.228 (46.1%). the number of patients managed by physiotherapy accounted for 4.344 (7.3%), and that of treated by speech therapy amounted was 171 (0.3%). the total number of visits to therapy services by specialty was 532.205 (90.96%). within these services, physiotherapy amounted to 462.759 (35.6%), physiotherapy accounted for 65.656 (5.0%) and speech therapy amounted to 3.881 (0.3%) visits. the number of visits per case in physiotherapy was 16.99, in physiotherapy, it was 15.1, and in speech therapy, it was 22.7 visits per case. conclusions: within home care, therapy services by specialty play an essential role in the health care of hungary, among which the request of physiotherapy is extremely high. the number of patients and visits justifies the need of this type of service, currently maximally centralized, to convey more support.

PAMS80

epidemiological characteristics of patients with rheumatoid arthritis in a specialized center in bogota colombia

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objectives: rheumatoid arthritis (RA) is a chronic, autoimmune disease manifesting as joint inflammation that can lead to joint damage, destruction, and disability. RA can affect approximately 1% of the population, with a peak incidence between the ages of 30 and 50 years of age (3, 10). the objective of this study was to describe the major clinical and epidemiological characteristics in a descriptive cohort of RA patients, in a specialized RA clinic. methods: we conducted a cross-sectional study, the data was taken from a registry of RA patients in Colombia. these patients were followed-up under strictly treat to Target (T2T) standards; clinical follow-up was done according to DAS28; therapy had to be adjusted with DAS28 > 3.2 unless patient’s conditions don’t permit it. rheumatoid factor and anti-ccp (ACPA) were positive in 80% of our patients, 4205 (80%) were under methotrexate. a network meta-analysis of direct comparisons was conducted for better understanding of the disease condition.

Conclusions: the study concluded that although females had adequate knowledge regarding osteoporosis, yet they were not aware with the early symptoms of the disease that can lead to develop the disease in them and condition could become worsen if not diagnosed at earlier stage, therefore awareness programs should be conducted for better understanding of the disease condition.

Sensory system disorders – Clinical outcomes studies

PSS1

incidence rates of comorbidities among patients with psoriasis in the united states

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objectives: psoriasis (PsO) is associated with a substantial comorbidity burden. however, limited data on comorbidity incidence are available for psO patients in the United States. the study compared the incidence of newly diagnosed comorbidities among psO patients versus demographically matched controls. methods: PsO patients ≥20 years old with ≥1 inpatient or ≥2 nonrule-out PsO diagnoses (ICD-9-CM code 696.1) were identified in the Truven Health MarketScan Commercial and Medical Claims, Dental, and Vision database, January 2000–September 2015, with the first PsO diagnosis as the index date. controls without PsO diagnosis were matched 1:1 to PsO patients on birth year, gender, and geographical region. all individuals were required to have continuous enrollment, or end of study period. incidence rates of PsO-related comorbidities were compared between the PsO and control groups. hazard ratios were estimated using Cox proportional hazards models adjusted for baseline characteristics including comorbidities and insurance plan type. results: a total of 114,824 PsO patients and matched controls were included, mean age was 53 years and 46% were male. Incidence rates were higher for comorbidities among PsO patients including cardiovascular and metabolic diseases, autoimmune conditions, depression, anxiety, and lymphoma (all P < 0.05). the most common comorbidities were taken from a registry of PsO patients on birth year, gender, and geographical region. all individuals were required to have continuous enrollment, or end of study period. incidence rates of PsO-related comorbidities were compared between the PsO and control groups. hazard ratios were estimated using Cox proportional hazards models adjusted for baseline characteristics including comorbidities and insurance plan type. results: a total of 114,824 PsO patients and matched controls were included, mean age was 53 years and 46% were male. Incidence rates were higher for comorbidities among PsO patients including cardiovascular and metabolic diseases, autoimmune conditions, depression, anxiety, and lymphoma (all P < 0.05). the most common comorbidities were taken from a registry of PsO patients on birth year, gender, and geographical region.
retrospective cohort study, and identified 147,954 people with psoriasis (including 10,107 with concomitant psoriatic arthritis and 137,847 without psoriatic arthritis) and 124,195 age-sex controls. We used the Cox proportional hazards model to assess the hazard ratio (HR) for incident uveitis in people affected by mild and severe psoriasis with and without psoriatic arthritis with reference to nonpsoriatic controls (adjusted HR 2.40 (95% confidence interval (CI) 1.90-3.02)). The severe psoriasis without psoriatic arthritis group had an increased risk of incident uveitis compared with the mild psoriasis without psoriatic arthritis group (adjusted HR 1.23-1.64) and the nonpsoriatic controls (adjusted HR 1.42 (95% CI 1.03-1.96), respectively). On the other hand, the mild psoriasis without psoriatic arthritis group did not have an increased risk for incident uveitis as compared with the nonpsoriatic controls (adjusted HR 1.20). In conclusion, severe psoriasis and those with mild psoriasis but with psoriatic arthritis have an increased risk of incident uveitis. Clinician may use this finding as a guide for uveitis risk stratification in patients with different inflammatory presentations on the spectrum of psoriatic disease.

PS33
RISK OF SECOND PRIMARY CANCER IN PEOPLE WITH NON-MELANOMA SKIN CANCER: A NATIONWIDE COHORT STUDY

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OBJECTIVES: To assess the risk of second primary cancer in people with nonmelanoma skin cancer (NMSC). METHODS: Using data from the National Health Insurance Research Database, we conducted a population-based cohort study to assess the risk of second primary cancer in people affected by NMSC. We identified 50,540 subjects with NMSC and 2,030 matched controls. After adjustment for potential confounders including age, sex, urbanization, and Charlson comorbidity index, people who had NMSC had a 1.43-fold (95% CI 1.18-1.72) risk of second primary cancer compared with controls. The median time to the first skin cancer diagnosis was 8.1 months. The risk of second primary cancer continued to increase up to 5 years after the index date. Patients with NMSC had a 2.99-fold (95% CI 1.00-9.10) risk for the development of second primary cancer as compared with the control group. Men with NMSC had a 2.99-fold (95% CI 1.00-9.10) risk for second primary cancer as compared with controls. Women with NMSC had a 2.63-fold (95% CI 1.29-4.95) risk for second primary cancer as compared with controls. Therefore, patients with NMSC had a significantly increased risk of second primary cancer. CONCLUSIONS: This study found that Asians with NMSC have an increased risk of second primary cancer, but the clinical presentations are different from those in Caucasians. Our findings can be a useful reference for health care for people diagnosed with NMSC.

PS34
DIAGNOSIS AND TREATMENT HISTORY BEFORE PSORIASIS DIAGNOSIS AMONG PATIENTS WITH MODERATE-TO-SEVERE PSORIASIS

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OBJECTIVES: To assess the risk of second primary cancer in people with nonmelanoma skin cancer (NMSC). METHODS: Using data from the National Health Insurance Research Database, we conducted a population-based cohort study to assess the risk of second primary cancer in people affected by NMSC. We identified 50,513 subjects with NMSC and 2,033 matched controls. After adjustment for potential confounders including age, sex, urbanization, and Charlson comorbidity index, people who had NMSC had a 1.43-fold (95% CI 1.18-1.72) risk of second primary cancer compared with controls. The median time to the first skin cancer diagnosis was 8.1 months. The risk of second primary cancer continued to increase up to 5 years after the index date. Patients with NMSC had a 2.99-fold (95% CI 1.00-9.10) risk for second primary cancer as compared with controls. Men with NMSC had a 2.99-fold (95% CI 1.00-9.10) risk for second primary cancer compared with controls. Therefore, patients with NMSC had a significantly increased risk of second primary cancer. CONCLUSIONS: This study confirmed that the patients with NMSC had a significantly increased risk of second primary cancer. The present study also showed that men with NMSC had higher risk of second primary cancer than women. The risk of second primary cancer was increased up to 5 years after the index date. The results of this study can be used to educate patients and health care providers about the risk of second primary cancer in people with NMSC. The findings can be a useful reference for health care for people diagnosed with NMSC.

PS35
PREVALENCE OF GINGIVITIS AMONG PATIENTS ATTENDED DENTAL DEPARTMENT OF SANMAND Provisional Hospital IN QUETTA, PAKISTAN


OBJECTIVES: The present study was to check prevalence of Gingivitis among patients attended dental department of Sandman Provisional hospital Quetta, Pakistan. METHODS: The retrospective based descriptive study was done and data was collected from patients records for the period of 16 months i.e. January 2015 to April 2016. The record of patients attended dental department of hospital having any dental disease were included in study. To study population descriptive and cross tabulation of periodized data in this study was analyzed using IBM SPSS v.20. RESULTS: Three thousand four hundred six (3406) patient's record data were analyzed during the study period, majority (n=1359, 39.4%), of respondents had ages ranges between 17-24 years. The finding of the study showed that men had higher scores of Gingivitis (9.61%) as compared to women (7.29%). Results shows that overall prevalence of Gingivitis was 89.6% (n=3052) among all the dental diseases recorded for the patients. Age group was significantly (P < 0.001) associated with the type of different diseases. CONCLUSIONS: The present study revealed that the Gingivitis disease is very dominant in 72% of 10,000 iterations and cost-effective in 91%, assuming a benchmark willingness-to-pay threshold of $50,000/quality-adjusted life year ($50,000/ QALY). CONCLUSIONS: The results of these economic analyses suggest CO is a cost-effective, economically dominant alternative to modern dental treatment in patients with PUS in the HOPD setting.

PS36
SENSORY SYSTEMS DISORDERS – Cost Studies

PS37
CO-OCURRENCE OF MACULAR DEGENERATION: A BUDGET IMPACT ANALYSIS UNDER THE PERSPECTIVE OF BRAZILIAN PUBLIC HEALTH CARE SYSTEM

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OBJECTIVES: To assess the effect of cost-effectiveness and economic impact of enzymatic debridement with clodrosal collagenase ointment (COO) compared with medicinal honey (MH) for pressure ulcer (PU) treatment from a US payer/Medicare perspective in the hospital outpatient department (HOPD) setting. METHODS: A budget impact analysis using Markov health state transitions was developed for pressure ulcers (PUs) in the HOPD. Patients treated with CCO achieved 11.5 granulation weeks and 6.0 epithelization weeks were described over the baseline period RESULTS: The study included 1,018 patients with a mean age of 53 years and 46% female. Common psoriasis-related comorbidities during the baseline period were hyperlipidemia (41%), hypertension (38%), and diabetes (14%). During the baseline period, 474 (43%) patients had ≥ 1 diagnosis of other skin disease, with the most common including contact dermatitis and other eczema (29%), dermatophytosis (13%), and atopic dermatitis and related conditions (7%). The average time from the 1st skin disease diagnosis to the 1st pressure ulcer diagnosis was 15.9 months. Among patients with a skin disease diagnosis, 91% received treatments related to skin diseases with the most commonly used being steroids (topical: 77%, non-topical: 24%) and antifungals (topical: 20%, non-topical: 7%). CONCLUSIONS: A high proportion of moderate-to-severe psoriasis patients had diagnoses for other skin diseases and was treated with steroids or antifungals before receiving the 1st pressure ulcer diagnosis. The high rates of other skin disease diagnoses at baseline suggested that some patients may have been misdiagnosed. Future studies assessing the association between these skin diseases and psoriasis are warranted.
OBJECTIVES: To conduct a systematic review of the economic impact of glucocorticoid-associated services, comparing topical medications ("drop") vs. laser trabeculoplasty (LT), or any glucocorticoid surgery ("non-drop") therapies.

METHODS: We used a structured search of Pubmed to retrieve randomized controlled trials, cohort or case-control studies, and economic models published between January 1996 and August 2016. Inclusion criteria required a direct comparison of a drop vs. non-drop treatment. We extracted data on healthcare resource use and direct costs of glucocorticoid associated services (ophthalmologist visits, surgical procedures, medications, exams and co-payments), direct costs (prescriptions and ophthalmologist visit fees), and medication costs. RESULTS: Twelve studies met the inclusion criteria (eight economic models, three retrospective cohort studies and one prospective cohort study), comprising about 7,475 patients, across four countries (USA, America, South Africa, Europe and Africa). Of the non-drop therapies included in the review, LT was the comparator in six studies, traditional surgical procedures were comparators in four, minimally invasive surgeries in one study; and one study assessed either surgery or laser procedures compared with drops. In four studies, the comparison between drops and LT were made in a primary glaucoma diagnosis population, with the other eight in populations with more advanced or refractory disease. All 12 publications reported direct costs, only two of the twelve included indirect costs or reported health care resource utilization. Potential cost-savings with non-drop treatments was seen in eight of the twelve studies, including all four studies comparing a primary laser procedure to initiation of drop therapy. CONCLUSIONS: Open-angle glaucoma treatment using non-drop therapies may have the potential to be cost-effective when compared to drop therapy for both initial- and drop-refractory treatment for open-angle glaucoma. However, variability between studies, the small number of included studies and numerous potential intra-study limitations does not allow for a consensus recommendation and supports the need for further evaluation.

OBJECTIVES: To assess visual acuity (VA) and healthcare resource use and costs of treating diabetic macular edema (DME) pre- and post-excision with fluvoxamine acetone (FAc) intravitreal implant in routine practice. METHODS: The retrospective ILUVIEN Clinical Evidence study collected data from patient medical records in multiple ophthalmology centres in the UK. Data were collected on patients with DMO prescribed FAc implant in the 12 months before and after implant. Costs were attributed to healthcare resource use according to standard UK healthcare costing methods (2014/15 prices). RESULTS: 178 people contributing 196 treated eyes were included in the study. Mean age was 68.4 years; 67% (30/45) were female. Median (interquartile range, IQR) VA was 0.70 (0.50–1.00) LogMAR units at implant, improving to 0.60 (0.38–0.90) LogMAR units at 12 months post implant (p = 0.001). 45% and 20% of patients achieved an improvement in ETDRS score of 15 and 15 letters in the 12 months after implant, respectively. Mean (SD) number of anti vascular endothelial growth factor (anti-VEGF) injections per treated eye in the 12 months prior to implant was 2.8 (2.6), decreasing to 0.6 (1.6) in the same period after implant (unit cost £747 for ranibizumab, £1,012 for aflibercept and £246 for bevacizumab). The corresponding figures for other steroid injections were 0.2 (0.4) before and 0.1 (0.4) after implant (unit cost £1,066 for dexamethasone and £197 for triamcinolone). 20 (10%) and 19% (5%) eyes underwent macular laser therapy (unit cost £137) before and after implant, respectively. Mean (SD) costs of these treatments were £2,049 (£1,860) before and £543 (£1,77) after implant (p = 0.001). The unit cost of administering the FAc implant was £2,471 (95% CI £2,443-£2,502). CONCLUSIONS: Visual outcomes with ILUVIEN were observed at 12 months. Excluding the cost of the FAc implant, healthcare costs associated with treatment were significantly reduced in the 12 months post implant.

OBJECTIVES: The economic impact of open-angle glaucoma treatment using non-drop therapies may have the potential to be cost-effective when compared to drop therapy for both initial- and drop-refractory treatment for open-angle glaucoma. However, variability between studies, the small number of included studies and numerous potential intra-study limitations does not allow for a consensus recommendation and supports the need for further evaluation.

OBJECTIVES: We analyzed 47 medical records of patients with cutaneous T-cell lymphoma (CTCL) diagnosed with and treated for a cutaneous T-cell lymphoma (CTCL) at a university hospital in Beijing, China from January 1, 2016 to December 31, 2016; treated with phototherapy or systemic therapy and followed up for at least 3 months. The primary endpoints were as follows: (1) clinical outcomes; (2) costs of treatment; (3) adverse effects. RESULTS: A total of 23 patients had available data for analysis. The clinical outcomes were as follows: 15 patients achieved a complete response (CR), 8 patients achieved a partial response (PR), and 2 patients had stable disease (SD). Costs of treatment were calculated as follows: 12 patients were treated with phototherapy, of whom 10 received PUVA, 2 received UVB monotherapy, and the median (IQR) costs were $3,650 ($2,000–$5,000). Twenty patients were treated with systemic therapy, and the median (IQR) costs were $8,100 ($6,000–$10,000). The most common adverse effects were skin reactions in 12 patients, with 11 patients having mild reactions and 1 patient having a severe reaction. CONCLUSIONS: The costs of treatment for CTCL are high because they are the patient’s out-of-pocket expenses. The analysis shows the actual topic for research of women health and optimization of treatment regimens after surgery.
CONCLUSIONS: Dexamethasone intravitreal implant is pharmacoeconomically useful for patients with DM in Russia.

PPS17 COST-EFFECTIVENESS OF TARGETED THERAPY FOR MODERATE-TO-SEVERE PLACQUE PSORIASIS: AN ANALYSIS BASED ON AN INSTITUTE FOR CLINICAL AND ECONOMIC REVIEW (ICER) REPORT

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OBJECTIVES: To determine the likelihood of cost-effectiveness, assessed by cost per quality-adjusted life year (QALY), for several targeted therapies approved to treat moderate-to-severe plaque psoriasis in the United States. Currently marketed drugs included were apremilast, adalimumab, etanercept, infliximab, ustekinumab, secukinumab, and ixekizumab; the newly-approved drug brodulab-mab was also included. METHODS: We constructed a Markov model to simulate the treatment of patients from first-line therapy to either second-line therapy or no treatment and, for patients receiving second-line treatment, from second-line therapy to no treatment. Patients were assumed to change treatment if they failed to achieve a 75% improvement in Psoriasis Area Severity Index (PASI-75) over baseline or if their response fell below PASI-75. The wholesale acquisition cost for each drug was discounted by a class-specific, empirically-derived rebate percentage. Brodulab-mab’s price was set to equal the average of secukinumab and ixekizumab, the other two IL-17 agents. Health-related utility on first-line treatment was derived from improvement in PASI score from baseline, second-line treatment used a weighted average of utility on targeted therapy, with a 5% decrement to represent loss of efficacy in patients with prior targeted therapy. We conducted a probabilistic sensitivity and net monetary benefit analysis to estimate likelihood of cost-effectiveness. RESULTS: Over a ten year time horizon, at a willingness-to-pay of $100,000/QALY, secukinumab, ixekizumab, and brodulab-mab had >99% probability of being cost-effective, while apremilast and infliximab had 11% and 7% probability, respectively. The class-wide probability of cost-effectiveness for IL-17 drugs rose to 94% when willingness-to-pay is $150,000/QALY. CONCLUSIONS: At and above the $100,000/QALY threshold often cited for the United States, the three IL-17 agents in this study are likely to be the most cost-effective first-line agents.

PPS18 A COST-EFFECTIVENESS AND VALUE OF INFORMATION ANALYSIS OF ALTERNATIVE TREATMENTS FOR PRIMARY AXILLARY HYPERHIDROSIS IN SECONDARY CARE

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OBJECTIVES: To determine the most cost-effective sequence of interventions for the management of refractory primary hyperhidrosis in secondary care in the UK NHS, and to establish the expected value of undertaking additional research on clinical outcome and utility parameters. METHODS: A de novo probabilistic model was developed, which represented four different treatment sequences for axillary hyperhidrosis. Treatments included: aluminium chloride, medication(M), botulinum toxin(FTX), iontophoresis(I), sponges, curettage(C) and endoscopic thoracic sympathectomy(D). A 48-year time horizon was used, with health states expressed as QALYs. The perspective was that of the UK NHS and Personal Social Services. Sensitivity analyses were conducted, alongside both the population expected value of perfect- and partial-perfect-information (EVPI) for model parameters. These were calculated using four different decision-analytic models (WTP), incidence rates and effectiveness of treatments. Costs were calculated in GBP (£) for the 2015 price year. RESULTS: Base-case results indicated that BMCE was the most cost-effective sequence; ICER of £9,304/QALY; probability cost-effective 0.8. The next most cost-effective sequences involved medication moving...
before BTX or discontinuing from the sequence. The following uncertainty analysis characterized the uncertainty in the effectiveness estimate of medication vs placebo. Most sensitivity and scenario analyses had little effect on the results. The population EVPPI for medication vs placebo and for cure/treatment vs BTX effectiveness was >$3 million for all scenarios, unless the incidence of axillary hyperhidrosis was 0.5% and WTP was $20,000 QALY for the analysis found that 100 patients might be added to the sequence at 24 months pre-index and ≥12 months post-index. Time to treatment discontinuation was evaluated descriptively using Kaplan-Meier curves, and defined as the end of days’ supply before at least 60 days gap without medication. At 12 months post-index, the percentage of real patients persisted on drug was assessed. RESULTS: A total of 1,101 patients initiated on apremilast treatment and 687 initiated on etanercept treatment met the inclusion criteria and had similar baseline characteristics. Mean enrollment follow-up time was 493 days for apremilast and 586 days for etanercept. At 12 months post-index, persistence on the initiated drug was not significantly different between the apremilast and etanercept cohorts (39.5% [apremilast] vs. 35.8% [etanercept], P=0.109). CONCLUSIONS: While apremilast showed numerically higher treatment persistence compared with etanercept, the difference was not statistically significant. Further analyses are needed to explore the impact of higher persistence on clinical effectiveness, that is, to describe the benefit patients are receiving from staying on treatment.

**PSS22**

A REVIEW OF VISION-RELATED UTILITY VALUES AND THEIR SUITABILITY FOR USE IN COST-EFFECTIVENESS MODELS IN AGE-RELATED MACULAR DEGENERATION

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OBJECTIVES: While therapies for age-related macular degeneration (AMD) are well established, therapies in development for dry AMD would be without precedent. Economic evaluations of wet AMD therapies typically have relied on health state and utility values defined by visual acuity (VA), but the mechanisms of dry AMD impair visual functioning and not VA. The objective was to assess the suitability of VA-based utilities used in wet AMD for use in economic evaluations in dry AMD. METHODS: This study reviewed four AMD utility studies of five AMD model structures and compared them with two guideline-based visual impairment definitions and the target populations for ongoing clinical trials in dry AMD. A crosswalk of VA ranges and associated utility values was developed to visualize alignment across studies. The AMD utility studies were assessed to determine whether they considered non-VA measures of visual functioning, included dry AMD patients, or controlled for dry AMD severity. RESULTS: Lack of alignment in VA ranges was identified: none of the utility studies or model structures were aligned with guideline-based visual impairment definitions, and three of the five model structures used health state definitions that were not aligned with VA-based utility values. The utility studies were all conducted at least ten years ago, and only one utility study considered the interaction of VA and other visual functioning measures. While the utility studies all included dry AMD patients, the percentages of patients with dry AMD were low, moreover, dry AMD severity levels, when reported, were not aligned with dry AMD clinical trial definitions. CONCLUSIONS: Substantial limitations and inconsistencies were observed in utility values for wet AMD, and key data gaps were identified related to dry AMD. Studies designed specifically for dry AMD are needed to support economic evaluations of future dry AMD therapies.

**PSS23**

DOES THE CHOICE OF TARIFF MATTER? A COMPARISON OF EQ-5D-5L UTILITY SCORING BETWEEN CHINA, UK AND JAPAN TARIFFS ON A PSORIASIS VULGARIS SAMPLE IN MAINLAND CHINA

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OBJECTIVES: To compare and analyze the differences of EQ-5D-5L values derived from UK, Japan and China preference weights using a sample of patients with psoriasis vulgaris in Mainland China. METHODS: A convenience sampling framework was adopted and a face-to-face interview approach was used for data collection. The Friedman Test and The Wilcoxon signed-rank tests were used to examine the differences of EQ-5D-5L utility scores derived from three tariffs. The ICs and Bland-Altman plots were used to study the agreement among the three EQ-5D-5L tariffs. The Spearman’s rho correlation coefficients was adopted to examine the correlation between EQ-5D-5L utility scores and a series of quality of life scores measured based on Visual Analogue Scale (VAS) scores, Psoriasis Area Severity Index (PASI) scores, and Psoriasis Disability Index (PDI) scores. The differences on quality of life scores between different severities of psoriasis vulgaris were tested by using the Mann-Whitney U test. RESULTS: A total of 350 patients (aged 16 years or older) were recruited. There were significant differences among the three national tariff sets. The EQ-5D-5L IMBIC was the most applicable model for scoring the Chinese tariffs yielded the largest range (0.30–0.90), whereas those scores derived from Japan and UK preference weights had smaller range (0.45–0.90 and 0.34–1.0, respectively). Overuse of “other” tariffs showed an excellent agreement (ICC = 0.90). The EQ-5D-5L scored using the China tariff had better discriminated validity than the other two tariffs. CONCLUSIONS: Three country-specific EQ-5D-5L tariffs have shown a high level of agreement based on psoriasis vulgaris patients in Mainland China. However, there was no evident tariff had the strongest discriminated validity. It is recommended that the country-specific tariff is preferred for use in Mainland China. If not available, the value sets should be developed, or we also can use UK or other country tariffs with same cultural background. However, more research needs to be done.
PSS24
FACTORS INFLUENCING PATIENT SATISFACTION WITH LOWER REMOVABLE DENTURE
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OBJECTIVES: To determine correspondence between clinician’s and patient’s appointments for evaluation of removable dentures and assess the main determinants of patient satisfaction with the aim of improving treatment outcomes. METHODS: This cross-sectional study was conducted over a three-year period among 115 patients. After the final adjustment, a single representative was found to be lower treatment response and retained and overdentures. The data were compared by the van Elteren test. Analyses of item-level changes are ongoing.

RESULTS: Patient dissatisfaction was the most frequently associated with chewing pain (28%) and interrupted meals (27%). These reported causes of treatment discomfort were followed by a need for treatment (19%), avoiding speech and laughing (16%) and difficulty relaxing (10%) cases. A statistically significant positive correlation was found between the high scores of lower denture instability and chewing pain (r=0.67), need of treatment (r=0.68), while stronger-to-weak negative correlation—with interrupted meals (r=−0.35), avoiding speech and laughing (r=−0.27) and difficulty relaxing (r=−0.14). CONCLUSIONS: Denture clinical scores and patient perceived comfort have multilateral correlation. In each clinical case attainable prosthodontic goals are rated scale. Each item was rated on a 5-point scale (0–4).

PSS25
DEVELOPMENT AND VALIDATION OF THE IMPACT ASSESSMENT FOR ROSACEA FACIAL REDNESS (IA-RFR)
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OBJECTIVES: Persistent facial erythema (redness) associated with rosacea has consequences with psychosocial impacts that are important components of treatment evaluation. This report describes the development and validation of a patient-reported outcomes (PRO) measure to assess impacts of rosacea facial redness. METHODS: The Impact Assessment for Rosacea Facial Redness (IA-RFR) questionnaire was developed consistent with FDA guidance and ISPOR recommendations for validating PROs. The conceptual framework and questionnaire items were generated from literature review, patient concept elicitation interviews (N=46), and to severe rosacea-associated emotional distress. The Impact Assessment (CEA) grade ≥3, and expert opinion. Cognitive interviews (N=20) were conducted to guide revisions. Reliability and validity were examined in a phase IIb study (N=223; vehicle, n=220). In

RESULTS: Test-retest reliability was examined on days 14 and 28 (predispose) among patients with the same IA-RFR score (N=223; vehicle, n=220). Increasing the domains with high Cronbach α coefficients (0.83), with the exception of personal Grooming (α=0.018). Test-retest reliability was high (intraclass correlation coefficients >0.70) on an Internet-based survey among 456 patients designed to identify topics that would further help understand the burden of illness of GA. RESULTS: Only 1 out of 318 articles reviewed reported GA-specific findings; other studies reported data for GA but did not differentiate between advanced AMD and GA. A single study described direct medical costs in GA, but there were no GA-specific data on indirect costs related to caregiving, transportation, or lost income. Studies on the mental health burden of GA were lacking. Patients found that the burden of GA is associated with the need to hold chores, visiting restaurants, social outings, and outdoor hobbies, participating in religious activities, and long-distance travel. Patients also reported direct out-of-pocket expenses for low vision aids. Caregivers also reported modifying schedules, providing transportation, and other assistance. PROs identified mental health issues and variable compliance with low vision aids as relevant to GA. The interviews highlight the impact of GA on patients’ and caregivers’ social functioning.

PSS26
PATIENT-REPORTED ASSESSMENT FOR ROSACEA FACIAL REDNESS (IA-RFR): RESULTS OF TWO PHASE 3 PIVOTAL TRIALS OF OXYMETAZOLINE CREAM 1% VS VEHICLE
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OBJECTIVES: Persistent erythema associated with rosacea has considerable psychological and social impact that is important to assess when evaluating treatment efficacy. Two phase 3 pivotal trials examined efficacy and safety of oxymetazoline for treatment of moderate to severe persistent facial erythema associated with rosacea. This patient-reported assessment (PA-RFR) and impact assessment domains were identified from items within their respective domains established adequate convergent validity for Self-perception (r=0.73) and Emotional domain items (r=0.72). Known groups validity was shown for IA-RFR, emotional, emotional domain, and worry scores, each of which was significantly higher (P<0.05) among patients with more vs less severe erythema (CEA score). CONCLUSIONS: The IA-RFR is a novel tool for assessing the impact of rosacea facial redness that is grounded in patient experience and demonstrates acceptable measurement properties in adults with rosacea.

PSS27
GEOPHYSICAL ATROPHY DISEASE BURDEN: NEED FOR BETTER CHARACTERIZATION
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OBJECTIVES: To identify knowledge gaps around the burden of illness of geographic atrophy (GA), we conducted a literature review and used findings to guide interviews with GA patients, caregivers, and healthcare providers (HCPs) to identify topics that would further help understand the burden of illness of GA. RESULTS: Only 1 out of 318 articles reviewed reported GA-specific findings; other studies reported data for GA but did not differentiate between advanced AMD and GA. A single study described direct medical costs in GA, but there were no GA-specific data on indirect costs related to caregiving, transportation, or lost income. Studies on the mental health burden of GA were lacking. Patients found that the burden of GA is associated with the need to hold chores, visiting restaurants, social outings, and outdoor hobbies, participating in religious activities, and long-distance travel. Patients also reported direct out-of-pocket expenses for low vision aids. Caregivers also reported modifying schedules, providing transportation, and other assistance. PROs identified mental health issues and variable compliance with low vision aids as relevant to GA. The interviews highlight the impact of GA on patients’ and caregivers’ social functioning.

PSS28
THE IMPACT OF SOCIOECONOMIC AND CLINICAL CHARACTERISTICS ON HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH PSORIASIS: AN INTERNET-BASED CROSS-SECTIONAL SURVEY
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OBJECTIVES: To determine socioeconomic and clinical characteristics affecting health-related quality of life (QOL) in patients with psoriasis. METHODS: A cross-sectional study was conducted between March-June 2015 using data obtained from a psoriasis patients group in Korea. The surveyinstrument included questions regarding demographic, socio-economic, and clinical characteristics as well as QOL. Patients’ QOL impairment was divided as severe if QOL impairment was > 1.0; moderate if QOL impairment was between 0.5 and 1.0; mild if QOL impairment was ≤ 0.5. Factors influencing the impairment were identified using multivariable logistic regression analysis.

RESULTS: Of the 299 respondents, 161 (53.8%) exhibited severe QOL impairment. Patients’ dermatology life quality score significantly influenced by gender, annual income, neck psoriasis; psoriasis-related dressign from work; and use of oral and herbal medications. QOL in women was two times more significantly impaired than that of men [odds ratio=2.00, 95% confidence interval(1.05–3.90)]. Patients who had psoriasis on the neck had significantly impaired their QOL compared to those who had psoriasis on other areas of their bodies (OR=2.30, 95%CI:2.0–4.3). In regards to socioeconomic status, patients who earned $< 40 million USD (approximately 34,000 USD), high-income groupshowed less improvement in their QOL than those who earned less (OR=0.47, 95%CI:0.28–0.80). Patients who had severe QOL impairment used oral (OR=2.04, 95%CI:1.30–3.44) and herbal (OR=1.86, 95%CI:1.04–3.34) medications more often than patients whose QOL impairment was less severe. CONCLUSIONS: QOL in patients with psoriasis was significantly associated with demographic and socioeconomic characteristics and working status. The presence of psoriasis on the face may exert a significant effect on patients’ QOL and working status. It is recommended that a study evaluating the impact of psoriasis on patient productivity be performed in the future.

PSS29
SYSTEMATIC PSYCHOMETRIC EVALUATION OF DISEASE SPECIFIC HEALTH-RELATED QUALITY OF LIFE INSTRUMENTS IN ACNE VULGARIS
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OBJECTIVES: Acne vulgaris is a chronic skin condition affecting two-thirds of adults and four-fifths of adolescents with significant impact on their health.
related quality of life (HRQOL). The objective of this study was to compare and contrast the psychometric properties of acne vulgaris specific HRQOL instrument.

METHODS: Comprehensive literature review was conducted to identify self-administered instruments in English with at least one publication citing psychometric properties in a peer-reviewed journal. Selected instruments were evaluated based on measurement standards: construct validity, internal consistency (age, severity, and gender), practicality, breadth, depth, reliability (internal consistency and construct), test-retest, construct validity (convergent and divergent), and responsiveness. RESULTS: Seven instruments were evaluated: Acne Disability Index (ADI), Psoriasis Area and Severity Index (PASI), Acne Quality of Life (Acne-QOL), Acne Quality of Life Index (Acne-QOL-41), 2-item index of Acne-Quality of Life (Acne-Q4), and Acne Symptoms and Impact Scale (ASI). All evaluated instruments were designed to be self-administered (used in men and women, adolescents and adults of varying acne severity), and brief (completed in 5 to 15 minutes), except for ADI. Data to support construct validity was only available for three instruments: ADI, Acne-QOL and ACNE- QOL-41. RESULTS: CONCLUSIONS: ADI (21 items) was the most widely used instrument, while ADI (48 items) was the longest. Results of the study show strongest support for Acne-QOL, Acne-QOL-41, and ASI, with the latter meeting most study criteria. Instrument choice must also consider study objective, group versus individual level decision making, and domains considered important.

PS33

DIFFERENTIAL EFFECTS OF SECUKINUMAB VS. USTEKINUMAB FOR TREATMENT OF MODERATE TO SEVERE PLAQUE PSORIASIS ON WORK PRODUCTIVITY AND ACTIVITY IMPAIRMENT: A STRUCTURAL EQUATION MODELLING APPROACH USING THE CLEAR 52-WEEK STUDY

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OBJECTIVES: To assess healthcare resource utilization (HCRU) among urticaria patients newly treated with omalizumab in a real-world setting. METHODS: Retrospective analysis of healthcare claims from the MarketScan Commercial and Medicare Multi-State Databases. Systemic (biologic and non-biologic) plaque psoriasis treatments utilized prior to index date (first omalizumab claim date between 03/21/2014 and 10/31/2015), aged ≥12 years, and with ≥6 months pre- and ≥12 months post-index periods was used to compare all-cause and urticaria-related HCRU within 6 months pre-index (baseline) to months 1-6 and 7-12 post-index. RESULTS: The study identified 298 urticaria patients newly treated with omalizumab with a mean (SD) age of 43.5 (±13.64) years, of which 70.8% were female. The number of urticaria patients with all-cause and urticaria-related hospitalizations remained very low (n=10) and was similar across the baseline and post-index periods (for all comparisons, p<0.05). Patients with all-cause emergency department (ED) visits decreased from 19.8% (n=59 to 14.4% (n=43), p=0.06) and 10.7% (n=32) to 7.8% (n=20), p=0.03) across the baseline, months 1-6, and months 7-12 time periods, respectively. Similarly, a significant trend was observed for urticaria-related ED visits (for all comparisons, p<0.002). The number of all-cause and urticaria-related outpatient services and pharmacy claims increased significantly in the post-index period, mainly in months 1-6, when compared to those at baseline (for all baseline to months 1-6 comparisons, p<0.05). CONCLUSIONS: Study results showed that patients newly treated with all-cause and urticaria-related hospitalizations remained low, mainly in months 1-6, when compared to those at baseline, in a real-world clinical setting. The observed increase in post-index outpatient and pharmacy claims likely reflect the requirement that omalizumab be administered in a healthcare provider setting.
attributable to OP services, while the cost decreases were driven by inpatient services.

**PSS34 ECONOMIC EVALUATION OF FUSICID ACID IN ADD ON PROTOCOL FOR TREATMENT OF SOFT TISSUE TOPICAL INFECTIONS IN IRAN** Soleymani F, SeyediFar M

**OBJECTIVES:** The most pathogenic factors in hospital infections become resistant to antibiotics mostly because of the inappropriate use of them. Considering the risk of increased microbial resistance to Mupirocin, it seems necessary to have another medication for controlling and treating topical infections. This study is conducted to evaluate the economic evaluation of adding Fusicid acid to the current treatment protocol.

**METHODS:** A decision tree model with cost-minimization analysis used from the payer’s perspective. The model was used for 1,000 hypothetical patients, half of whom assumed as burn patients and the rest as other topical infection and impetigo. The cost of Mupirocin and Fusicid acid was taken from the price list of IFDA, and the manufacturer respectively. Considering the importance of costs due to microbial resistance and consequence side effects, the costs of systemic antibiotic treatment and hospitalization were calculated as well. One-way sensitivity analysis was performed.

**RESULTS:** The treatment cost of 1,000 patients was estimated at 3800.5 US$ with Mupirocin arm and 1860.5 US$ with Mupirocin and Fusicid acid arm (50/50 ratio for burn vs other hospital wards). Since the efficacy of the both drugs are reported to be equal, the lower cost in the arm with Fusicid acid means that this option is cost saving in comparison with Mupirocin alone (cost reduction 21.9 US$ per patient).**CONCLUSIONS:** Based on this findings, adding Fusicid acid to current treatment reduced costs dramatically. Therefore, it seems that it is economically reasonable that insurance companies support the prescription and treatment of this medication.

**PSS35 LONG-TERM TREATMENT PATTERNS AMONG PATIENTS WHO DEVELOPED MODERATE-TO-SEVERE PSORIASIS** Feldman SR1, Zhao Y2, Hur F1, Liu JS3, Herrera V3

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**OBJECTIVES:** To describe the treatment patterns since diagnosis among patients who developed moderate-to-severe psoriasis. **METHODS:** Using the OptumHealth Research registries database from January 1988 and March 2015, adult patients with ≥2 psoriasis diagnoses and receiving ≥1 systemic (non-biologic or biologic) therapy or phototherapy during the 5 years after the first psoriasis diagnosis date (study period) were selected. Patients were required to have continuous insurance coverage during the 3 years before (baseline period) and 5 years after the index date. During the study period, the percentage of patients who re-initiated the same treatment after a gap of ~90 days, changed therapy (initiated a different treatment, added a different agent to the existing treatment, or discontinued an agent from the existing treatment) were examined for the 1st, 2nd, 3rd, 4th and 5th treatment.

**RESULTS:** The sample included 1,098 patients with a mean age of 53 years and 46% female. Common psoriasis-related comorbidities were hypertension (38%), diabetes (10%), and coronary heart disease (10%). Over the study period, 48%, 27%, 16% and 11% of moderate-to-severe psoriasis patients received at least 2, 3, 4, and 5 systemic or phototherapy treatments, respectively. The most common treatment sequences included UVB only (26%), systemic non-biologic only (18%) and biologic only (7%). Overall, the rate of re-initiation was 21% for the 1st treatment, 17%, 21%, 14%, and 11% for 2nd, 3rd, 4th, and 5th treatment, respectively. The rate of therapy change was 27% for the 1st treatment, 39%, 39%, 50%, and 45% for 2nd, 3rd, 4th, and 5th treatment, respectively. **CONCLUSIONS:** Almost half of the moderate-to-severe psoriasis patients received more than 1 treatment during the 5 years after diagnosis. Overall, high rates of re-initiation and therapy change suggested substantial unmet needs in this population.

**PSS36 COMPARISON OF TREATMENT PATTERNS AMONG MODERATE-TO-SEVERE PSORIASIS PATIENTS RECEIVING PHOTOTherapy, NON-BIOLOGIC AND BIOLOGIC TREATMENTS** Feldman SR1, Zhao Y2, Hur F1, Liu JS3, Herrera V3

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**OBJECTIVES:** To compare time on treatment and time to the next treatment initiation among patients receiving phototherapy, systemic non-biologic therapy (NBT), and biologic therapy after psoriasis diagnosis. **METHODS:** Adults with ≥2 psoriasis diagnoses over the 5 years (study period) after the first psoriasis diagnosis date were selected from a claims database (01/1998-03/2015). Up to 5 treatments (phototherapy, NBT, and biologics) over the study period were assessed. A new treatment was identified as initiation of a different agent, re-initiating the same treatment after a gap of >90 days, adding a different agent to the existing treatment, or discontinuing an agent from the existing treatment. Time on treatment, time to therapy change, and time to next treatment initiation were examined.

**RESULTS:** A total of 1,098 adults were included with a mean age of 53 years, 54% men, and 38% having preferred provider organization plan. A total of 44%, 38%, and 17% patients received phototherapy, NBT, and biologics as initial treatment, respectively. The mean time (months) on 1st treatment was significant longer for biologics (2.9) compared to phototherapy (1.8) and NBT (0.7).

**CONCLUSIONS:** Among patients with moderate-to-severe psoriasis, those on biologics generally stayed on treatment longer. After discontinuing the 1st treatment, biologics users moved faster to the next treatment. Time on treatment was shorter for later treatments than 1st treatment.

**RESEARCH POSTER PRESENTATIONS – SESSION III**

**DISEASE – SPECIFIC STUDIES**

**DIABETES/ENDOCRINE DISORDERS – Clinical Outcomes Studies**

**PDB1 UPDATING RISK ENGINE FOR DIABETES PROGRESSION AND MORTALITY IN THE UNITED STATES: INTERNAL VALIDATION** Shi H1, Fonseca V2, Stecker C2, Shi L1

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**OBJECTIVES:** Most of the current diabetes prediction models heavily relied on the UKPDS risk engine and Framingham equation, which used data from 1970s on large populations. This study aimed at developing a risk engine for a cohort of patients with type 2 diabetes in the United States. **METHODS:** A total of 21 equations for forecasting diabetes-related microvascular and macrovascular events, hypoglycemia, mortality, and progression of diabetes risk factors were estimated using data on 10,251 patients from the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial. Left truncated proportional hazard model or accelerated failure time model was applied to fit each event equation using diabetes duration as time index, and a large variety of distributions including Weibull and Gompertz distribution were tested. 10-folds cross-validation or bootstrapped validation was applied to account for over-fitting. Predicted cumulative incidence range was plotted against the observed cumulative incidence to serve as internal validation. **RESULTS:** The model's forecast fell within the 95% confidence interval for the observed events at each time point up to 40 years diabetes duration. Our model prediction provides accurate prediction according to the internal validation process, and good face validity on risk factors were established by endocrinologists. Severe hypoglycemia was found to be an important risk factor for congestive heart failure (CHF), myocardial infarction (MI), angina, revascularization surgery, and diabetes-related mortality. Racial factor was included in more than half of the events equations. **CONCLUSIONS:** The updated risk engine improves event prediction for patients with type 2 diabetes. The updated risk engine can also predict a range of long-term outcomes, thus assist making clinical and policy decisions. We are currently conducting external validation of this updated risk engine.

**PDB2 Dipeptidyl Peptidase-4 Inhibitors and Risk of Heart Failure in Type 2 Diabetes: A Systematic Review and Meta-Analysis of Randomized and Observational Studies** Li L, Li S, Deng K, Liu J, Sun X

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**OBJECTIVES:** To examine the association between dipeptidyl peptidase-4 (DPP-4) inhibitors and the risk of heart failure or hospitalization for heart failure in patients with type 2 diabetes. **METHODS:** We searched Medline, Embase, CENTRAL and ClinicalTrials.gov to identify randomized controlled trials (RCTs) and non-randomized studies of adults with type 2 diabetes that compared DPP-4 inhibitors against placebo or active anti-diabetic medications, and explicitly reported the outcome of heart failure or hospitalization for heart failure. Paired reviewers independently screened for eligible studies, assessed risk of bias, and extracted data. Data from trials and observational studies were pooled separately; quality of evidence was assessed by the GRADE approach. **RESULTS:** A total of 55 studies involving 1,846,133 patients were eligible, including 43 RCTs (n=68,775) and 12 observational studies (nine cohort studies, and three nested case-control studies) (n=1,777,358). There was a trend towards an increased risk of heart failure between DPP-4 inhibitor use versus control (38 trials, odds ratio (OR) 0.97, 95% confidence interval (95% CI) 0.61 to 1.56); risk difference 2 fewer (95% CI 19 fewer to 28 more) events per 1000 patients over five years. There was moderate-quality evidence for an increased risk of hospital admission for heart failure in patients treated with DPP-4 inhibitors versus control (five trials, OR 1.13, 95% CI 1.00 to 1.26; RD 8 more [0 more to 16 more]). The observational studies provided evidence estimates generally consistent with trial findings, but with very low-quality evidence. **CONCLUSIONS:** The relative effect of DPP-4 inhibitors on the risk of heart failure is uncertain, given the relatively short follow up and low quality evidence.
Proper selection of anti-diabetic drugs considering co-morbidities can provide better outcome and prevent further complications in patients.

**PDB6**

**IMPACT OF LONG-TERM OPIOID MEDICATION USE ON SUBSEQUENT TYPE 2 DIABETES MELLITUS RELATED HOSPITALIZATIONS**

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**OBJECTIVES:** Patients’ adherence to antihyperglycemic medication is an essential component in achieving adequate glycomic control. Non-adherence can lead to macrovascular and microvascular complications among patients with type 2 diabetes mellitus (T2DM). According to SAMSHA’s opioid use guideline, prescription opioid use can negatively impact chronic asymptomatic medication therapy. Thus, antihyperglycemic medication adherence may decrease and subsequently lead to T2DM related hospitalizations. We aimed to perform a retrospective cohort analysis using 2003-2004 Truven MarketScan® commercial claims databases. T2DM patients greater than 18 years who were prescribed opioids were included. Use of prescription opioids over a longer duration did not negatively impact T2DM related hospitalizations when prescribed concomitantly in this study.

**PDB8**

**REAL-WORLD EVIDENCE OF PREVALENCE OF CARDIOVASCULAR DISEASE AMONGST TREATED DIABETES POPULATION IN 2016**

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**OBJECTIVES:** 2016 Canadian guidelines for the management of Type 2 Diabetes (T2D) recommend evaluation of cardiovascular comorbidities as a priority for patients not at glycomic target, and recommend preferentially using an anti-hyperglycemic agent with demonstrated cardiovascular outcome benefit for this population. The objective of this research was to determine, in the treated Type 2 Diabetes patient population, the prevalence of pre-existing cardiac comorbidities.

**METHODS:** This study used PRIME, a proprietary database of chart audit abstracts collected through US Veterans Affairs (VA) electronic medical records. The data includes demographic details, risk factors, comorbidities, lab values (e.g. A1c) and pertinent details of the patients’ pharmacological management for T2D including generic outpatient drug and insulin utilization. Clinical cardiovascular disease was defined as per trials evaluating anti-hyperglycemic agents for cardiovascular outcome benefit, i.e. history of myocardial infarction, coronary artery disease, stroke, angina or peripheral artery disease. RESULTS: 2,039 patients treated for Type 2 Diabetes in 2016 were reviewed. Of these patients, 16% had cardiovascular disease, as defined above. Amongst the older diabetic population, over age 65, the rate of cardiovascular disease was highest at 26% (n=1,056, 95% CI 23%-29%). CONCLUSIONS: 19% of treated Type 2 Diabetes patients have a cardiovascular comorbidity which elevates their risk of cardiac mortality. In addition, cardiac risk factors such as hypertension, high cholesterol and obesity are highly prevalent in this population. This data suggests that there is significant need for cardiovascular protection in diabetic patients.
old (SD=10.96) and 6.72 (SD=6.68) years of follow-up. In general population, HbA1c=6.00% (SD=0.22), LDL-C=107.85 mg/dl (SD=8.71) and BP=136.45/ 98.10 mmHg (SD=3.43) were associated with an initial diabetes (incident diabetes) and achieving lowest risk of microvascular and macrovascular complication, the optimal HbA1c were higher than the level for mortality. The optimal LDL-C level were similar between complication and mortality risks, while lower SBP and higher DBP were associated with better outcomes. The optimal treatment goals differed between age and race subgroups. Compare with older counterparts, lower LDL-C and SBP goals were identified in younger patients. Compared with male counterparts, lower LDL-C levels were identified for diabetes management in the US veterans. In addition to meeting ADA recommended goals for better quality of care and population health management, health system may identify individualized treatment goals for their patients with T2DM.

PDB9
COMPARISON OF LONG-TERM DATA ON CARdiovascular OUTCOMES IN PATIENTS WITH TYPE 2 DIABETES RECEIVING LIRAGLUTIDE WITH ESTIMATES BASED ON RISK FACTORS
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OBJECTIVES: To compare rates of cardiovascular outcomes observed in a recent long-term study with rates expected based on subjects' demographic and risk factors. METHODS: Data from LEADER trial (Marcus et al. 2016) and observational study was to assess the change in HbA1c among patients with uncontrolled T2DM initiating dulaglutide. METHODS: This study included 792 ExQW patients. Baseline mean (SD) age was 57.2 (10.6) years, A1C was 8.3% (1.5) and 48.9% were male. Dropout was similar between complication and mortality risks, while lower SBP and higher DBP were associated with better outcomes. The optimal treatment goals differed between age and race subgroups. Compare with older counterparts, lower LDL-C levels were identified in younger patients. Compared with male counterparts, lower LDL-C levels were identified for diabetes management in the US veterans. In addition to meeting ADA recommended goals for better quality of care and population health management, health system may identify individualized treatment goals for their patients with T2DM.

PDB10
ACHIEVEMENT OF DIABETES-RELATED QUALITY MEASURES IN PATIENTS TREATED WITH EXENATIDE ONCE-WEEKLY IN A REAL-WORLD SETTING
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OBJECTIVES: Diabetes quality measures reflect attainment of diabetes treatment goals and are associated with improved long-term outcomes. The study assessed associations between exenatide once weekly (ExQW) use and common diabetes quality measure performance in a real-world setting. METHODS: A historical cohort study of type 2 diabetes patients ≥ 18 years who initiated ExQW between February 1, 2012 and March 31, 2013 (index date) was conducted in a national medical record database. Patients initiating insulin therapy on index date were excluded. We identified the proportion of patients achieving quality measure targets for A1C (<7%, <8%, <9%) overall and by pre-index insulin use and BP target (<140/90 mmHg) at 12 months. RESULTS: This study included 792 ExQW patients. Baseline mean (SD) age was 57.2 (10.6) years, A1C was 8.3% (1.5) and 48.9% were male. Insulin was prescribed pre-index in 334 (42.2%) patients. Prediabetes or T2DM had no insulin prescription before index (No-Ins). A1C quality target attainment improved significantly at follow-up vs baseline; A1C = <7.0% was 31.7% vs 15.3%, A1C <8.0% was 61.4% vs 45.1%, and A1C <9.0% was 79.4% vs 71.1% (p < .001 for all). In the Pre-Ins and No-Ins groups, the proportion with A1C <7.0% at follow-up vs baseline was 20.4% vs 11.7% and 40.0% vs 17.9%; A1C <8.0% was 51.2% vs 38.6% and 68.8% vs 49.8% while A1C <9.0% was 72.7% vs 63.5% and 84.3% vs 76.6%, respectively (p <.010 for all). Overall, 76.2% vs 60.9% mmol/L vs 75.3% at baseline (p=.054). CONCLUSIONS: ExQW was associated with a significant increase in the proportion of patients attaining diabetes quality measures for A1C overall and by baseline insulin use. Goal attainment was consistently lower for patients treated with insulin, possibly because they were more difficult to treat as basal goal attainment, which was high at baseline, did not change.

PDB11
REAL WORLD EFFECTIVENESS OF DULAGLUTIDE AMONG PATIENTS WITH TYPE 2 DIABETES
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OBJECTIVES: Dulaglutide is a once weekly GLP-1 receptor agonist (RA) indicated for the treatment of type 2 diabetes (T2D). The objective of this retrospective observational study was to assess the change in HbA1c among patients with uncontrolled T2D initiating dulaglutide. METHODS: This analysis included adults with Type 2 diabetes managed in the monitoring (medication adherence) targets were 18.4% in 2014 and February 2016 using data from the Practice Fusion electronic health record database, which includes > 25 million patients (6.7% of US ambulatory care visits in 2015 with ≥1 diabetes claim). Exclusion criteria included baseline HbA1c result in the 6-month baseline and in the 3 to < 6 months post-index period were included. Uncontrolled T2D was defined as baseline HbA1c > 7%. RESULTS: We identified 734 patients initiating dulaglutide, 187 (25.5%) with baseline HbA1c < 7% and 547 (74.5%) with HbA1c ≥ 7%. At baseline, uncontrolled patients were 59% female, 51% and 49% were prescribed dulaglutide 1.5 mg and 0.9 mg, respectively, with mean (SD): age 59.0±14.0 years, BMI 35.9±7.2 kg/m², and HbA1c 8.6±1.6% (p < .001 for all). LIR vs GLP-1 RA was observed in patients with a prior prescription for GLP-1 RA versus those without, respectively (p < .017). Additionally, significant differences in mean HbA1c reduction between subgroups by age (< 65 vs ≥ 65 years) were observed in patients with uncontrolled T2D (7 to < 8% vs 8 to < 9% vs < 9%: -0.1±0.9% vs -0.6±1.2% vs -1.6±1.8%; p < .017). There were no significant differences in mean HbA1c reductions between subgroups by gender, race, ethnicity, BMI, previous insulin prescription or oral anti-diabetic medications, and dulaglutide dose. CONCLUSIONS: In real-world settings, patients with uncontrolled T2D demonstrated an improvement in their glycaemic control within 6 months of initiating dulaglutide.
discontinuation was 33.2% vs 37.8% (p = 0.002), for albiglutide and liraglutide, respectively. 11.7% of albiglutide users filled only a single index prescription vs 18.7% for liraglutide. It indicates significant differences in adherence to therapy. CONCLUSIONS: This is the first study to assess the impact of T1D and RAS therapy on pulmonary complications in patients with HTN. METHODS: A retrospective analysis was conducted using claims data from a US commercial insurance company. The study groups consisted of patients taking either: ACE inhibitors, ARBs, or control (diuretics or calcium-channel blockers). Hazard ratios (HR) were estimated using Cox analyses to determine the impact of ACE inhibitors and ARBs on incidence of pulmonary complications controlled for diagnosis of T1D as a risk factor. Sensitivity analysis included inclusion of diabetes mellitus (DM), influenza (INFL) and septo-coccal sore throat (SSR). Initial drug model tested whether the risk of the events is impacted if the patient started with ACE inhibitors or ARBs while duration model tested whether such an association existed everyday use of the medications duration. RESULTS: A total of 11,602 T1D patients and 154,083 non-diabetic patients using HTN drugs were identified. In initial drug model, T1D patients were at increased risk for influenza (HR=1.171, p < 0.001) and pneumonia (HR=1.612, p = 0.0001). Duration model showed that T1D patients associated with increased risk of influenza (HR=1.235, p = 0.0005), pneumonia (HR=1.680, p = 0.0001), and SSR (HR=1.223, p = 0.0042). Patients treated with ACE inhibitors had lower incidence of pneumonia by 3.6% (HR=0.975, p = 0.0001) and TB by 30% (HR=0.70, p = 0.0001) compared to control drugs. Duration model exhibited similar trends for each drug class. CONCLUSIONS: T1D was associated with increased risk of influenza and pneumonia. The use of RAS-modifying medications reduced the risk and delays onset of the diseases.

PB19 INCREASED RISK OF AUTOIMMUNE DISEASE IN PATIENTS WITH TYPE 1 DIABETES AND THE IMPACT OF RAS THERAPY
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OBJECTIVE: Patients with type 1 diabetes (T1D) often develop other autoimmune disorders. Studies have shown that RAS-modifying medications (angiotensin converting enzyme [ACE] inhibitors and angiotensin receptor blockers [ARBs]) suppress certain immune functions and inhibits inflammatory or autoimmune diseases. This study aims to assess the impact of T1D and hypertension (HTN) therapy on autoimmune diseases and potential benefits of using ACE inhibitors and ARBs.

METHODS: A retrospective analysis was conducted using claims data from a US commercial insurance company (2007-2013). The study groups consisted of HTN patients taking either: ACE inhibitors, ARBs, or control (diuretics or calcium-channel blockers). Cox analyses and ordinary least squares (OLS) regression were performed to determine the impact of T1D on incidence of autoimmune diseases and estimate the extent to which an additional day of ACE inhibitors or ARBs provides additional benefit relative to a day of control drugs. Incidence and time to event were measured for multiple sclerosis [MS] (ICD-9 340.xx), systemic lupus erythematosus (SLE) (ICD-9 710.xx), and rheumatoid arthritis (RA) (ICD-9 714.xx).

RESULTS: A total of 6,276 T1D patients and 147,097 non-diabetic patients were identified. OLS regression showed that patients with T1D patients were at increased risk for all three diseases (p < 0.001; MS 11.627, p < 0.0001; SLE 3.420, p < 0.0001; RA 5.710, p < 0.0001) and SSR (HR=1.223, p = 0.0042). Patients treated with ACE inhibitors had lower incidence of pneumonia by 3.6% (HR=0.975, p = 0.0001) and TB by 30% (HR=0.70, p = 0.0001) compared to control drugs. Duration model exhibited similar trends for each drug class. CONCLUSIONS: T1D was associated with increased risk of influenza and pneumonia. The use of RAS-modifying medications reduced the risk and delays onset of the diseases.
PDB20
AUTOIMMUNE DISEASE TIME TO DIAGNOSIS REDUCED IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

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OBJECTIVES: As the population of patients with type 2 diabetes (T2D) grows, it is important to look at the influence that autoimmune disease may have on the onset of other diseases. Autoimmune disease may be of particular interest because of the chronic low-grade inflammation in diabetic patients and connections to an imbalance in the reparative-angiogenic ratio (RAR). This study aimed to determine if RAR is altered in patients with autoimmune disease and to determine if treatments have an impact on the incidence, severity, and onset; autoimmune disease may soon be included on this list.

PDB21
INCIDENCE OF TUBERCULOSIS AND PNEUMONIA IN A NEWLY DIAGNOSED TYPE 2 DIABETIC POPULATION AND THE IMPACT OF RAS THERAPY

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OBJECTIVES: Increased risk of tuberculosis (TB) is associated with diabetes in countries with low-income and high prevalence of both diseases. Pneumonia has also been associated with diabetes diagnosis. This study aimed to investigate the impact of pulmonary complications in population with hypertension (HTN) and the possibility of using RAS-modifying medications (angiotensin converting enzyme [ACE] inhibitors and angiotensin receptor blockers [ARBs]) to delay their emergence.

METHODS: A retrospective analysis was conducted using claims data from a US commercial insurance company. The study groups consisted of HTN patients taking either: ACE inhibitors, ARBs, or control (diuretics or calcium-channel blockers). Hazard ratios (HR) were calculated using Cox analyses to determine the impact of ACE inhibitors and ARBs on incidence of TB and pneumonia. Initial drug model was tested to measure the extent to which the risk of the events is impacted if the patient started are ACE inhibitors or ARBs, and duration model tested whether everyday use of HTN medications delays the events. RESULTS: A total of 28,656 new T2D patients and 147,097 non-diabetic patients were identified. Patients with emerging T2D were at increased risk for MS (HR 1.147, p<0.0044) or SEL (HR 1.254, p<0.0706) but were for RA (HR 1.299, p<0.0001). There was however a significantly faster progression of the disease in all three autoimmune diseases in patients with T2D. RAS-modifying anti-hypertensives did not reduce incidence of disease but did decline disease onset with continued use.

CONCLUSIONS: T2D has been shown to impact a variety of disease in incidence, severity, and onset; autoimmune disease may soon be included on this list. ACE inhibitors and ARBs may help delay the progression of MS, SEL and RA.

PDB22
EFFICACY AND SAFETY OF ALBIGLUTIDE IN THE TREATMENT OF TYPE II DIABETES MELLITUS: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Exm H, Pagada A, Rai MC

OBJECTIVES: Adherence to anti-diabetic medications has always been a concern due to its importance in diabetes management. Adherence to medication can depend on the patients' compliant behavior and the patients' perception of the severity of their diabetes. This study aimed to assess the effect of past compliant behavior and severity of diabetes on patients' adherence to their anti-diabetic medications.

METHODS: A retrospective database study of continuously enrolled (2009-2010) Texas Medicare Advantage Plan enrollees (>60 years) with ICD-9 diagnosis codes for diabetic disorders. Patients were followed for one and a half year to measure their adherence to anti-diabetic medication. Prescription claims for biguanides, diuretics, and sulfonylureas were utilized to determine medication adherence using medication possession ratio (MPR). The MPR 365 days following index date was used as a proxy measure of past compliance. Severity was assessed based on the presence of diabetes complications (diabetic nephropathy [DN] in N=127545 each) and adjusting for risk factors, DPP-4-inhibitors group experienced 30% risk reduction in HF-hospitalization compared to the sulfonylurea group (HR: 0.70, 95%CI [0.64, 0.77]). However, there was no statistically significant difference in the risk of HF between patients with and without any history of cardiovascular disease (CVD) (n=127945 each) and adjusting for risk factors, DPP-4-inhibitors group experienced 30% risk reduction in HF-hospitalization compared to the sulfonylurea group (HR: 0.70, 95%CI [0.64, 0.77]). Subgroup analysis showed a significant decrease in the risk of HF in patients without microalbuminuria. Along in first 365 days of follow-up, with patients having diabetes (presence of DN) and previous compliant behavior is positively associated with the adherence to anti-diabetic medications.

PDB23
RISK OF HEART FAILURE HOSPITALIZATION AMONG USERS OF DIPPEPTIDYL PEPTIDASE-4 INHIBITORS COMPARED TO SULFONYLUREA IN PATIENTS WITH TYPE II DIABETES

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OBJECTIVES: Recent post-secondary analysis of clinical trials suggested an increased risk of heart failure (HF) with Dipeptidyl Peptidase-4 inhibitors (DPP-4-inhibitors) but the risks remains uncertain. The aim of this study is to assess the risk of HF-hospitalization with the use of DPP-4-inhibitors vs. sulfonylurea in patients with type II diabetes. METHODS: A retrospective cohort analysis using Truvon Health-Commercial database was conducted among patients aged >18 years and type II diabetes (ICD-9 250.x0 or 250.x2). Patients initiated either DPP-4-inhibitors or sulfonylurea, had no prior use for at least 6 months, and had at least one additional prescription following initiation between January 2008 to December 2015 were included. Patients with a diagnosis of type-I diabetes, age <18 years, and end-stage-renal-disease prior the index-date (treatment initiation) were excluded. Follow-up continued until the occurrence of first HF-hospitalization, end of enrollment or, end of study period. Cox proportional hazards model after propensity-score matching was used to compare the risk of HF-hospitalization between patients with DPP-4-inhibitors and those with sulfonylurea. RESULTS: A total of 127,945 new-users of DPP-4-inhibitors [follow-up: median (95% CI): 110 days (-121, 213)] and 373,208 new-users of sulfonylurea [105 days (95% CI: -114)] were identified. Incidence rates of HF were 101 and 115 per 10,000 person-years in the DPP-4-inhibitors and the sulfonylurea groups, respectively. After matching on propensity-score (n=127945 each) and adjusting for risk factors, DPP-4-inhibitors group experienced 30% risk reduction in HF-hospitalization compared to the sulfonylurea group (HR: 0.70, 95%CI [0.64, 0.77]). Subgroup analysis showed a significant decrease in the risk of HF in patients without microalbuminuria. Along in first 365 days of follow-up, with patients having diabetes (presence of DN) and previous compliant behavior is positively associated with the adherence to anti-diabetic medications.

PDB24
DIABETES PREVALENCE IN BRAZIL: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: Worldwide diabetes prevalence is around 9%, affecting approxi- mately 415 million people. In Brazil, although there are several epidemiological studies on this subject, the prevalence of diabetes is still matter of debate. Our
OBJECTIVE: To investigate the prevalence of diabetes in Brazil METHODS: We performed a systematic review on the prevalence of diabetes in Brazil. Potentially relevant studies were identified through searches in PubMed, Lilacs, Ministry of Health and hand-search. Inclusion criteria were cross-sectional population-based, censuses, surveys or cohorts studies where diabetes diagnosis, regardless if type 1 or type 2, was self-reported (SR) or confirmed by blood glucose tests (BBG), in the Brazilian population. We conducted a meta-analysis to provide the current best prevalence estimate, using a random effects model. Descriptive analysis of studies and a comparison between self-reported and BBG studies were performed. RESULTS: Among the 968 located references, we included 28 studies. Thirteen were population-based studies with national representation and 15 were studies with local/regional representation. Fifteen studies were SR and 13 relied on BBG. On SR studies, the prevalence was 6.85% (95% CI 5.75% - 7.47%, 12(50)), and on studies confirmed by BBG, the mean prevalence was 10.05% (95% CI 6.41% - 13.68%, 126(4)). From 24.0% to 50.4% of interviewed people were unaware of their diabetes diagnosis. CONCLUSIONS: Diabetes is a global health challenge. Today, there is no chance to moderate the epidemic diabetes with a large sample size; such data cannot be obtained in Japan. The objective of this study is to examine the correlation between treatment type and blood glucose level. In Japan, poorly identified results because the number of deaths from cancer indicates that the patients describing blood glucose is greater than the number of data points showing complications or hypoglycemia. METHODS: We analyzed health insurance claims data and laboratory data provided by Medical Data Vision Co., Ltd. We selected Type 2 diabetes patients having both anti-diabetic drug claims and glucose measurements. We applied a Wiener process to each patient and estimated both drift μ and infinitesimal variance σ2. We then built a linear regression model with as the explained variable, and age, sex, and dummy variables for each anti-diabetic drug treatment as explanatory variables.

RESULTS:
- The coefficient of insulin was 23.0 mg/dl (p value was <0.0001), which was far larger than that of all of the other anti-diabetics. The second largest coefficient was that of sulfonylureas, 6.5 mg/dl (p values was <0.0001).
- The smallest coefficient was that of glitazones, which was -4.4 mg/dl (p value was <0.0001).

CONCLUSIONS: We obtained a set of significant results on the variance of the blood glucose type by treatment. This study suggests that the patients should choose the anti-diabetic drug within the allowance of the variation of the blood glucose.

PDB8
INCRETIN TREATMENT AND RISK OF CANCER IN PATIENTS WITH TYPE 2 DIABETES MELLITUS: A SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMIZED AND OBSERVATIONAL STUDIES

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OBJECTIVE: Increasing numbers of studies have suggested cancer risk related to the incretin treatment. This study was conducted to assess cancer risk associated with the use of incretin-based treatment in patients with type 2 diabetes mellitus (T2DM). METHODS: We systematically searched MEDLINE, EMBASE, the Cochrane Central Register of Controlled Trials (CENTRAL) and ClinicalTrials.gov for randomized controlled trials (RCTs) and observational studies comparing incretin treatment with placebo or active anti-diabetic drugs used in T2DM patients. Pooled estimates were performed. RESULTS: Fourteen RCTs and nine observational studies were included. There was no statistical difference of cancer risk between incretin treatment and comparators (RR=0.77, 95% CI: 0.66-0.89). Similar association for metformin was not significant. CONCLUSIONS: Current evidence suggests that incretins, compared to other active anti-diabetic drugs, do not increase the risk of cancer in T2DM patients, but further observational studies are still warranted to confirm the findings.

PDB9
MODELING INDIVIDUAL PATIENT BLOOD GLUCOSE LEVELS AS A STOCHASTIC PROCESS: AN OBSERVATIONAL STUDY USING LABORATORY DATA FROM HOSPITALS IN JAPAN

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OBJECTIVES: Stabilizing glucose levels in patients with diabetes is important in order to prevent hypoglycemia. Studies using Real World Data exist that describe the correlation between the treatment and incidence of hypoglycemia. The incidence is so small that only few patients show results with a large sample size; such data cannot be obtained in Japan. The objective of this study is to examine the correlation between treatment type and blood glucose level. In Japan, poorly identified results because the number of data points describing blood glucose is greater than the number of data points showing complications or hypoglycemia. METHODS: We analyzed health insurance claims data and laboratory data provided by Medical Data Vision Co., Ltd. We selected Type 2 diabetes patients having both anti-diabetic drug claims and glucose measurements. We applied a Wiener process to each patient and estimated both drift μ and infinitesimal variance σ^2. We then built a linear regression model with as the explained variable, and age, sex, and dummy variables for each anti-diabetic drug treatment as explanatory variables.

RESULTS:
- The coefficient of insulin was 23.0 mg/dl (p value was <0.0001), which was far larger than that of all of the other anti-diabetics. The second largest coefficient was that of sulfonylureas, 6.5 mg/dl (p values was <0.0001).
- The smallest coefficient was that of glitazones, which was -4.4 mg/dl (p value was <0.0001).

CONCLUSIONS: We obtained a set of significant results on the variance of the blood glucose type by treatment. This study suggests that the patients should choose the anti-diabetic drug within the allowance of the variation of the blood glucose.

DIABETES/ENDOCRINE DISORDERS – Cost Studies

PDB30
THE ADOPTION OF IGLARLIXI FOR THE TREATMENT OF TYPE 2 DIABETES MELLIITUS IN PATIENTS PREVIOUSLY EXPOSED TO INSULIN MIGHT GENERATE SAVINGS FROM THE FIRST YEAR

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OBJECTIVES: IglarLixi 100/33 (fixed-ratio combination of insulin glargine/lixisenide) demonstrated that a higher proportion of IglarLixi-treated patients achieved HbA1c targets with a beneficial effect on body weight and no additional risk of hypoglycemia at week 30, compared to insulin glargine in clinical trials. The objective of this analysis, funded by Sanofi, was to estimate the annual budget impact of adopting IglarLixi for the treatment of patients with T2DM uncontrolled with less than 60 IU/day of basal insulin, from a US commercial payer perspective. METHODS: An Excel-based budget impact model assuming 1,000,000 hypothetical US health plan members in 2017 was developed. The proportion of diabetics in T2DM eligible to receive IglarLixi was based on patients’ treatment and market research. The comparisons and market share were derived from a Pharmetrics database analysis. The model assumes 0.55% IglarLixi adoption rate from other available regimens. Drug costs were calculated using published wholesale acquisition costs. Healthcare resource use and costs were derived from a combination of published literature and national fee schedules. A one-way sensitivity analysis varying all model parameters was also conducted. RESULTS: The model estimates that 9,568 patients were eligible to start treatment with IglarLixi in the first year. In the projected scenario a budget impact of $16,824 (-0.29%) was observed, corresponding to a cost savings of $0.01 per member per month (PMPM). Adopting the Medicare perspective, more patients would be eligible to IglarLixi leading to higher savings: $0.03 PMPM, corresponding to a budget impact of -$41,720 between the scenarios: projected and without IglarLixi. Sensitivity analyses showed that the results are most influenced by the proportion and net shares of IglarLixi. CONCLUSIONS: IglarLixi’s adoption as a treatment option for T2DM patients uncontrolled on less than 60 IU/day of basal insulin shows potential to provide budget savings in the first year.
ECONOMIC IMPACT OF SWITCHING HIGH-DOSE INSULIN-TREATED PATIENTS WITH T2D TO HUMAN REGULAR U-500 INSULIN MONOTHERAPY WITH 3-ML PENS

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OBJECTIVES: To evaluate the pharmacy budget impact of switching severely insulin-resistant patients with type 2 diabetes (T2D) requiring >200 units of daily insulin on basal-bolus regimens or human regular U-500 insulin (U-500) 20-ml vials to U-500 3-ml pens from the United States (US) commercial payer and Medicare perspectives. METHODS: A budget impact model was used to compare pharmacy costs with and without the U-500 pen over a 3-year period. A hypothetical US commercial plan and a Medicare cohort were evaluated. RESULTS: T2D prevalence/incidence rates and historical treatment data were used to estimate the number of U-500 eligible patients. Market share and product substitution rates were projected based on estimates from IMS LifelineTM. These projections were used to allocate the eligible population to each comparator for scenarios with and without the U-500 pen. Pharmacy costs were estimated using average total daily doses (TDDs) from published data for U-500 comparators. Developed to evaluate direct and indirect costs associated with the treatment of T2D in Brazil. Annual treatment costs for IDeg and IGlar were calculated based on basal and bolus insulin dosing, needles, hypoglycemic events, self-monitoring blood glucose tests, medical appointments and productivity loss attributed to hypoglycemia. Clinical inputs were derived mainly from meta-analyses of randomized controlled clinical trials. Unit costs were derived from official pricing and procedures reimbursement lists in the public healthcare perspectives (i.e. COP, BPS and SIC). To estimate the budget impact, a 1,000 hypothetical cohort population with T1DM is assumed and market-share of insulins derived to basal/bolus insulin-treated patients with T2D to U-500 pens was estimated to reduce costs from US commercial payer and Medicare perspectives, resulting in pharmacy budget benefits across a wide range of market factors, TDD requirements, and cost-sharing schemes of insurance plans.

BUDGET IMPACT ANALYSIS OF INSULIN DEGLUDECE COMPARED TO INSULIN GLARGINE U100 FOR TYPE 1 DIABETES MELLITUS IN THE BRAZILIAN PUBLIC HEALTHCARE SYSTEM

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OBJECTIVES: To evaluate direct and indirect costs and associated budget impact of insulin degludec (IDeg) compared to insulin glargine U100 (IGlar U100) in the treatment of Type 1 Diabetes Mellitus patients in a basal-bolus regimen (T1DM) in Brazilian Public Healthcare System. METHODS: A 5-year budget impact model was developed to evaluate direct and indirect costs associated with the treatment of T1DM in Brazil. Annual treatment costs for IDeg and IGlar were calculated based on basal and bolus insulin dosing, needles, hypoglycemic events, self-monitoring blood glucose tests, medical appointments and productivity loss attributed to hypoglycemia. Clinical inputs were derived mainly from meta-analyses of randomized controlled clinical trials. Unit costs were derived from official pricing and procedures reimbursement lists in the public healthcare perspectives (i.e. COP, BPS and SIC). To estimate the budget impact, a 1,000 hypothetical cohort population with T1DM is assumed and market-share of insulins derived to basal/bolus insulin-treated patients with T2D to U-500 pens was estimated to reduce costs from US commercial payer and Medicare perspectives, resulting in pharmacy budget benefits across a wide range of market factors, TDD requirements, and cost-sharing schemes of insurance plans.


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OBJECTIVES: Diabetes is one of the most prevalent chronic diseases in the United States (US). Newer analogs are generally more expensive than older insulin formulations. In the increase in insulin prices and the gross domestic product (GDP) in the US in the period 1983-2016. METHODS: The average wholesale prices (AWP) of insulin were collected from the RedBook (Truen Health). The GDP per capita, a common measure of the economic growth of nations, was sourced from The World Bank. Insulin products were classified according to their duration of action: ultra-short acting, short acting, intermediate acting, long acting, and premixed insulin. The annual compound annual rate growth (CAGR) for the AWP prices of insulin products were calculated and compared to the CAGR of the GDP. RESULTS: Ultra-short acting insulin products had an annual CAGR price range from 14.1% to 16.5% compared with an annual CAGR GDP range of 2.1% to 3.3%. For short acting insulin products, the annual CAGR price range was 9.3% to 24.7% compared with an annual CAGR GDP range of 2.1 to 3.3%. Increase in insulin prices and the gross domestic product (GDP) in the US in the period 1983-2016. RESULTS: The average wholesale prices (AWP) of insulin were collected from the RED BOOK Online(R). Descriptive statistics were used to compare drugs' approval status, cost-sharing composition, and rates of uptake from U-500 vials and from comparators, sensitivity analyses showed cost savings with the U-500 pens in all cases for both cohorts. CONCLUSIONS: 4 have higher average cost than SDFs. showed maximum variation of 927% while, Vildagliptin + Metformin showed highest variation of 1376%. Further, the variation in the cost of the FDCs of OHAs was performed using online version of Current Index of Medical Specialties (CIMS) and Drug Today (Volume 2, July-September 2016). The cost of 10 units of tablets or capsules in Indian rupee (INR) of SDFs and FDCs of all brands were captured. Some FDCs of OHAs were excluded because APIs of FDCs were not available as an individual formulation in the market or costs were not available in the latest edition of Drug Today and CIMS. Percentage cost variation and average cost of SDFs and FDCs were calculated and compared. RESULTS: 9 single drugs in 20 different doses and 23 FDCs are available in Indian market. The variation in the cost of the SDFs is in the range of 55-137%. Vildagliptin 50mg tablets have a least variation of 55%, while Glimepiride 2mg tablets showed highest variation of 137%. Further, the variation in the cost of the FDCs of OHAs was in the range of 23-927%. The FDC of Glimepiride+ Metformin (2+500mg) showed maximum variation of 927% while, Vildagliptin+ Metformin (50+100mg) tablets have the least variation of 23%. Out of selected 23 FDCs, 19 have lower and only have 4 higher average cost than SDFs. CONCLUSIONS: Compared to the SDFs, FDCS having least variation in the cost and less average cost.

A STUDY ON THE VARIATION IN THE COST OF ORAL HYPOGLYCEMIC AGENTS IN INDIAN PHARMACEUTICAL MARKET

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OBJECTIVES: To analyze the variation in the cost of single drug formulations (SDFs) as well as fixed-dose combinations (FDCs) of oral hypoglycemic agents (OHAs) across India. METHODS: Using the official prices of United Kingdom Prospective Diabetes Study (UKPDS) outcomes model 2. The
aim was to predict time to event from diagnosis to the occurrence of disease complications and death. Individual risk profile from newly diagnosed patients from a 2010 Chilean national health survey used for the estimation of related quality of life were measured using quality adjusted life years (QALY). Costs were estimated using the normative tariff of the Chilean public payer. Cost and effect were compared at an annual discount rate of 3%. RESULTS: The average expected cost of a newly diagnosed patient considering only the treatment and no complications is USD 12,300. The average expected QALYs of a newly diagnosed patient considering only the treatment and no complications is 17.08 QALY. The occurrence of a complication as renal failure is expected to rise the average expected cost of a patient without complications to USD 16,500 (increment of 34%) and to reduce the average expected QALYs to 14.85 (reduction of 13%). The occurrence of a complication as renal failure is expected to rise the average expected cost of a patient without complications to USD 99,500 (increment of 708%) and to reduce the average expected QALYs to 11.31 (reduction of 33.7%). CONCLUSIONS: Due to the high impact of complications on expected cost and QALY, funding decisions for type 2 diabetes treatments should be based on the patient risk profile at the moment of diagnosis and not as a general rule.

PDB38
AN ANALYSIS OF COMME RICAL CLAIMS DATA IN CHINESE PATIENTS WITH TYPE 2 DIABETES: A RETROSPECTIVE DATABASE STUDY
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OBJECTIVES: TO estimate the comorbidities, costs, and healthcare resource utilization (HCRU) were used to explore the impact of diabetes complications on chronic disease management and healthcare costs. METHODS: Data were obtained from an electronic medical record database between January 2007 and December 2011 of records from patients aged ≥18 years with type 2 diabetes (T2DM) and ≥18 years of age who were treated with oral anti-diabetic drug (OAD) only during baseline period (date prior to insulin initiation). Patients with (P = 0.05), respectively. During baseline, 19.3% premix users and 12.4% long-acting users had T2DM-related hospitalizations (p = 0.03), the average number of T2DM-related outpatient visits were 0.98 and 1.23 times for premix and long-acting groups, respectively (p = 0.07). During the follow-up period, per-day insulin dose averaged 31.7 and 15.3 international unit for premix and long-acting groups, respectively. Compared with premix users, mean per-day cost for long-acting users was 37.3% higher (15.3 vs 11.2 USD per day) (p = 0.03) (date of first observed prescription term indexed date). Patients were required to have metformin therapy for ≥30 days pre-index date, concomitant metformin and dapagliflozin/glucovite for ≥30 days post-index date, 12 months pre- and post-index date continuous health plan enrollment, ≥1 T2D diagnosis, and no diagnoses of gestational diabetes and type 1 diabetes. Dapagliflozin/glucovite patients were matched 1:1 to T2D patients using propensity scores. Demographics, clinical characteristics, and all-cause healthcare costs during the 12 months post-index date were reported. A total of 364 dapagliflozin patients were matched to 364 glipizide patients. Mean (SD) total all-cause costs during the 12 months post-index date period were $1,660 ($712,528) among dapagliflozin patients and $14,616 ($4,597)

PDB39
THE RELATIONSHIP BETWEEN HYPOGLYCEMIA SEVERITY AND WORK PRODUCTIVITY LOSS COSTS AMONG TYPE 2 DIABETES PATIENTS IN CHINA
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OBJECTIVES: Hypoglycemia can result in productivity loss and increased healthcare resource use in patients with type 2 diabetes (T2DM). Previous research has focused on severe hypoglycemic events, this study sought to estimate work productivity loss and costs associated with hypoglycemic events of all levels of severity with T2DM. METHODS: We identified adults with T2DM who participated in the U.S. National Health and Wellness Survey. The study population included patients who reported a diagnosis of T2D and current treatment with an antihyperglycemic agent. Respondents were categorized into one of 3 groups based on whether an event was in the preceding 3 months: no hypoglycemic event (NE), non-severe event (NSE), or severe event (SE). Among those who reported hypoglycemia, SE was defined as requiring third-party assistance. Work productivity loss was measured using the Work Productivity and Activity Index. Direct costs were estimated from self-reported healthcare use. Indirect costs were calculated by combining data from the Bureau of Labor Statistics and productivity loss. Multi-variable regression models were used to adjust for baseline differences in patient characteristics. RESULTS: Of 3,630 respondents, 4.7% reported a SE. Increasing severity of hypoglycemia was associated with an increase in mean absenteeism (NE = 5.7%, NSE = 4.0%, SE = 15.3%, p-trend < 0.01), presenteeism (NE = 17.7%, NSE = 11.3%, SE = 35.2%, p-trend < 0.01), work impairment (NE = 21.4%, NSE = 20.8%, SE = 37.9%, p-trend < 0.01), and activity impairment (NE = 35.2%, NSE = 38.6%, SE = 49.9%, p-trend < 0.01). Hypoglycemia severity was highly correlated with lost productivity and costs. The average expected cost of a patient without complications to USD 16,500 (increment of 34%) to USD 22,166.6 (p-trend = 0.008) and direct costs (NE = $6,908.3, NSE = $7,313.8, SE = $15,410.4, p-trend < 0.001). CONCLUSIONS: This study suggests that hypoglycemia severity is associated with an increase in work productivity loss and higher costs. Hypoglycemia can pose a significant economic burden on patients, employers and healthcare systems and varies by the severity of hypoglycemic events.

PDB40
ASSESSING THE ECONOMIC BURDEN OF TYPE 2 DIABETES IN CHINA REFLECTING CHANGING PATIENT OUTCOMES: A THREE-STAGE STANDARD OF THE DISEASE MANAGEMENT AND FOR IMPROVED MANAGEMENT SCENARIOS USING A MODELING APPROACH
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OBJECTIVES: Recent estimates from the Diabetes-Atlas have quantified the direct and indirect costs of diabetes. However, no analysis has estimated the economic burden of diabetes in China. This study was to estimate the economic burden of diabetes in China by modeling the economic impact of diabetes on each level of severity. METHODS: Data were obtained from the Chinese national health survey were used for the estimation. Health outcomes were subsequently annualized and extrapolated to Chinese-national- level considering the total number of diagnosed T2D individuals in China re- flecting changing patient outcomes. A total of 364 dapagliflozin patients were matched 1:1 to glipizide patients (P = 0.03), respectively, on the basis of propensity scores.Among Chinese insulin patients who responded to the 2013 U.S. Diabetes-Atlas, and no diagnoses of gestational diabetes or type 1 diabetes. Dapagliflozin patients were matched 1:1 to T2D patients using propensity scores. Demographics, clinical characteristics, and all-cause healthcare costs during the 12 months post-index date were reported. A total of 364 dapagliflozin patients were matched to 364 glipizide patients. Mean (SD) total all-cause costs during the 12 months post-index date period were $6,098.3, NSE = $6,908.3, SE = $7,493.1, SE = $12,166.6, p-trend = 0.008) and direct costs (NE = $6,908.3, NSE = $7,313.8, SE = $15,410.4, p-trend < 0.001). CONCLUSIONS: This study suggests that hypoglycemia severity is associated with an increase in work productivity loss and higher costs. Hypoglycemia can pose a significant economic burden on patients, employers and healthcare systems and varies by the severity of hypoglycemic events.

PDB41
AN ACTUARIAL ANALYSIS OF DIABETES PAYER ADDRESsABLE BURDEN
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OBJECTIVES: THE goal was to describe health plan financials, from an actuarial perspective, for members with Type 1 Diabetes (T1DM) and Type 2 Diabetes (T2DM), including members with serious emergent hypoglycemic events. METH- ODS: Payor Addressable Burden (PAB) describes the cost of care curve and identifies opportunities to address those costs. Medical and prescription claims

among glipizide patients (P = 0.322). CONCLUSIONS: Despite similar demographic and clinical characteristics, dapagliflozin patients accrued statistically significantly lower medical and numerically lower total costs compared with glipizide patients.
OBJECTIVES: Bariatric surgery has been shown to be more effective than intensive lifestyle and medical intervention (ILMI) for weight loss and diabetes control. We sought to compare the 2-year cost and healthcare utilization of patients with obesity and Type 2 diabetes mellitus (T2DM) randomized into either Roux-en-Y gastric bypass (RYGB) surgery or an ILMI. METHODS: This analysis is based on two-year data post-randomization of patients from a two-year follow-up of a small randomized controlled trial (RCT) with pre-operative and 1-year post-operative data from a larger cohort of patients (N=1,808). Adult patients with body mass index of 30-45 kg/m2 currently on T2DM medications were recruited from Group Health Cooperative between July 2011 and June 2012. The study sample included 745 patients with non-missing outcomes during the study period. We were primarily interested in comparing the cost and healthcare utilization outcomes for patients randomized into either RYGB (N=15) or ILMI (N=17). RESULTS: After 2 years, patients in the RYGB group had a significantly higher health care costs for RYGB patients compared to those undergoing ILMI. There was evidence of pharmacy cost reduction for RYGB vs. ILMI patients – by about $900 in year 2, and $2,000 over the whole 2-year randomized trial (RCT) with pre-operative data. Additionally, among the patients randomized to RYGB, there were significant differences in weight, glycemic control, lipid profile, and diabetes risk scores. Thus, we draw inferences about the general population of patients with obesity.

OBJECTIVES: To determine the prescription patterns of antidiabetic medications and the variables associated with their use in a Colombian population. METHODS: A cross-sectional study using a systematized database of approximately 3.5 million affiliates of the Colombian Health System. Patients of both genders and all ages treated uninterrupted with antidiabetic medications for three months (June-August 2015) were included. A database was designed that included sociodemographic, behavioral, comorbidities, and cost variables. IBM SPSS Statistics software, version 23.0, was used for the data analysis. RESULTS: A total of 47,532 patients were identified; the mean age was 65.5 years, and 56.3% were women. Among the patients who enter into RCTs of bariatric surgery may be quite different from that of those who do not enter RCTs. Patients who enter RCTs are more likely to focus on T2DM and obesity. Incremental cost-effectiveness ratio for the SMS versus non-SMS was expressed in cost (2015 price in US dollar) per quality-adjusted life-year (QALY). Uncertainty about ICLI was incorporated using bootstrapping. RESULTS: After a mean 57-month follow-up, 19 (18.3%) were lost to follow-up after the RCT period. No significantly greater benefit of SMS over 5-year period was observed in weight, body mass index, glycemic control, and lipid profile and diabetes risk scores. Conclusion: SMS was effective for delaying the diabetes progression, making it cost-effective over the 5-year period.

OBJECTIVES: To evaluate the cost-effectiveness of long-acting insulin therapy (LAIT) versus intermediate-acting insulin therapy (IAIT) for Type 1 diabetes (TIDM) up to a follow-up of 10 years in a real-world healthcare setting. METHODS: This trial-based cost-effectiveness analysis was conducted in the propensity-score matched cohorts retrieved from the population-based, universal health insurance administrative claims database in The Netherlands. Patients with type 1 diabetes (T1DM) with first basal insulin prescription within Jan 2004-Dec 2008 were identified and followed up until Dec 2013 to determine if they occurred diabetes-related complications, including cardiovascular, microvascular complications, hospitalisation, and outpatient or hospitalised hypoglycaemia. Outcomes were measured in the number needed to treat (NNT) of each diabetes-related complication and of hyper- and hypoglycaemia, total medical costs, cost per case of diabetes-related complication prevented, and cost per case of hyper- or hypoglycaemia. Baseline cost difference was considered. Probabilistic sensitivity analysis (PSA) was performed by nonparametric bootstrap method to consider the sampling uncertainty. RESULTS: Compared to IAIT, LAIT significantly reduced risks of any diabetes-related complications and hypoglycaemia, and incurred the reduced total medical costs. The NNT for using LAIT versus IAIT to avoid one case having any diabetes-related complications and hypoglycaemia were 10 (over 3.6 years) and 12 (over 5.84 years), respectively. The incremental medical costs for LAIT versus IAIT were $1,382 and $1,481 from a payer and a healthcare sector perspective. PSA indicated that LAIT possessed a high likelihood as a cost-saving or highly cost-effective intervention.

OBJECTIVES: To clarify ambiguous selection criteria and confounding conclusions of a published Diabetes Prevention Program (DPP) and DPP Outcomes Study (DPPOS) cost-effectiveness study of placebo, metformin, individual and group lifestyle (ILS and GLS) interventions and indicate the degree of uncertainty around them by performing probabilistic sensitivity analysis (PSA) for various types of cost (inside and outside DPPP) and effectiveness (QALYs) numbers from the original publication and reproduced the original deterministic ICIER results. We
then explored how the significant ambiguity of the original paper's conclusions could be clarified by using a net benefit (NB) formulation and the cost-effectiveness acceptability curves. These methods also explored the impact of uncertainty in the GLS formulation by using a net benefit (NB) formulation and the cost-effectiveness acceptability curves. The results showed that GLS dominates the other four interventions, indicating that GLS is the most cost-effective intervention.

**CONCLUSIONS:** The results of this study suggest that GLS is the most cost-effective intervention for the treatment of diabetes. However, further research is needed to confirm these findings and to determine the most appropriate treatment strategy for different patient populations.

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**PD849**

**PHARMACOECONOMICAL AND PHARMACOECONOMIC STUDY OF CO-MORBITIES IN DIABETES MELLITUS**

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**OBJECTIVES:** The aim of the study was to determine the relationship between diabetes status and the co-morbidities in patients with diabetes mellitus (T2DM). The study assessed the impact of co-morbidities on the treatment effectiveness and cost of diabetes care.

**METHODS:** A cross-sectional study was conducted at a secondary level referral hospital in rural Anantapur, AP, India. The study included 150 patients with T2DM, and co-morbidities were assessed based on clinical data and physician's opinions.

**RESULTS:** The prevalence of co-morbidities was high among the patients with diabetes mellitus. The most common co-morbidities were hypertension (92.0%), dyslipidemia (88.0%), and cardiovascular disease (82.0%). The cost of care was significantly higher in patients with a higher number of co-morbidities.

**CONCLUSIONS:** The study highlights the importance of managing co-morbidities in patients with diabetes mellitus. Early intervention and multidisciplinary care can help to reduce the burden of diabetes and co-morbidities on the health system.

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**PD850**

**CORRELATION BETWEEN MANUFACTURING COMPANIES AND COST VARIATION OF ANTIDIABETIC DRUGS IN UKRAINE**

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**OBJECTIVES:** The study aimed to investigate the correlation between the number of manufacturing companies and the cost variation of antidiabetic drugs in Ukraine.

**METHODS:** A retrospective analysis of the cost data of antidiabetic drugs in Ukraine from 2015 to 2017 was conducted. The data were obtained from the National Drug Information System and the National Health Insurance Fund of Ukraine.

**RESULTS:** The analysis showed a negative correlation between the number of manufacturing companies and the cost variation of antidiabetic drugs. The drugs with a higher number of manufacturers had a lower cost variation.

**CONCLUSIONS:** The study highlights the importance of competition in the pharmaceutical market for reducing the cost of antidiabetic drugs. This finding can be used to inform policy decisions to promote competition and reduce drug costs.
OBJECTIVES: To determine the cost-effectiveness of dapagliflozin versus DPP4 inhibitors (DPP4i) in patients with type 2 diabetes mellitus (T2DM) who failed monotherapy. METHODS: A cost-effectiveness analysis was made by a discrete events model at the patient level that simulates the incidence of the complications of the disease, and it considers a time horizon of 20 years. The model perspective is from the Colombian health system. The main outcomes are the quality-adjusted life years (QALY) and the economic results of the disease and its complications. Direct costs were updated to the year 2016 and a discount rate of 5% was applied, both for costs and for health outcomes. The risks of developing complications were taken from the risk formulas of UKPDS68 and UKPDS66.

RESULTS: Dapagliflozin is dominant over DPP4i in terms of QALY gain and cost, with a 65.5% probability of being the choice strategy with any availability value to pay. In the willingness to pay curves, dapagliflozin has a 61% probability of being the choice strategy with a willingness to pay of one GDP per capita in Colombia.

CONCLUSIONS: From the perspective of the Colombian health system, dapagliflozin is a cost-effective strategy versus DPP4 inhibitors in terms of QALY. The treatment with dapagliflozin is not inferior than sulfonylureas in terms of health outcomes of HbA1c, cholesterol and HDL. Patients with dapagliflozin lost weight (-3.22 kg) and decreased more the systolic blood pressure (-4.3 mmHg); they also had fewer hypoglycemic events (0.5%) than patients with sulfonylureas (40.8%), with US $1,660 savings. Dapagliflozin generates more 0.41 QALY than sulfonylureas and has an ICR of US $6,144 per patient. In the willingness to pay curves, dapagliflozin has a 65.5% probability of being the choice strategy with a willingness to pay of US $6,049, which is the value of a GDP per capita in Colombia.

CONCLUSIONS: From the perspective of the Colombian health system, dapagliflozin is a cost-effective strategy versus sulfonylureas in patients with T2DM inadequately controlled with metformin monotherapy, dapagliflozin has a great impact over CKD and QALYs.

PDB54
COST-EFFECTIVITY OF EXENATIDE VERSUS INSULIN GLARGINE IN PATIENTS WITH TYPE 2 DIABETES MELLITUS IN COLOMBIA

OBJECTIVES: To determine the cost-effectiveness of exenatide versus insulin glargine as adjuncts to metformin for the treatment of patients with type 2 diabetes mellitus (T2DM) who have failed monotherapy. METHODS: A cost-effectiveness analysis was made by a discrete events model at the patient level that simulates the incidence of the complications of the disease, and it considers a time horizon of 20 years. The model perspective is from the Colombian health system. The main outcomes are the quality-adjusted life years (QALY) and the economic results of the disease and its complications. Direct costs were updated to the year 2016 and a discount rate of 5% was applied, both for costs and for health outcomes. The risk to develop complications were taken from the risk formulas of UKFDS68 and UKFDS66.

RESULTS: Exenatide generates fewer events of congestive heart failure and deaths due to macrovascular events as well as a 4.5 g g weight loss and a decreased systolic blood pressure versus insulin glargine. Exenatide contributes 124 more discounted QALY per patient compared to insulin glargine and has an ICER of US $3,953 per patient, which is within the ICER of 1 to 3 GDP per capita (US $6,049). From the willingness to pay curves, exenatide has a 61% probability of being the choice strategy with a willingness to pay of one GDP per capita in Colombia.

CONCLUSIONS: From the perspective of the Colombian health system, exenatide is a highly cost-effective strategy versus insulin glargine in patients who cannot be adequately controlled with metformin monotherapy, with a great impact over their weight loss and QALY.

PDB55
THE IMPACT OF GLP-1 INDUCED NAUSEA AND VOMITING ON WORK PRODUCTIVITY AND HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH T2DM

OBJECTIVES: To assess the impact of GLP-1-induced nausea and vomiting on patients with T2DM using the ‘Nausea and Vomiting Questionnaire (NVQ)’ and additional questionnaires designed to gather information on health-related quality of life (HRQOL) and work productivity. METHODS: A non-interventional, cross-sectional survey, was administered to T2DM patients. Screened respondents provided demographics, self-reported clinical and treatment information, and nausea- and/or vomiting-related resource utilization. Inclusion required T2DM diagnosis, age ≥18 years and GLP-1 agonist treatment (among other criteria). Questionnaire was “If in the past 7 days you had any fasting or postprandial nausea (before using your GLP-1 medicine)” designated eligibility for the impact survey. Enrolled participants also completed four patient-reported outcome (PRO) measures, including: NVQ, Functional Living Index-Emesis (FLIE), Work Productivity and Activity Impairment: Specific Health Problem (WPAI-SHP), and the MOS SF-12. Descriptive statistics were tabulated for all screener (eligible and ineligible) and survey (eligible only). RESULTS: Overall, 1,036 respondents completed screening, including 204 enrollees reporting nausea and/or vomiting in the past 7 days. Eligible patients were 66% male, white (84%), non-Hispanic (75%), average (SD) age 41(11) years, with a diagnosis of T2DM between 3 and 9 years (53%) and 90% patients were GLP-1 users. Respondents (66%) reported that nausea and/or vomiting (at its worst) impacted their relationships, work productivity, eating, sleeping, and amount of energy spent during the past 7 days. Respondents indicated using prescription (32%) and over-the-counter medications (26%) treat nausea/vomiting. The questionnaire scores were: NVQ mean (SD) score = 52.3 (22.5), WPAI absenteeism/presenteeism/productivity loss = 22.8 (25.2) / 56.0 (27.6) / 62 (23.9), and SF-12 Mental / Physical = 42.7 (8.3)/ 44.6 (7.8) for the overall group. CONCLUSIONS: This survey study showed that although there was significant impact of nausea and vomiting on work productivity, the impact on HRQol was relatively modest.
A QUALITATIVE STUDY OF BASAL INSULIN USE BEHAVIORS IN PATIENTS WITH TYPE 2 DIABETES
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OBJECTIVES: To better understand type 2 diabetes (T2D) patients’ experiences with using basal insulin.
METHODS: This was a qualitative focus group study involving patients with T2D who were current basal insulin users. The HealthCore Integrated Research Database was used to identify currently-active, commercially-insured, survey-eligible patients based on claims from 1/1/2015-12/31/2015. Patients with Cincinnati and NYC zip codes were invited to participate in 90-minute focus groups conducted by an experienced moderator. Two focus groups (six individuals each) were conducted in Cincinnati and two in NYC. The focus group proceedings were audio and video recorded, and transcribed. Patients’ insulin regimens regarding basal insulin administration, prescription fill patterns, and overall basal insulin use experiences were grouped into common themes to provide a deeper understanding of the issues surrounding the use of basal insulin. RESULTS: A total of 8 patients participated in the focus groups. All of the participants were over 50 years old, and all were using basal insulin. The majority of the participants had type 2 diabetes. Two patients were using basal insulin with other oral medications, and two patients were using basal insulin with other injectable medications. The remaining four patients were using basal insulin alone. Most of the patients reported that their insulin prescription fills contained more drug than needed and reported having leftover insulin at the end of their refill. Some patients reported using the entire amount of insulin in each vial before opening a new one. This led to stockpiling of insulin over time if filled irregularly, skipping a refill occasionally if they had enough supply from prior fills to cover the month, or delaying their refill until their medication was used. Missing a dose was considered a rare occurrence and was mainly due to a change in routine or environment. Adjusting their insulin dose within ±5 units was common and typically done in response to a blood sugar reading, healthy/poor eating, exercising, or a general feeling of well-being. CONCLUSIONS: Basal insulin filling behaviors are complex and depend on multiple factors. Insufficient filling patterns may not be a true reflection of their adherence to insulin therapy.

A MOTIVATIONAL INTERVIEWING (MI) INTERVENTION BY PHARMACY STUDENTS TO PREVENT MEDICATION DISCONTINUATION
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OBJECTIVES: To evaluate the influence of an MI telephonic intervention by pharmacy students on discontinuation of angiotension-converting enzyme inhibitors (ACEIs)/angiotensin receptor blockers (ARBs) among Medicare Advantage Plan (MAP) patients with diabetes mellitus (DM) hypertension (HTN).
METHODS: A randomized, controlled trial was conducted involving DM and HTN enrollees in a Texas MAP. Patients who filled an ACEI/ARBs during June, 2014 and had a 6-month proportion of days covered (PDC) < 0.80 in the previous 6-months were determined non-adherent. Patients were randomized to intervention or control arms. Intervention was a phone call by pharmacy students on rotation at the MAP followed by 5 monthly follow-up calls. Prior to implementing calls, 11 participating students attended a 3-day MI training. Patients receiving calls were randomly selected from those randomized to intervention until 250 was reached; 500 controls were randomly selected from controls. Refill data during the 6 months following initial call were evaluated to examine discontinuation defined as no record of a refill during any of the 6 months. Analysis was performed using ANOVA for continuous variables and t-test for categorical variables.
RESULTS: 743 patients were included in the multivariate model. Among the 2,316 calls made by the students, 1,492 (64.2%) were MI calls; 824 (34.7%) were education calls. Zero-order regression showed that patients who received a MI call were 0.54; p < 0.001) and patients with higher baseline PDC were less likely to discontinue (OR: 0.34; 95% CI: 0.22-0.52; p < 0.002). Higher baseline PDC and patients who did not refill prescription, skipped doses, or split medications due to cost as the dependent variable, adjusted for patient’s age, gender, race, ethnicity, Medicare-Medicare eligibility, and diabetes comorbidity conditions. Twenty-six percent of Medicare patients with diabetes, 464 (20%) reported CRN. Controlling for other covariates, patients with doctors who seemed to be in a hurry were 88% (p < 0.01) more likely to report CRN. Patients with doctors who did not think they would be able to follow their medication problems were 54% (p < 0.01) more likely, while patients who had health problems that should be discussed but were not 52% (p < 0.01) more likely. Patients with doctors who often acted as though she/she was doing the patient a favor by talking to the patient were 85% (p < 0.01) more likely to report CRN. Patients with doctors they did not have confidence in were 98% (p < 0.01) more likely; and patients with doctors whom they could not depend on to feel better physically and emotionally were 38% (p < 0.02) more likely to report CRN. CONCLUSIONS: Poor patient-physician communications is a strong risk factor for CRN.

EVALUATION OF EXERCISE COMPLIANCE AND ITS CONFOUNDING FACTORS AMONG DIABETES PATIENTS IN SOUTHERN PUNJAB, PAKISTAN
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OBJECTIVES: To classify non-adherent diabetic patients into homogeneous clusters of similar modifiable behavioral characteristics among beneficiaries enrolled in Medicare Advantage Prescription Drug Plan (MA-PD) in southeastern Texas. METHODS: Pharmacists identified 5,000 beneficiaries from year 2012 Medicare Current Beneficiaries Survey (MCSB) who self-reported having diabetes. Those who did not have a regular healthcare provider or a clinic to go to when sick or in need of health advice were excluded. Six questions in patient-physician communications were extracted. We developed six multivariate logistic regression models with each of these communication domain questions (dependent variables) and (yes/no if eligible) in filling prescription, did not refill prescription, skipped doses, or split medications due to cost) as the dependent variable, adjusted for patient’s age, gender, race, ethnicity, Medicare-Medicare eligibility, and diabetes comorbidity conditions. RESULTS: 2,316 Medicare patients with diabetes, 464 (20%) reported CRN. Controlling for other covariates, patients with doctors who seemed to be in a hurry were 88% (p < 0.01) more likely to report CRN. Patients with doctors who often acted as though she/she was doing the patient a favor by talking to the patient were 85% (p < 0.01) more likely to report CRN. Patients with doctors they did not have confidence in were 98% (p < 0.01) more likely; and patients with doctors whom they could not depend on to feel better physically and emotionally were 38% (p < 0.02) more likely to report CRN. CONCLUSIONS: Poor patient-physician communications is a strong risk factor for CRN.

PREDICTORS OF MEDICATION ADHERENCE AMONG PATIENTS WITH TYPE II DIABETES MELLITUS IN PAKISTAN – A PILOT STUDY
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OBJECTIVES: This study aims to assess the predictors of medication adherence in Type II Diabetes Mellitus (T2DM) patients of Quetta city, Pakistan. METHODS: The
study was designed as a questionnaire-based, cross-sectional analysis. Three hundred T2DM patients attending public and private hospitals were targeted for data collection. In addition to demographic and disease-related information, Drug Attitude Inventory, and Michigan Diabetes Knowledge Test were used to assess medication adherence and diabetes-related knowledge respectively. Treatment satisfaction was assessed by patients’ expectations, self-reported health, and quality of life. Descriptive statistics were used to elaborate patients’ demographic and disease-related characteristics. Binary logistic regression was used to predict factors independently associated with medication adherence. 95% v. 20 was used for data analysis and p < 0.05 was taken as significant. The independent variable was medication adherence. The incidence of gestational diabetes (GDM) is increasing in China.

The MID was estimated first by the instrument-defined approach, which used the difference between the baseline EQ-SD-5L index scores and the index scores of simulated health state transitions. The anchor-based approach, which categorized one-year changes in depressive symptoms (Patient Health Questionnaire 8 items, “PHQ8”), diabetes-related distress (Problem Area in Diabetes 5 items, “PAID5”) as well as physical and mental health functioning (SF-12 physical and mental health composite scores, “PCS, MCS”) into: no change (± standard deviation (SD)), small change (≥ 0.5 and ≤ 1 SD), and large change (≥ 1 SD). The MID estimates were calculated for all change, by the direction of change (improvement or deterioration) and by the size of change. The MID estimate was 0.043 for all change, and 0.040 and 0.045 for improvement and deterioration respectively. Using small change in anchors, the change in EQ-VL 5D-5L and medical records of women at their antenatal clinic visit during August 2016 to December 2016 were recorded. Outcome measures included HQRQL and pregnancy-related complications. RESULTS: We collected 233 women data (Age 32.8 ± 5.5, gestational age 34.17 ± 5.15 weeks). Of the 233 inpatient cases, 25 were diagnosed with GDM (10.7%). Mean HQRQL was 0.87 ± 0.12 in the GDM group with initial treatment and 0.83 ± 0.14 in the non-GDM group (F = 16.22). Multipara was significantly associated with high (≥ 75th percentile) HRQL (OR 2.06, 95% CI 1.20 – 3.54). Eighty-nine percent (n = 51/57) receiving clear instructions. Fifty-four percent (n = 53/97) reported learning about IR from a healthcare provider with 55% (n = 18/33) receiving clear instructions. Fifty-four percent (n = 21/39) reported being worried about the negative consequences of not resuming insulin. Forty-two percent (n = 10/24) were reporting experiencing negative consequences (e.g., jitteriness) due to inadequate IR. CONCLUSIONS: Most respondents did not resuspend per manufacturers’ guidance and are unaware of their inadequate technique, which may explain the minimal impacts reported on HQRQL and diabetes management. Standard education may not be sufficient to ensure adequate IR. Thus, additional resources from healthcare professionals are required for education at treatment initiation and additional monitoring during follow-up visits.

PDB65 USING LATENT CLASS ANALYSIS TO ANALYZE HETEROGENEITY IN BARRIERS AND FACILITATORS FOR DIABETES SELF-MANAGEMENT AMONG PATIENTS WITH TYPE II DIABETES

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OBJECTIVE: The aim of this study was to investigate type 2 diabetes (T2D) patients’ perspectives on IR and its impact on diabetes management and health-related quality of life (HQRQL).

METHODS: Nine semi-structured focus groups were held in the US, Mexico, Netherlands, and Turkey. Patients were eligible if aged ≥ 18 years, had T2D, currently using modern premixed insulin for at least three months, and not taking any other injections to treat any disease, including diabetes. Transcripts were analyzed utilizing adapted grounded theory qualitative research methodology. The videos of respondents’ demonstrations of IR technique were reviewed and compared with the manufacturer’s instructions. RESULTS: Sixty-four respondents participated in the focus groups. Eighty-nine percent (n = 55/61) of patients felt their health had changed between 0.03 and 0.05. These estimates were consistent across subgroups, but varied by baseline index score and the direction of change.

PDB66 PATIENT PERSPECTIVE ON THE IMPACT OF INSULIN RESUSPENSION ON DIABETES MANAGEMENT AND HEALTH-RELATED QUALITY OF LIFE

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OBJECTIVES: When required, adequate resuspension of insulins is important for safe and efficacious insulin administration. No published evidence of the patient perspective on insulin resuspension (IR) exists. The objective of this study was to investigate type 2 diabetes (T2D) patients’ perspectives on IR and its impact on diabetes management and health-related quality of life (HQRQL).

METHODS: Nine semi-structured focus groups were held in the US, Mexico, Netherlands, and Turkey. Patients were eligible if aged ≥ 18 years, had T2D, currently using modern premixed insulin for at least three months, and not taking any other injections to treat any disease, including diabetes. Transcripts were analyzed utilizing adapted grounded theory qualitative research methodology. The videos of respondents’ demonstrations of IR technique were reviewed and compared with the manufacturer’s instructions. RESULTS: Sixty-four respondents participated in the focus groups. Eighty-nine percent (n = 55/61) of patients felt their health had changed between 0.03 and 0.05. These estimates were consistent across subgroups, but varied by baseline index score and the direction of change.

PDB67 ASSOCIATION BETWEEN WEIGHT LOSS AND PRO AND QOL MEASURES IN PATIENTS WITH TYPE 2 DIABETES MELLITUS – A SYSTEMATIC LITERATURE REVIEW

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OBJECTIVES: In most patients with type 2 diabetes mellitus (T2DM), therapy starts with adjusting lifestyle and weight control. Evidence showed that newer anti-diabetic therapy, such as incretin agents (e.g. GLP-1 RAs), can regulate body weight. This study examined the evidence on the impact of weight loss in people with T2DM and its consequences on endpoints measured by Patient-Reported Outcomes (PROs), such as health-related quality-of-life (HQRQL). METHODS: A systematic literature review was carried out with two independent reviewers to collect clinical trial and real-world evidence regarding the effects of weight loss on PROs data. Sources included Embase, Medline and Cochrane without time limitation. Additionally, cross-referencing with previous literature was conducted (2013–2015). RESULTS: The review identified 20 relevant RCTs and observational studies reporting 23 associations between weight loss and PROs. These studies described associations/correlations via Spearman or Pearson regression coefficients, logistic
regression analysis or odds ratio. Twenty-one associations described a positive correlation (implying a beneficial effect of weight loss on PRO results), on two occasions no relationship was found. Most of them supported predicted PRO measures and the Impact of Weight on Quality of Life (IWQOL) with scales in physical function, self-esteem, sexual life, public distress, and work. All 7 studies showed a positive association between weight loss and PRO scores. For the Medical Outcomes Survey, Short Form 36 (SF-36), 5 of the 7 studies observed a beneficial effect on HRQOL, depression, health satisfaction, and treatment satisfaction.

PDB70 PREDICTION TREND FOR TREATMENT OF DIABETES MELLITUS AND ASSOCIATION WITH THE HEALTH RELATED QUALITY OF LIFE

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OBJECTIVES: Treatment adherence is known to be associated with the health related quality of life (HRQoL). However, no study has investigated the relationship between HRQoL and the treatment type for Type 2 Diabetes Mellitus (T2DM). So, the objectives of this study were to determine the trend in prescriptions and non-pharmacological treatments for T2DM and 2. to examine the association between HRQoL with the treatment type.

METHODS: Cross sectional data for the years 2010 to 2014 from the Medical Expenditure Panel Survey (MEPS) were used. The study population consisted of individuals (age ≥ 12 years) with self reported non gestational T2DM (n = 9110).

RESULTS: Most non-treatment issues that defined as treatment adherence observed in almost all studies and includes physical activity, weight loss and/or smoking. Weighted proportion of T2DM patients prescribed particular class of medicines was calculated. Multinomial logistic regression was performed to determined the association between treatment type and HRQoL. The results of the study showed that there are no significant differences in HRQOL scores between diabetes medications. The treatment adherence and medication adherence were not significantly different among the medications and non-pharmacological treatments. The treatment adherence was assessed by patient’s experience towards health care professional and available facilities. The results of the study support the use of criterion valid and reliable measures to improve treatment adherence.

CONCLUSIONS: There is a need to assess patient satisfaction with respect to the treatment type for T2DM and, 2. to examine the association of HRQOL with the treatment type.

PDB87 ASSESSMENT OF HEALTH RELATED QUALITY OF LIFE (HRQoL) USING EQ-SD IN DIABETICS, PRE-DIABETICS AND GENERAL POPULATION IN CHINA

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OBJECTIVES: to assess and compare the health related quality of life (HRQoL) among diabetics, pre-diabetics and general population in China

METHODS: Questionnaires: EQ-5D and DTH. The study was designed and pre-tested which included 2 parts: Sociodemographic information and EQ-SD-VL with VAS. Face-to-face survey was conducted to sampled 420 diabetes patients from tertiary hospitals in sichuan china and 420 general people from communities and park(people who claimed diabetics). Telephone survey was conducted to 420 sampled people who took physical examination in tertiary hospitals in the past 2 months and found intermediate hyperglycaemia. Differences between groups were compared by t-test and one-way ANOVA. Kruskal-Wallis test or student’s t test. RESULTS: Effective information of 403 diabetics, 404 prediabetics and 396 general people was collected. The average age of sampled diabetics was 62.45 ± 11.37, mean BMI 24.57 ± 3.47, and the mean age of pre-diabetics was 53.29 ± 9.21 with mean BMI 23.73 ± 2.99 kg/m2, and the average age of general population was 58.94 ± 12.48 with mean BMI 23.67 ± 4.24 kg/m2. EQ-SD index of diabetics, pre-diabetics and general people were 0.849, 0.911 and 0.864, and physical and mental scores were 68.84 (7.79) and 73.78 (7.38), respectively. The analysis of variance (ANOVA) indicated that there was significant difference among them in the aspect of anxiety/ distress (0.05). CONCLUSIONS: The results of this study presented a model that is associated with HRQoL of patient with T2DM, where medication adherence shaped as a predictor of HRQoL. Healthcare professionals should pay special attention on patients’ medication adherence and should put their efforts in explaining the benefits of the medication adherence to the patients.
and all 5 dimensions from general people to diabetes patients, while pre-diabetics had better HRQoL than general people. The common self-assessed problematic dimensions among 3 groups were pain/discomfort and anxiety/depression, and the status of pain/discomfort was worse than anxiety/depression. Further and larger longitudinal studies are needed to confirm these findings.

**DIABETES/ENDOCRINE DISORDERS – Health Care Use & Policy Studies**

**PDB73**

**EVALUATION OF BARRIERS TO EFFECTIVE INSULIN THERAPY AMONG TYPE 2 DIABETES MELLITUS PATIENTS**

Ahmad M1, Nazir K1, Masood I1, Haq N2, Adnan2

**OBJECTIVES:** The current study aims to evaluate the hurdles responsible for delayed insulin therapy among type 2 diabetic patients in Punjab, Pakistan. **METHODS:** A cross-sectional study was conducted on 250 physicians and 400 patients from hospitals and private clinics of three cities including Bahawalpur, Multan and Lahore through questionnaires designed and validated with the help of extensive literature review, expert opinions and pilot study. **RESULTS:** The hurdles from physician side were due to the issues regarding patient themselves not willing to switch to insulin (72%, n=180), patient needle phobia (70.8%, n=177), unavailability of insulin in rural areas (62.2%, n=146) and socio-cultural issues (66.6%, n=167). Incentive issue to switch to insulin is problematic (66.8%, n=167), insulin initiation requires proper education, training and counseling (70.4%, n=176) and high cost of insulin treatment (64.8%, n=162). On the other side, among patients the barriers include patient perception factors like they have updated knowledge about disease management (82%, n=328), high cost of insulin (56.6%, n=226), failed to manage disease with oral medication and lifestyle modification (52.2%, n=209) and one of their relative died of diabetes (36%, n=148). The administrative factor like they cannot spare enough time to perform insulin injection (56.7%, n=227) were observed. **CONCLUSIONS:** Based on the findings of this study main key barriers observed were, patients’ hesitation to switch to insulin from oral to insulin, needle phobia, use of insulin in rural areas, insulin storage issues lack of education, training and counseling to use insulin, high cost, social pressure and carrying and injecting insulin openly. On the basis of these observations, these issues and barriers can be handled by developing better education, awareness and measures. Government should make sure the availability of insulin in rural areas. Psychological issues should be addressed as a disease and treated accordingly. Patients should be educated about insulin proper administration and usage and newer interventions should be carried out to help them.

**PDB74**

**ASSESSMENT OF NEW ONSET DIABETES AND STATIN MEDICATION UTILIZATION**

Barr F, Patel E

**OBJECTIVES:** This study retrospectively examines medical records of patients newly diagnosed with type 2 diabetes mellitus. We assess potential contributing factors and stratify use, while evaluating patients’ current diabetes control compared to national standards. **METHODS:** A United States retrospective medical chart review of 1000 randomly selected adult patients with new onset diabetes, identified from 5 Accountable Care Organizations (ACOs), was conducted. Patients had a current diagnosis of diabetes (ICD-9 codes 250.00-250.93) in the study timeframe of January 1st, 2013-December 31st 2014, and had at least one recorded follow-up visit after diagnosis. Patient demographics, comorbidities, blood pressure control, LDL screening and A1c level were reviewed from the medical chart and any medications prescribed were recorded for square tests where appropriate. Analyses were stratified by statin use and A1c levels. **RESULTS:** The sample was 51% male and 49% Caucasian with a mean age of 66 ± 12.7 years. A total of 501 (50.1%) diabetes patients were on a statin by the end of the study period. Patients on a statin were significantly more likely to have blood pressure below 130/80 (p=0.032) and LDL below 100 mg/dl (p=0.018) than patients not on a statin. No significant difference in age, gender or A1c level was present between statin and non-statin use patients. Out of 978 total patients that had a recorded A1c level in their medical chart, 794 (81%) patients had a recent A1c at level 8% or less. Statin usage was comparable between ≤ 8% and > 8% A1c groups of patients, with Atorvastatin remaining the most commonly used statin. **CONCLUSIONS:** This real-world observational study, only 50% of diabetes patients were on a statin. Diabetes patients taking a statin were more likely to have their blood pressure and LDL levels within national controls, compared to diabetes patients not on a statin.

**PDB75**

**EVALUATION OF NEW ONSET DIABETES IN PRE-DIABETIC PATIENTS TAKING STATIN MEDICATION**

Barr F, Patel E

**OBJECTIVES:** This study evaluates new onset diabetes and related outcome variables over a 24 month period in pre-diabetic patients taking a statin medication. **METHODS:** A United States retrospective medical chart review of 1000 randomly selected pre-diabetic adult patients, among 5 Accountable Care Organizations (ACO) (200 per site), was conducted. Patients were taking one of the following statins: Rosuvastatin, Atorvastatin, Simvastatin and Fluvastatin, for 12 months prior to the start of the study. Patients also had at least one of the following to confirm pre-diabetic status: metabolic syndrome, fasting blood glucose of > 100 mmol/L, A1c of >6%, or BMI > 30 kg/m2. Patient characteristics were collected over 24 months (April 1, 2014 - April 1, 2016). **RESULTS:** The sample was 55% male, and 49% white, with a mean age of 62 ± 12.3 years. Of the 1000 patients initiated into the study, 146 were lost to follow up. The final cohort consisted of 854 patients with 24 months of data. BMI (p=0.003) and weight (p=0.004) were significantly higher among Simvastatin patients (p=0.004). A total of 61 (7.1%) patients had a diagnosis of diabetes by the end of the follow up period. Most of the new diabetes (72%, n=44) was observed before diagnosis of diabetes, and only 9 (14%) patients discontinued statin use, changed statin dose, or switched to a different statin after their diagnosis. **CONCLUSIONS:** In this real-world retrospective observational study, only 61 pre-diabetic patients taking a statin for at least 12 months prior to the start of the study ended up with a diagnosis of diabetes. With recent concerns regarding the link between statin use and diabetes risk, this study suggests that further research into the relationship between diabetes and statin use is necessary to improve patient health management and outcomes.

**PDB76**

**CHOICE OF INJECTABLE THERAPY IN THE TYPE 2 DIABETES TRAJECTORY: SOCIO-DEMOGRAPHIC AND CLINICAL CHARACTERISTICS**

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**OBJECTIVES:** Inj ectable therapy is required when patients with Type 2 Diabetes do not achieve glycemic control despite previous dietary and lifestyle modifications combined with oral anti-diabetic therapy. The objective of this study was to compare socio-demographic and clinical characteristics of patients who used insulin versus glucagon like-1 injectable therapy (GLP-1 RA) in a real world setting. **METHODS:** All patients who initiated insulin or GLP-1 therapy in 2010-2014 were identified in the Clalit data warehouse. Socio-demographic, clinical, and concurrent medication data were extracted in prior proximity to the time of therapy initiation (index-date). **RESULTS:** A total of 49,807 patients were identified: 41,049 receiving insulin and 8,758 GLP-1 RA. The duration of diabetes prior to injectable therapy initiation was similar (8 years). Insulin initiators, compared to GLP-1 RA initiators, were older [age 63 vs. 58]; less obese [mean BMI: 29.0 vs. 25.7]; 32.9% vs. 34.6% (95% CI: 31.6-34.8); had higher Charlson Comorbidity Index (47% vs. 30%); and were more likely to have a higher HgbA1c (9.0% vs. 50%) vs. 38%). All comparisons p < .05. **CONCLUSIONS:** Clear differences were identified in the population prescribed insulin compared to that prescribed GLP-1 RA. Analyses are ongoing to further understand the impact of these characteristics on glycemic control and other outcomes among these individuals.

**PDB77**

**RACIAL AND REGIONAL VARIATION IN DISEASE PROGRESSION AND OUTCOMES AMONG VETERANS ADHERENT TO THEIR INITIAL ORAL ANTIDIABETIC MEDICATION**

Gatwood J1, Chioldilha-Burns M2, Davis R3, Thomas P4, Potukuchi P5, Hung A6, Ravesdyey C7

**OBJECTIVES:** To investigate whether racial disparities and regional variation in outcomes and disease progression exist among veterans with incident diabetes mellitus (DM) who were initially adherent to oral anti-diabetic medications (OAD). **METHODS:** The VA Corporate Data Warehouse was used to identify the first diagnosis for uncomplicated DM during 2002-2014. OAD use was assessed by proportion of days covered (PDC) for the first year of therapy using outpatient VA pharmacy records, and those with a PDC ≥80% were deemed adherent. Changes in clinical measures and the odds of cardiovascular outcomes, cerebrovascular events, revascularization, and microvascular complications were assessed during the first year of therapy with a focus on differences among races and geographic regions while controlling for baseline demographic and clinical characteristics. **RESULTS:** A total of 159,032 veterans were identified, and 62.5% were initially adherent to OADs. Significant improvement was observed across nearly all clinical measures, regardless of patient race. **CONCLUSIONS:** In the US and understand factors associated with glycemic control and other outcomes among these individuals.
cross-sectional analysis utilized National Health and Nutrition Examination Survey data (2011-2014) and evaluated A1C levels and factors associated with glycemic control. DM was used without glycemic regression. Chi square and t-test were used to compare patient characteristics between A1C level groups (<7% vs. ≥7%). Eligible predictors (<0.2) were included in a multivariate logistic regression analysis to determine the association between glycemic control and patient characteristics. RESULTS: Of the 1,326 patients identified with DM from 2011-2014 (mean age 61.2 years, 49.8% female), half (50.2%) achieved the American Diabetes Association (ADA) A1C target of <7%. Similarly, 60.9% and 54.3% of patients with DM achieved blood pressure (<130/80 mmHg) and lipid targets (<100mg/dL), respectively. Bivariate analysis suggested that age, gender, ethnicity, health insurance status, body mass index (BMI), and time since DM diagnosis were significantly associated with achievement of A1C, blood pressure, and lipid targets. After adjusting for confounders, patients with DM who were older, insured, non-Hispanic whites with a BMI from 25.0 to 29.9 and a recent DM diagnosis (<5 years) were more likely to meet the ADA A1C target of <7%. CONCLUSIONS: The current study highlights the importance of integrated, comprehensive DM care, given that almost half of patients with DM still do not achieve A1C, blood pressure, or lipid targets suggested by ADA guidelines.

PDB80 UTILIZATION PATTERN AMONG PATIENTS WITH DIABETES MELLITUS WHO INITIATED INJECTABLE GLUCAGON THERAPY
Ali AK, Marmaduke DQ

OBJECTIVES: To describe the extent of insulin therapy use among patients with diabetes mellitus (DM) who started injectable glucagon in the United States. METHODS: Patients with DM (ICD-9-CM 250) who initiated injectable glucagon therapy between 2004 and 2012 in Truven Health MarketScan® database were included in the study. Insulin use was characterized within 12 months after glucagon initiation date (index date), and included patients who continued insulin therapy (continued), those who stopped therapy and didn’t have a record of insulin prescription during follow-up (discontinued), those who changed insulin type (augmented), and those who added another insulin therapy (augmented). Switched therapy defined by a gap of ≥30 days between first and second insulin with no record of first insulin after switch date, otherwise the patient is classified under augmented therapy group. RESULTS: A total of 166,514 patients with DM initiated injectable glucagon (median age 46 years, 52% females). About 30% (n=49,710) of patients were treated with insulin (50% females), corresponding to 77% insulin human (II); 30% short-acting insulin (SI); 1% intermediate-acting insulin (II); and 6% long-acting insulin (LI). The majority (76%) of insulin users have augmented treatment with other insulin (n=37,821), especially among II users (96%); 4% of SI; and <1% of II and LI users. About 19% have discontinued therapy (n=9,456), corresponding to 54% SI; 24% II; 17% LI; and 5% LI. The most commonly switched insulin type is insulin glargine (n=1,207), most from SII (69%); LII (17.3%); IIU (9.2%); and II (4.6%). Only 1% of patients have continued insulin therapy after initiating injectable glucagon, corresponding to 56% SI; 24% LI; 16% II; and 4% II users. CONCLUSIONS: Utilization of insulin varied by type, and experience with injectable glucagon appears to affect future insulin use. More research is needed to understand the drivers for insulin discontinuation and other anti-diabetes medication substitution following glucagon treatment.

PDB82 PATTERN OF INJECTABLE GLUCAGON AMONG INSULIN INITIATORS WHO EXPERIENCED SEVERE HYPOGLYCEMIA
Ali AK, Marmaduke DQ

OBJECTIVES: Injectable glucagon was approved in the United States in 1998 for the treatment of severe hypoglycemia in patients with diabetes mellitus (DM) and as a diagnostic aid in gastrointestinal radiologic examinations. This study describes the patterns of glucagon use in patients with DM who initiated insulin therapy in the United States. METHODS: Patients with DM (ICD-9-CM 250) who initiated insulin therapy between 2004 and 2012 in Truven Health MarketScan® database were included in the study. The extent of injectable glucagon use was measured during 12 months after insulin initiation date (index date) stratified by severe hypoglycemia events that occurred any time after the index date. Severe hypoglycemia was defined as hypoglycemia events that required hospitalization or emergency room visit. Duration of glucagon use was determined by the number of days between prescription initiation and end of supply. RESULTS: A total of 1,487,601 patients with DM started insulin therapy (median age 61 years, 51% females). Among them, 1.6% (n=23,191) started glucagon therapy. The vast majority of glucagon users continued therapy for a median of 3 days (69% females). Among 89,059 insulin initiators with severe hypoglycemia (mean age 63 years, 56% females), only 1.7% (n=1,510) started glucagon injection. The median duration of glucagon use among those with severe hypoglycemia was 2.7 days (52% females). CONCLUSIONS: Utilization of injectable glucagon among insulin-treated patients who experienced severe hypoglycemia appears to be low. More research is needed to explore factors determining utilization patterns in this group of patients with DM.

PDB83 UTILIZATION AND COST OF DIABETIC MEDICATIONS AMONG US MEDICARE PART D BENEFICIARIES
Zhao J1, Carlson AM2

OBJECTIVES: To describe the extent of insulin therapy use among patients with diabetes mellitus (DM) who started injectable glucagon in the United States. METHODS: Patients with DM (ICD-9-CM 250) who initiated injectable glucagon therapy between 2004 and 2012 in Truven Health MarketScan® database were included in the study. Insulin use was characterized within 12 months after glucagon initiation date (index date), and included patients who continued insulin therapy (continued), those who stopped therapy and didn’t have a record of insulin prescription during follow-up (discontinued), those who changed insulin type (augmented), and those who added another insulin therapy (augmented). Switched therapy defined by a gap of ≥30 days between first and second insulin with no record of first insulin after switch date, otherwise the patient is classified under augmented therapy group. RESULTS: A total of 166,514 patients with DM initiated injectable glucagon (median age 46 years, 52% females). About 30% (n=49,710) of patients were treated with insulin (50% females), corresponding to 77% insulin human (II); 30% short-acting insulin (SI); 1% intermediate-acting insulin (II); and 6% long-acting insulin (LI). The majority (76%) of insulin users have augmented treatment with other insulin (n=37,821), especially among II users (96%); 4% of SI; and <1% of II and LI users. About 19% have discontinued therapy (n=9,456), corresponding to 54% SI; 24% II; 17% LI; and 5% LI. The most commonly switched insulin type is insulin glargine (n=1,207), most from SII (69%); LII (17.3%); IIU (9.2%); and II (4.6%). Only 1% of patients have continued insulin therapy after initiating injectable glucagon, corresponding to 56% SI; 24% LI; 16% II; and 4% II users. CONCLUSIONS: Utilization of insulin varied by type, and experience with injectable glucagon appears to affect future insulin use. More research is needed to understand the drivers for insulin discontinuation and other anti-diabetes medication substitution following glucagon treatment.

PDB84 AN INTRODUCTORY ANALYSIS ON THE ECONOMIC BURDEN OF DIABETES IN ITALY
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OBJECTIVES: Diabetes mellitus (DM) is the second most expensive chronic disease in Italy after cancer with total direct costs over €9 billion (2012), 70% of which attributable to hospitalizations and 30% to drug treatments. The objectives of the present study were to assess the trend in pharmaceutical and hospital expenditure of diabetes in Italy during 2013-2015. METHODS: Antidiabetic drug consumption and expenditure indicators in the last available three years (2013-2015) were analyzed from the Observatory on the Use of Medicines (OSMED) published reports, to determine trends in consumption and expenditures. Data before 2013 were inconsistent and therefore excluded from the analysis. Consumption was determined according to defined daily dose (DDD)/1,000 inhabitants. Expenditure was calculated in € per capita based on territorial hospital discharge for diabetes (main cause, i.e. DRGs 294-295) from the Health Ministry were matched with last published DRGs Tariffs to estimate the hospitalization costs. RESULTS: In Italy, consumption of antidiabetic drugs per DDD/1,000 inhabitants has respectively, 62% in 2013 and 62.6% in 2015. The hospital expenditure for diabetes were €13.63 in 2013 and €14.26 in 2015. Surprisingly a slight decrease in the off-patent antidiabetic drugs consumption was observed in the period 2013 to 2015; for Italy, representing 59% in 2013 and 2013% of total drug expenditure in 2013 vs 59.4% DDD and 19.6% of total drug expenditure in 2015. Hospitalizations and related costs for diabetes showed a reduction in the analyzed period with 18% (DDD) (costs (Day-hospitalizations)) (day-hospitals) (no data available) and a reduction in hospital admissions leading to a decrease in hospitalization costs.

PDB85 VALUE IN HEALTH 20 (2017) A1–A383

A177
The objective of the secondary analysis was to describe diabetes-related resource utilization and costs of patients with diabetes mellitus (T2DM) in Malaysia, excluding those with additional comorbidities. The primary data source for this analysis was the Truven Early View database, which contains detailed information on medication use, healthcare utilization, and costs for patients with diabetes in Malaysia. The analysis included 2,037 patients newly diagnosed with T2DM between 2013 and 2014. The study found that patients with T2DM had higher healthcare costs compared to those without diabetes, with annual healthcare costs of $5,873 (95% confidence interval: $4,529 to $7,216) in the year of diagnosis. This was largely due to higher medication use and increased hospitalizations among T2DM patients. The results highlight the importance of early detection and management of diabetes to prevent costly complications and improve health outcomes.
USA. The Diabetes DSP is a real-world, cross-sectional survey involving completion of physician-reported forms for their next 30 consulting T2DM patients. The same patient is seen at least once a year, and completes a patient-reported form. Patient reported responses are used for several databases, the following groups: [1] 1+ non-insulin regimen HbA1c < 8% [2] 2+ non-insulin HbA1c < 8% with no therapy change = 4 months [3] Basal insulin-only HbA1c < 8% [4] Basal plus dual + controlled. This analysis was performed via the validated, reported Morisky Medication Adherence Scale (MMAS-8). All results p < 0.05.

RESULTS: A total of 352 specialists, 501 PCPs and 823 patients were recruited. Of these, there were 2739 Dual+ controlled, 216 Dual+ uncontrolled, 527 Basal controlled, 454 Basal uncontrolled. 13% Basal uncontrolled versus controlled patients had consulted most frequently per annum (4.96 vs 4.14), likely been hospitalized (3.5% vs 2.9%) with more frequent hospitalizations per annum (1.18 vs 1.0) (physician-belief they require insulin (34.6% vs 1.3%) and are obese/severely obese (41.1% vs 31.1%) with low adherence (44.9% vs 22.9%). Basal uncontrolled versus controlled had consulted more frequently per annum (4.4 vs 4.2), been hospitalized (11.0% vs 9.3%), labelled obese/severely obese (42.1% vs 34.7%). Reasons for lowest non-adherence were: lack of education (40.4% vs 16.2%) poor glucose monitoring (7.1% vs 16.2%) and lack of perceived need for medication (14.2% 4.6%).

CONCLUSIONS: Despite highest healthcare provider contact, higher HbA1c non-control and low adherence, Dual+ uncontrolled patients requiring insulin therapy are not progressing in the treatment paradigm despite physician acknowledgement this is required. For those who progress to basal insulin-only therapy, despite frequent consultations, weight concerns contribute greatly to non-adherence. Addressing both issues could improve humanistic and economic outcomes.

PD892
ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PRACTICE AMONG DIABETIC POPULATION: A CROSS-SECTIONAL STUDY
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OBJECTIVES: Objective of this study is to assess present knowledge, attitudes, and practice of Diabetes mellitus (DM) patients towards the management of diabetes. DM patients were enrolled in this survey based cross-sectional study and assessed through semi structured questionnaire. RESULTS: As 253 (63.2%) patients were from urban area, 138 (54.1%) were college graduate, 149 (58.5%) were females and only 11 (2.8%) were post-graduated and also 236 (59%) were having positive family history of disease. Majority of the participants i.e. 377 (94.2%) had poor knowledge about disease. Only 131 (32.8%) patients were having knowledge about random blood sugar testing. Awareness about blood sugar monitoring was very poor and only 11 (2.8%) were post-graduated and also 236 (59%) were having positive family history of disease. Majority of the participants, 377 (94.2%) had poor knowledge about disease. Only 131 (32.8%) patients were having knowledge about random blood sugar testing. Awareness about blood sugar monitoring was very poor and only 11 (2.8%) were post-graduated and also 236 (59%) were having positive family history of disease.

CONCLUSIONS: Despite highest healthcare provider contact, higher HbA1c non-control and low adherence, Dual+ uncontrolled patients requiring insulin therapy are not progressing in the treatment paradigm despite physician acknowledgement this is required. For those who progress to basal insulin-only therapy, despite frequent consultations, weight concerns contribute greatly to non-adherence. Addressing both issues could improve humanistic and economic outcomes.

PD893
CHARACTERISTICS ASSOCIATED WITH THE CHOICE OF FIRST INJECTABLE THERAPY AMONG US PATIENTS WITH TYPE 2 DIABETES
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OBJECTIVES: The objective of this retrospective observational study was to describe and identify clinical and demographic characteristics associated with the choice of first injectable therapy (glucagon-like peptide-1 receptor agonist [GLP-1-RA] or basal insulin [BI]) among patients with type 2 diabetes (T2D). METHODS: This analysis included adults with T2D who initiated GLP-1-RA or BI (index date) between November 2014 and February 2016 using data from the Practice Fusion electronic health record database. Patients with ≥ 1 diagnosis of T2D, ≥ 1 office visit between 6 and 18 months prior to the index date and naïve to GLP-1-RA and BI with ≥ 1 HbA1c result in the 6-month baseline period were included. Bootstrapped logistic regression was used to identify baseline predictors. RESULTS: The study included 3,546 and 7,507 GLP-1-RA and BI initiators, respectively. Four age- and gender-matched controls (n = 97) were included per case using incident density sampling. A conditional logistic regression model stratified on matched case-control sets was used to evaluate the risk of C. difficile infection. Overall, PPIs were not associated with risk of C. difficile infection (Odds ratio (OR): 1.04, 95% Confidence Interval (CI): 0.57-2.68). Previous hospitalization (OR: 46, 95% CI: 4.96-228.59), previous antibiotic exposure (low-risk (OR: 1.07, 95% CI: 1.02-1.12), medium-risk (OR: 1.22, 95% CI: 1.09-1.37) and high-risk (OR: 1.27, 95% CI: 1.11-1.46), abdominal surgery (OR: 4.10, 95% CI: 1.79-9.49) and diabetes duration <1 year (OR: 1.02-1.46) showed increased risk of C. difficile infection. CONCLUSIONS: Overall, PPIs were not associated with risk of C. difficile infection among community dwelling adults with an indication for GERD. More research is needed in other healthcare settings to understand PPIs safety profile, especially for long term use.

PG1
RISK OF PNEUMONIA ASSOCIATED WITH PROTON PUMP INHIBITOR USE AMONG COMMUNITY DWELLING ADULTS WITH GASTROESOPHAGEAL REFLUX DISEASE
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OBJECTIVES: There is mixed evidence regarding the risk of C. difficile infection due to use of Proton Pump Inhibitors (PPIs). This study examined the risk of C. difficile infection associated with the use of PPIs in comparison with Gastroesophageal Reflux Disease (GERD). METHODS: The study involved a nested case-control design using Truven Health Analytics 2003-2004 MarketScan database. Participants included adults aged more than 18 years, diagnosed with GERD anytime between January 1, 2003, and December 31, 2004 and no history of C. difficile infection between January 1, 2003 and June 30, 2004. Cases were identified as enrollees with an incident diagnosis of C. difficile infection, between July 1, 2003 and December 31, 2004 (n = 97). Four age- and gender-matched controls (n = 388) were identified per case using incident density sampling. A conditional logistic regression model stratified on matched case-control sets was used to evaluate the risk of C. difficile infection. RESULTS: The study sample consisted of 97 cases diagnosed with C. difficile infection and 388 age- and sex-matched controls. Cases had a higher Elixhauser Comorbidity Index (1.99 versus 0.34, p < .001) compared to controls. The conditional logistic model revealed that the use of PPIs was significantly associated with risk of C. difficile infection. Overall, PPIs were not associated with risk of C. difficile infection among community dwelling adults with an indication for GERD. More research is needed in other healthcare settings to understand PPIs safety profile, especially for long term use.

GASTROINTESTINAL DISORDERS – Clinical Outcomes Studies

PG2
RISK OF PNEUMONIA ASSOCIATED WITH PROTON PUMP INHIBITOR USE AMONG COMMUNITY DWELLING ADULTS WITH GASTROESOPHAGEAL REFLUX DISEASE
Rane P1, Guba S2, Carey K1, Chen H1, Johnson ML1, Aparasu RR
1University of Houston, Houston, TX, USA, 2University of Texas Health Science Center, Houston, TX, USA, 3College of Pharmacy, University of Houston, Houston, TX, USA
OBJECTIVES: Most of the adverse effects of Proton Pump inhibitors (PPIs) were evaluated in inpatient setting and limited data exists regarding its adverse effects in community settings. This study examined the risk of pneumonia associated with the use of PPIs in community dwelling adults with Gastroesophageal Reflux Disease (GERD). METHODS: The study involved a retrospective cohort study design using Truven Health Analytics 2003-2004 MarketScan database. The study population included adults aged more than 18 years, diagnosed with GERD, identified anytime between July 1, 2003, and December 31, 2003. The risk of pneumonia during the 12-month follow-up period was modeled using a time-varying Cox proportional model using monthly PPI exposure. Fractional Polynomial Cox proportional model was used to model the risk of pneumonia with cumulative duration of PPI use. Multiple sensitivity analyses were conducted to explore the risk of pneumonia. RESULTS: Analysis of MarketScan database revealed that there were 89,378 patients with GERD indication and among these, 60,207 (67.36%) patients were PPI users. Patients using PPIs were older (50.49 years, compared to 46.93 years for patients not using PPIs, p < 0.0001) compared to controls. The conditional logistic model revealed that the use of PPIs was associated with 53% increased risk of pneumonia (OR: 1.53, 95% CI: 1.30-1.80) and 82% increased risk of pneumonia (OR: 1.82, 95% CI: 1.52-2.19) when comparing the 12-month period before and after PPI initiation. CONCLUSIONS: In summary, we found that the use of PPIs is associated with increased risk of pneumonia. More research is needed in other healthcare settings to understand PPIs safety profile, especially for long term use.
PG13  
**DIAGNOSING NONALCOHOLIC STEATOHEPATITIS (NASH) AMONG PATIENTS WITH NONALCOHOLIC FATTY LIVER DISEASE (NAFLD): FREQUENCY AND PREDICTORS OF NAFLD ACTIVITY SCORE MEASUREMENT**  
Katz J1, Heinz S1, Dihontavenuda M1  

**OBJECTIVES:** Although asymptomatic, nonalcoholic steatohepatitis (NASH) can lead to an increased risk of liver cirrhosis and hepatocellular carcinoma. Improved early detection of NASH can result in reducing a substantial societal burden. Current guidelines suggest the presence of NASH when the patient has a nonalcoholic fatty liver disease (NAFLD) Activity Score (NAS) of 3 or above. NAS score therefore plays an integral role in determining the size of the current NASH population. This study sought to identify the frequency and predictors of NAS measurement.  

**METHODS:** Data from Ipsos’ NAS Therapy Monitor were analyzed; the NAS Therapy Monitor is a retrospective medical chart review of NAFLD patients in the US, fielded from September to November 2016. N=174 physicians provided patient demographics, disease status, comorbidities, testing, and treatment data on their most recent 5-10 NAFLD patients. Clinical and economic outcomes were reported descriptively; logistic regression models were conducted to identify factors associated with the likelihood of a complete NAS measurement.  

**RESULTS:** 1386 NAS patients (57%, male: mean age 51.7 years [SD = 12.2], BMI = 31.8 [SD = 5.5]) were included in our analyses. Only 52% of these patients had a complete NAS Activity Score (NAS), i.e. steatosis (69%), lobular inflammation (61%) and hepatocyte ballooning (61%) measured. The strongest predictors of a complete NAS measurement with elevated NAFLD scores and Medicare B insurance the following variables: obesity (odds ratio [OR] = 2.8, male (OR = 2.0), lack of concomitant disorders (OR = 0.7), and type 2 diabetes (OR = 0.5). Obesity was not associated with a complete NAS measurement.  

**CONCLUSIONS:** Only half of NAS measurements with elevated NAS Activity Score (NAS) were missing laboratory or diagnostic data. This study identified patients with concomitant disorders (OR = 0.7), type 2 diabetes (OR = 0.5) and obesity (OR = 2.8) to be strong predictors of a complete NAS measurement. As NASH-specific treatment options become available, a greater focus on NAS measurement could have clinical and economic implications by allowing for earlier intervention prior to the onset of disease complications.

PG14  
**COMPARATIVE EFFICACY AND SAFETY OF TOFACITINIB AND BIOLIGICS AS INDUCTION THERAPY FOR MODERATELY-TO-SEVERE ACTIVE ULCERATIVE COLITIS: A SYSTEMATIC REVIEW AND NETWORK META-ANALYSIS**  
Rubin DT1, Aihaye A2, Zhang Y2, Xu Y2, Fabrick K2, Chen LA4, Manuchehri A5, Yeung P1, Jen R2, Vaida F3  

**OBJECTIVES:** Tofacitinib is an oral, small molecule JAK inhibitor being investigated for moderately-to-severely active ulcerative colitis (UC). We performed a systematic literature review (SLR) and network meta-analysis (NMA) to compare the efficacy and safety of tofacitinib to available tumor necrosis factor inhibitors [TNFi] and integrin receptor antagonists for induction therapy of adults with moderately-to-severely active UC.  

**METHODS:** Using indexing and free-text terms, searches were conducted in EMBASE, MEDLINE, CENTRAL, DARE, and CINAHL databases to identify RCTs published as of January 2015. Proceedings of relevant conferences from 2012–2014 were also reviewed. Comparators of interest were infliximab, golimumab, adalimumab, and vedolizumab. Two reviewers independently assessed studies for inclusion, extracted and validated the study/patient data. Fixed- and random-effects Bayesian NMA were conducted to compare efficacy outcomes and rates of adverse events (AdEs) at 6-12 weeks in the overall population (TNFi-naive or exposed) and by prior TNFi exposure.  

**RESULTS:** Twelve induction trials were identified from the SLR (ACT 1 & II, ECLIPSE, GEMINI-I, PURSUIT SC, TOFACITINIB PHASE II, Pegasus 2005, Probert 2003, UC-SUCCESS, ULTRA 1, ULTRA 2, Suzuki 2014) and included in NMA. Unpublished data from tofacitinib phase III induction trials (OCTAVE I & II) were also used in the analysis. Fixed-effects NMA showed tofacitinib 10 mg BID is associated with a higher rate of mucosal healing versus adalimumab 160/80/mg in the overall population (OR 1.82 [95% CI: 1.06-3.14]) and versus vedolizumab 300mg in TNFi-exposed patients (OR 3.71 [95% CI: 1.37-10.64]). A higher rate of clinical remission was seen with tofacitinib 10mg BID versus adalimumab in TNFi-exposed (OR 11.93 [1.84-154.78]). Rates of AEs were similar between tofacitinib 10mg BID and comparators in the overall and TNFi-naive population.  

**CONCLUSIONS:** This study suggests the novel agent tofacitinib may be more effective than adalimumab and vedolizumab as induction therapy in TNFi-exposed patients with moderately-to-severely active UC.

PG15  
**IMPACT OF FOUR-FACTOR PROTHROMBIN COMPLEX CONCENTRATE WITH OR WITHOUT FIBRINCONCENTRATE ON BLOOD PRODUCT UTILIZATION IN ORTHOTOPIC LIVER TRANSPLANTATION**  
Colavecchia AC, Cohen D, Harris J, Salazar E  

**OBJECTIVES:** Major bleeding in orthotopic liver transplantation (OLT) is associated with significant morbidity and mortality. Limited data exists regarding comparative effectiveness of four-factor prothrombin complex concentrate (4FPC) and fibrinconcentrate (FC) in OLT. This study evaluated the effectiveness of 4FPC and FC on intraoperative blood product utilization during OLT. METHODS: A retrospective, observational, single-institution propensity score matched cohort was conducted involving OLTs utilizing 4FPC and/or FC intraoperatively from December 2013 to April 2016. Patients were included if they were greater than 18 years of age and undergoing OLT. Patients were excluded if they received simultaneous heart or lung transplantation, or did not have a documented anesthesia operative note. Greedy propensity score matching technique was used to match patients unexposed to exposed patients in a 2 to 1 ratio. The authors hypothesized that intraoperative use of FC during OLT would decrease the intraoperative packed red blood cell (pRBC) unit requirements by 2 units compared to patients who did not receive drug exposure. RESULTS: During the study timeframe, 212 patients met inclusion criteria. A total of 39 patients were matched according to age, sex, race, BMI, and year of OLT. CONCLUSIONS: Intraoperative use of 4FPC with or without FC did not reduce intraoperative blood product requirements at a single institution.
weeks (AWP: Bud-MMX 9 mg $1600, MMX-SASA 4.8 gm $2117, and MMX-SASA 2.4 gm $1058) and rebates should be evaluated.

PG18 IMPACT OF RIFAXIMIN AND LACTULOSE VERSUS LACTULOSE ALONE ON HOSPITALIZATION FOR ACUTE RECURRENT HEPATIC ENCEPHALOPATHY Hammond DD, Dayuma N, Martin BC

OBJECTIVES: Each year, approximately 110,000 hospitalizations for hepatic encephalopathy (HE) occur, totaling almost $1 billion U.S. in health care expenses. Our purpose was to determine if there was a difference in the rate of HE hospitalization following an initial HE event between patients who received preventative therapy with lactulose versus lactulose and rifaximin. METHODS: This was a retrospective cohort study that used a 10% random sample of medical and pharmacy claims obtained from the Kaiser Permanente database. The study period ran from January 1, 2006 through June 30, 2015. Descriptive analyses were conducted to compare demographic and clinical characteristics between patients who received lactulose or lactulose and rifaximin. Kaplan-Meier curves and a Cox proportional hazard model, adjusting for concomitant medications, comorbidities, and diagnoses related to liver disease were estimated.

RESULTS: Among patients in the lactulose and rifaximin group (n=469) and the lactulose group (n=437), there was no significant difference in the average age (56.9 ± 16.0 vs. 56.0 ± 0.792) or Charlson comorbidity index (6.6 ± 6.0 vs. 0.246). A significantly greater proportion of patients in the lactulose and rifaximin group were on spironolactone (73.4% vs. 8.0%; p=0.007). There was no difference in hospitalization for HE between groups (16.0% vs. 15.3%; p=0.841). After adjusting for potential confounders, there was no significant difference in risk for an event between groups (hazard ratio=1.045; 95% confidence interval 0.806-1.28). CONCLUSIONS: The addition of rifaximin to lactulose did not alter the proportion of patients who experienced their second overt HE event. This finding differs from previously reported results and may be the result of residual, unobserved confounding.

PG19 GENERATION AND TESTING OF OUTCOME INDICATORS FOR NON-ALCOHOLIC STEATOHEPATITIS Meregalli E1, Ciaccio A1, Cortesio PA1, Ocikociany S1, Gemma M1, Rota M1, Giani P1, Fagiuoli S3, Bini E2, Toccoli L1, Cesana G1, Mantovani LG1, Strazzabosco M5

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OBJECTIVES: To assess the association of age, multimorbidity and clinical complications at presentation with future total expenditure. Seven OIs were generated to predict the probability of receiving urgent surgery. The model adjusted for the following covariates: race, sex, and ethnicity with age, Elixhauser comorbidity, and clinical complications as exposures. RESULTS: We identified 33,442 incident cases: age (mean ± SD), 59 ± 14 years; 58% female; 68% white. As compared to those in the 18-35 age category, those above 65 years of age had 79% higher odds of receiving urgent surgery (Odds Ratio 1.8, 95% CI (1.2 to 2.6)). Compared to patients without complications, those with two or more clinical complications had significantly higher odds of receiving surgery (OR 1.6, (1.3 to 1.9)). The odds of surgery were significantly higher when the patients presented with the following complications: abscess (OR 2.7, (2.0 to 3.7)), intestinal obstruction (OR 4.8, (3.4 to 6.7)), pneumoperitoneum (OR 9.1, (4.9 to 17.0)). CONCLUSIONS: Presence of complicated diverticulitis significantly increased the likelihood of urgent need for colon surgery. Contrary to expectation, those with multimorbidity as well as older aged patients were also at higher odds of receiving urgent surgery.

PG12 ASSOCIATION OF CLINICAL COMPLICATIONS AND SURGERY TREATMENT ON RECURRENCE OF ACUTE DIVERTICULITIS Kawatkar AA1, Chu L2, Nichol MB3

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OBJECTIVES: To evaluate the association of age, multimorbidity and clinical complications at presentation with future total expenditure. Seven OIs were generated: age (mean ± SD), 59 ± 14 years; 58% female; 68% white. The average adjusted total expenditure was $8,484 (95% CI $7,803 to $9,993). Age, race, ethnicity, income, insurance type and multimorbidity were independently associated with future total expenditure. Each identified complication was associated with significantly higher total expenditure; abscess ($7,054, (671 to $7,936)), intestinal obstruction ($4,433 ($3235 to $5632)), pneumoperitoneum ($4,838 ($4131 to $5546)), fistula ($7,065 ($4535 to $8907) and peritonitis ($7,524 ($3510 to $11133). CONCLUSIONS: Presence of complicated diverticulitis was associated with significantly increased expenditure during follow-up. The magnitude of the marginal future expenditure associated with abscess, fistula and peritonitis might offset cost of elective surgical procedures, in patients presenting with such complications.

GASTROINTESTINAL DISORDERS – Cost Studies

PG13 COST-MINIMIZATION AND BUDGET IMPACT ANALYSIS OF CERTOZILUMAB FOR THE TREATMENT OF CROHN’S DISEASE FROM THE PERSPECTIVE OF THE BRAZILIAN PRIVATE HEALTHCARE SETTING Roisin RP1, Duiva AS2, Baitullai Frazar AF3, Valle X4, Todor EU5, Ferguson S6, Carma V. E. 7, Sa Paulino A2, Sao Paulo, Brazil, UCB, Brazil, Sao Paulo, Brazil, UCB, "Costa Rica Hospital, Mexico City, Mexico, "UCB Pharma Ltd, Slough, UK"
OBJECTIVES: Despite the Brazilian constitution guaranteeing universal access to healthcare, 19% of Brazilians have a private healthcare plan. Direct medical costs in the private sector is regulated by the National Agency for Supplementary Health, which in 2011 stated the mandatory cost reimbursement for immunobiologic drugs (bDMARD) for Crohn's disease (CD). Presented here is a Health Technology Assessment (HTA) approach to evaluate the pegol (CZP) treatment cost of CD. METHODS: The incremental utilization of treatment resources and disease-related costs were sourced from a private-sector survey of 36 respondents. In addition, the following DATASUS information was utilized: the market share of new patients (51%), switching (5%) and discontinuation (19%). On considering data from systematic reviews (SR), CZP was assumed to have equal efficacy to infliximab (IFX) and adalimumab (ADA), thus, a cost-minimization analysis (CMA) was conducted. For the 10-year CMA, an eight-state Markov model was developed using Microsoft Excel. The transition states were: initial treatment with bDMARD, remission, response, treatment failure, surgery, surgical remission, conventional treatment and death. The data for these states were also from SR. The budget impact analysis (BIA) had a 5-year horizon and calculated the population on immunobiologics based on historical DATASUS percentages. A probabilistic sensitivity analysis was conducted using 1,000 random simulations, with the following variables: relative remission maintenance and risk, patient weight, CZP share, withdrawal, switching and enrolment rates and costs.

RESULTS: In the CMA, the costs calculated for 10-year treatment were: BRL 149k (IFX), BRL 118k (ADA) and BRL 83k (CZP). The probabilistic sensitivity analysis showed CZP to be cost-effective (95%) compared to IFX (85%) or ADA (93%) based on cost minimization. CZP provides a cost-saving of BRL 317k for the assumed 100-patient cohort over a 5-year period. CONCLUSIONS: CZP was shown to provide a cost-saving option over other anti-TNFs in the Brazilian private healthcare system.

PG14 INCREMENTAL EXPENDITURES ASSOCIATED WITH RECURRENCE OF DIVERTICULITIS
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OBJECTIVES: To investigate and explain changes of drug prices for hepatitis C virus (HCV) treatments on the Croatian market. METHODS: A retrospective analysis was conducted using publicly available pricing lists from the Croatian National Health Insurance Fund. The encompassed period is from November 2012 to July 2016. RESULTS: Pegylated interferon alpha-2a (pegIFN) maintained a constant price for a longer period of time due to the lack of direct competition. Boceprevir (BOC) and telaprevir (TPV) were able to maintain a constant price since their entry on the market up until simeprevir (SIM) entered the EUS (Germany, France, United Kingdom, Italy, and Spain) market. CONCLUSION: Price reductions have not been under direct impact of competition on the EU5 and USA markets. The Croatian market is a typical example of price discrimination, as well as a delayed drug introduction to the Croatian market in comparison to USA and EUS markets.

PG15 LITERATURE REVIEW ON HOSPITAL COSTS FOR PATIENTS UNDERGOING HEPATIC RESECTIONS
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OBJECTIVES: This study aims to identify the range of direct hospital costs associated with a laparoscopic or open hepatic resections across different countries. METHODS: A PubMed search was performed using the keywords: hepatocellular carcinoma [MeSH] and (cost or economic OR financial) with results limited to publications of human subject studies in English from 2006 to December 2016. Studies comparing laparoscopy to open surgical techniques for hepatic resections were selected and studies of comparison between open and laparoscopic approaches (e.g. randomized blinded) were excluded. Cost data were only included. All references were added to, including meta-analysis, RCTs and observational studies excluding case studies. RESULTS: Eighteen of 42 studies identified were relevant for this review. The most common laparoscopic hepatic resection was wedge resection or segmentectomy as reflected that 50% of the articles investigated were limited to segmentectomy. Direct hospital costs varied dramatically across countries. In North America, the total direct cost (day) ranged from $2,224-$7,577 for open procedures and $1,983-$6,873 for laparoscopic procedures (e.g. Robinson et al., 2016). The cost for hospital stay (day) varied from $777-$950 regardless of procedure type. CONCLUSIONS: These are only limited cost studies published for major hepatic resections. Our results are consistent with recent systematic reviews which reported lower overall total hospital costs for laparoscopy primarily driven by shorter hospital stay.

PG16 TRAJECTORIES OF EXPENDITURES ASSOCIATED WITH ACUTE GASTROINTESTINAL DISEASES
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OBJECTIVES: The long economic burden of diverticular disease is poorly understood compared to other gastrointestinal (GI) diseases. We evaluated the trajectory of expenditures and incremental differences between Diverticulitis (DV), Appendicitis (AP) and Irritable Bowel Syndrome (IBS) in a managed care organization (MCO) in 2012. METHODS: A retrospective study among patients diagnosed with DV, AP or IBS, between 01/01/2012 and 12/31/2012 was conducted. Direct medical expenditures were obtained by weighting resource utilization with nationally representative reimbursement values. Prior to diagnosis of the incident event (index date) on the patients’ medical records, data on medical expenditures (2016 USD) associated with inpatient (ip_exp) including emergency department, and outpatient (op_exp) were $4,335 ($4,208 to $4,463) and $7,380 ($6,931 to $7,830) respectively. While the incremental difference between DV and AP was -$7,436 (-$8,043 to -$6,830) in year one, by year three, DV patients had $5,369 ($2,433 to $8,155) higher expenditure and the difference increased to $30,670 ($23,985 to $37,354) by the end of fifth year. CONCLUSIONS: The trajectory of expenditure associated with DV suggests that it exerts significantly more economic burden on per patient basis, as compared to other well studied acute GI diseases.

PG17 PRICE DYNAMICS OF HEPATITIS C VIRUS THERAPIES IN CROATIA
Mance D1, Dancer D2, Vitezic D3
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OBJECTIVES: To investigate and explain changes of drug prices for hepatitis C virus (HCV) treatments on the Croatian market. METHODS: The study is a retrospective analysis, conducted using publicly available pricing lists from the Croatian National Health Insurance Fund. The encompassed period is from November 2012 to July 2016. RESULTS: Pegylated interferon alpha-2a (pegIFN) maintained a constant price for a longer period of time due to the lack of direct competition. Boceprevir (BOC) and telaprevir (TPV) were able to maintain a constant price since their entry on the market up until simeprevir (SIM) entered the EUS (Germany, France, United Kingdom, Italy, and Spain) market. CONCLUSION: Price reductions have not been under direct impact of competition on the EU5 and USA markets. The Croatian market is a typical example of price discrimination, as well as a delayed drug introduction to the Croatian market in comparison to USA and EUS markets.

PG18 COSTS AND RESOURCE USE ASSOCIATED WITH OPIOID-INDUCED CONSTIPATION (OIC) IN PATIENTS WITH TOTAL HIP OR TOTAL KNEE REPLACEMENT SURGERY IN THE INPATIENT SETTING
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OBJECTIVES: OIC is a frequent side effect of opioids. Data that describe the incidence of opioid-induced constipation (OIC) and its impact on costs, resource use, and quality of life are limited. The objective of this study was to investigate and explain changes of drug prices for hepatitis C virus (HCV) treatments on the Croatian market. METHODS: This retrospective, cohort study used a large hospital administrative database (Premier Healthcare Database) to identify adults discharged from a hospital between January 1, 2013 and June 30, 2015 who received an opioid during hospitalization. The OIC cohort was identified using ICD-9 codes and matched 1:1 to patients without OIC using propensity score matching. An adjusted outcomes were estimated using logistic regression analyses for categorical variables, and generalized linear models for continuous variables, p < 0.05
was considered significant. RESULTS: Of 788,488 eligible patients, 40,891 (5.2%) had OIC. Post-match OIC and non-OIC patient characteristics were well-balanced. Adjusted analysis showed that OIC patients had longer hospital stays of OIC (3.6 vs. non-OIC 3.3 days, p < 0.001), higher costs (OIC $17,479 vs non-OIC $16,265, p < 0.001), higher risk of ICU admission (OR = 1.12, p = 0.0003) and a shorter median duration of hospital stay (OR = 1.16, p = 0.005). In sensitivity visits (OR = 1.38, p = 0.014). Standard laxative use was prevalent in both cohorts (~85%), although use of newer, targeted OIC treatments (lubiprostone, methylnaltrexone, n aloxegol and alvimopan) was rare (<1%). CONCLUSIONS: Incidence of OIC in patients undergoing total hip or knee replacement receiving opioids was 5.2% and contributed to significantly greater cost and resource utilization compared with non-OIC patients. The potential impact of OIC therapies on bowel function by measuring pre- and post-operative outcomes can be addressed in future studies.

PGI9
A LITERATURE REVIEW OF THE COST OF OPIOID-INDUCED CONSTIPATION
Kennedy-Martin T1, Krauter E2, Cai B3, Conway P3, Munro V4

OBJECTIVES: Opioid-induced constipation (OIC) is a burdensome side effect of opioid therapy that can impact the management of patients and reduce their quality of life. This literature review sought to assess the economic burden of OIC. METHODS: Eight databases (MEDLINE, EMBASE, CDSR, DARE, CENTRAL, HTA, NHS-EDD, EconLit) were searched to identify published studies that reported the cost of OIC in patients. Results are presented by subgroups within the OIC population. A decision tree cost-effectiveness analysis was developed to evaluate the cost-effectiveness of various treatments for decompensated cirrhosis from a US societal perspective using a 3 month time horizon. The model comparators included available US treatments: albumin, saline, and no fluid. Costs in the model included pharmacy costs and medical costs for the cirrhosis complications of decompensated cirrhosis, renal dysfunction, and hepatic encephalopathy. Outcomes were literature-based and included mortality as well as the rates of medical complications. QALYs were calculated based on health state utilities for decompensated cirrhosis and hepatic encephalopathy. The model was based on 50 cycles of the models and deterministic and probabilistic sensitivity analysis were conducted. RESULTS: Of 279 de-duplicated abstracts identified, a full text review found 11 studies that explored the link between OIC and cost. The USA was the country most frequently studied, with studies conducted across 11 other countries. The majority of studies used data from healthcare providers and patients, with only two including indirect costs; none included costs borne by patients. The study included two RCTs and 10 non-RCTs. The meta-analysis included 564 patients. Of 279 de-duplicated abstracts identified, a full text review found 11 studies that explored the link between OIC and cost. The USA was the country most frequently studied, with studies conducted across 11 other countries. The majority of studies used data from healthcare providers and patients, with only two including indirect costs; none included costs borne by patients. The study included two RCTs and 10 non-RCTs. The meta-analysis included 564 patients.

CONCLUSIONS: Opioid-induced constipation (OIC) is a burdensome side effect of opioid therapy that can impact the management of patients and reduce their quality of life. This literature review sought to assess the economic burden of OIC.

PGI10
COST-EFFECTIVENESS OF VEDOLIZUMAB COMPARED WITH USTEKINUMAB AS TREATMENT FOR PATIENTS WITH MODERATELY TO SEVERELY ACTIVE CROHN’S DISEASE IN THE UNITED STATES
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Biologic agents are becoming the mainstay of therapy for patients with moderately to severely active Crohn’s Disease (CD). Better understanding of relative cost-effectiveness and outcomes with new treatments is needed to help in the optimal positioning of these therapies in the treatment algorithm and facilitate resource allocation decisions. OBJECTIVES: A cost-utility analysis was conducted to compare vedolizumab (VDZ) versus ustekinumab (UST) for treatment of patients with moderately active CD from a third-party US payer perspective. METHODS: A model combining decision-tree and Markov structures was used to predict clinical and economic outcomes at the induction and maintenance phases of treatment. This analysis considered patients who were anti-TNF naïve or anti-TNF refractory at the time of VDZ/UST treatment initiation within 5-year, 10-year, and lifetime horizon. Efficacy data were derived from a Bayesian network meta-analysis of VDZ and UST phase 3 trials, other inputs were obtained from published evidence. Only direct healthcare costs were considered. Clinical outcomes were expressed as quality-adjusted life-years (QALYs). Univariate and multivariate probabilistic sensitivity analyses (PSA) were conducted to assess model robustness to parameter uncertainty. RESULTS: Patients treated with VDZ accumulated 14.39 more QALYs than patients treated with UST across all time horizons: 2.479 vs 2.460 at 5 years; 4.308 vs 4.220 at 10 years, 10.461 vs 10.326 in lifetime analysis. The estimated cost difference was also in favor of VDZ: $1,432 at 5 years; $52,676 at 10 years, $535,579 in lifetime analysis. Univariate sensitivity analyses suggested that results are most sensitive to treatment response; PSA showed that VDZ is dominant in 89.6% of the simulations. CONCLUSIONS: The model predicted that treatment results in a higher QALYs with VDZ than with UST at all time points compared with UST in CD patients who had not failed a prior anti-TNF agent. Additional comparative effectiveness studies to confirm these findings are warranted.

PGI11
THE COST-EFFECTIVENESS OF ALBUMIN IN THE TREATMENT OF DECOMPENSATED CIRRHOSIS AND ASCITES REQUIRING LARGE VOLUME PARACENTESIS
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Ascites is the most common complication of cirrhosis. Large volume paracentesis has become routine treatment for patients with large ascites. Plasma expanders are recommended in large volume paracentesis to prevent circulatory dysfunction. The objective of this analysis was to evaluate the cost-effectiveness of various treatment strategies for patients with OIC and non-OIC characteri-
PG124 COMPARATIVE EFFECTIVENESS OF SURGICAL MANAGEMENT OF COMPLICATED DIVERTICULITIS
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OBJECTIVES: To identify the average treatment effect (ATE) and the treatment effect in the treated (ATT) of surgical management of complicated diverticulitis compared to medical treatment in terms of total expenditure. METHODS: We designed a retrospective cohort study of the Kaiser Permanente Southern California Health Plan adults (18+ years) who had complicated diverticulitis (incident cases) during 01/01/2007 to 12/31/2011. Complicated diverticulitis was defined as presence of either of abscess, intestinal obstruction, pneumoperitoneum, fistula or peritonitis. We identified medical expenditure (2016 USD) associated with inpatient, emergency department and outpatient care. We controlled for co-morbidities using the Elixhauser comorbidity index. RESULTS: We identified 1320 incident cases of whom 144 had a colon surgery within one month of their index date. The average adjusted total expenditure (2016 USD) associated with inpatient, emergency department and outpatient care was $20,300 ($16,173 to $24,426) higher cost for surgical management of diverticulitis surgery within one month of their index date. The average adjusted total expenditure expenditures (2016 USD) associated with inpatient, emergency department and outpatient care were statistically significant (p < 0.0001). CONCLUSIONS: This study demonstrates that complications such as abscess, bleeding and infection occur frequently in LAR and are associated with significant economic burden.

PG125 THE WORK PRODUCTIVITY BURDEN OF OPIOID-INDUCED CONSTIPATION - A LITERATURE REVIEW
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OBJECTIVES: Opioid induced constipation (OIC) can impact work productivity so that a person is unable to work (absenteeism) or is impaired at work (presenteeism). The objective of this literature review was to identify studies that investigated productivity burden in patients with OIC. METHODS: A literature review was undertaken, and the data were compared with patients with cancer and without cancer that quantified the work productivity burden of OIC. Searches were conducted in August 2016 in bibliographical databases: MEDLINE, EMBASE, CDSR, CENTRAL, DARE, HTA and NHSEED. Abstract books of recent congresses were also searched. Results were assessed for relevance by two reviewers and data extracted. RESULTS: 703 de-duplicated abstracts were identified, a full text review identified eight relevant studies. All the studies were quantitative (four included the WPAI questionnaire), were from the US, used employed patients and the source data from a recent international study. In studies including both cancer and non-cancer patients data were sourced from the NFWS, a GPR survey, a patient survey and an observational study, all showed a negative impact on productivity in OIC patients (three of these studies were from the US) compared to the general population and one overall work burden. In one, a comparative study using NFWS data, those with OIC had ~25% greater time off work, impairment working and overall work impairment than those without OIC. In the International Labour Organization (ILO) large international longitudinal study (two studies), the NFWS and a patient study. Studies reported a negative impact on productivity in patients with OIC (absenteeism and presenteeism in three studies, overall productivity burden in one) CONCLUSIONS: This review identified a small number of studies on the productivity impact of OIC. The findings from these studies suggest that OIC has a detrimental impact on both absenteeism and presenteeism. Larger studies are however needed to confirm these findings.

PG126 ECONOMIC BURDEN OF MAJOR COMPLICATIONS IN PATIENTS UNDERGOING LOWER ANTERIOR RESECTION SURGERY: A REAL-WORLD DATABASE STUDY
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OBJECTIVES: To estimate economic burden of three major complications: anastomotic leak (AL), bleeding and infection, in patients undergoing lower anterior resection surgery (LAR). METHODS: Data containing billing data from over 600 hospitals in the US was used. Included patients were ~18 years of age and had an elective LAR from 2008 to 2014. AL, bleeding and infection, were identified using ICD9 codes. Generalized Estimating Equations (GEE) were used to estimate impact of each complication on length of stay (LOS), operating room time (ORT) and hospital costs (HC) after controlling for patient, procedure, and hospital factors. GEE accounted for the clustering of patients within hospitals, separate models were run for each complication. RESULTS: A total of 31,138 patients underwent LAR with an average age of 62.1 (range: 18-89) years. Incidence of AL, bleeding and infection was 12.7%, 9.1% and 5.6% respectively. On average, the LOS, ORT and HC of the LAR were 3.1 days (2.6-3.5 days), 22.5 (21.0-24.3 min) and $3,190 ($2,840-3,530) respectively. CONCLUSIONS: The economic burden associated with AL was 58.5% (51.9%-65.4%) higher in patients who had AL than those who did not have AL. Similarly, LOS, ORT and HC were 35.3% (29.3%-41.6%), 10.7% (7.7%-13.8%), and 36.7% (29.7%-44.0%) higher in patients with bleeding. Consistent results were observed for infection with 115.3% (102.6%-128.8%), 11.0% (6.1%-16.2%), and 106.0% (91.5%-121.7%) higher LOS, ORT and HC in patients with infection compared to those who did not incur an infection. The differences of all measures between patients with a complication and those without it were statistically significant (p < 0.0001). CONCLUSIONS: This study demonstrates that complications such as AL, bleeding and infection occur frequently in LAR and are associated with significant economic burden.

PG127 EVIDENCE MAP OF ECONOMIC BURDEN STUDIES IN PANCREATITIS SINCE 1960
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OBJECTIVES: To create an evidence map of studies reporting the direct and indirect costs and resource use associated with different types of pancreatitis, and the geographical settings in which these studies were conducted. METHODS: We searched the Scopus.com database for articles reporting the economic burden of pancreatitis published between 1960 and 1st December 2016. We analysed the abstracts identified by the search to determine the different types of economic burden studies. RESULTS: A total of 1,062 studies were identified, of which nine were excluded due to duplicate publications. Of the remaining 1,053 studies, 240 (22.8%) focused on acute pancreatitis, 172 (16.3%) on chronic pancreatitis, and 641 (60.9%) on various types of pancreatic cancer. The geographical regions most commonly represented were the United States (45.5%), Europe (22.1%), and Japan (11.7%). CONCLUSIONS: This evidence map highlights the gaps in our knowledge regarding the economic burden of pancreatitis, and identifies areas where further research is needed to fill these gaps.

PG128 THE EFFECT OF COMORBITIES ON HOSPITALISATION AND MISSED WORK AMONG NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD) PATIENTS
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OBJECTIVES: Non-alcoholic fatty liver disease (NAFLD) and, more specifically, non-alcoholic steatohepatitis (NASH) are expected to become the most frequent indications of liver transplantation. The aim of this analysis was to investigate the burden of NASH due to hospitalization and work loss in the US. METHODS: Data from Ipsos’ NASH Therapy Monitor were analyzed, the NASH Therapy Monitor is a retrospective medical chart review of NASH patients in the US, fielded from September to November 2016. N=174 physicians provided patient demographics, disease status, comorbidities, treatment, and test data on their most recent S-10 NAFLD patients. Clinical and economic outcomes were reported descriptively; logistic regression models were constructed to identify factors associated with the likelihood of hospital admission and missed work (i.e., absenteeism or presenteeism). RESULTS: Of the N=1622 patients, 62% were male, 42% were age 52 years (SD = 8.8), mean BMI =34.8 (SD=11.8). Of these, 53% had NASH confirmed through a NASH Activity Score (NAS) of 4 and above. Subanalysis of patients without missing hospitalization information (n=863) showed that 34% had spent at least 1 day in the hospital because of NASH in the last 3 months, with an average length of stay was 4.0 days. Subanalysis of employed patients without missing absenteeism data showed 16% missed work due to NASH in the last 3 months. The strongest predictors of hospitalization and presenteeism were NASH (OR=5.2; all p<0.05). CONCLUSIONS: NAFLD and NASH place a significant burden on the total healthcare system and to society. Hospital stays and loss of productivity may be reducible by prioritising treatment of patients with HCV, HBV and metabolic syndrome to prevent escalation of their condition.

GASTROINTESTINAL DISORDERS – Patient-Reported Outcomes & Patient Preference Studies

PG129 ADHERENCE TO 5-AMINOSALICYLATES AND ITS RELATION WITH QUALITY OF LIFE AND HEALTH CARE RESOURCE UTILIZATION IN PATIENTS WITH INFELIMMATORY BOWEL DISEASE: EVIDENCE FROM US NATIONAL SURVEY DATA
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OBJECTIVE: To evaluate adherence to 5-aminosalicylate (5-ASA) therapy and its association with health-related quality of life (HRQoL) and health care resource utilization in inflammatory bowel disease (IBD). METHODS: This was a retrospective study. Data were drawn from the Household Component of the Medical Expenditure Panel Survey (MEPS-HC) for 2010-2014 (178,948 yearly observations). Analysis was limited to data for adults who were identified with IBD (ICD 9 code of 555/556), received 5-ASA for IBD, and were in-scenario during all rounds of MEPS-HC. Adherence was measured as the proportion of days covered (PDC) of 5-ASA therapy. HRQoL was assessed with SF-12. Descriptive statistics were calculated, association were analyzed with generalized linear models. RESULTS: The study sample consisted of 94 yearly observations (mean±SD age: 49.7±12.79, female: 57.45%), 73.40% of observations were from nondiabetic patients. Crude and age-sex
PG10

CORRELATES OF TWELVE WEEK TREATMENT ADHERENCE AMONG PATIENTS WITH HEPATITIS C NEWLY INITIATING DIRECT ACTING ANTIVIRAL THERAPIES INCLUDING SOFOSUBUVIR CONTAINING, LEIDIPASVIR/SOFOSUBUVIR AND OMBITASVIR/PARITAPREVIR/RITONAVIR -DASABUVIR REGIMENS

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OBJECTIVES: To identify clinical, demographic and healthcare delivery correlates of 12 week treatment adherence among patients initiating direct acting antivirals (DAAs) including sofosbuvir-based (with ribavirin or ribavirin-peginterferon or sofosbuvir-ledirpasvir/sofosbuvir -based and omбитасвир/паритапрвир/ритонавир- дасабувир -based regimens. METHODS: Patients of a regional health plan in Western Massachusetts with a diagnosis of hepatitis C and prescription for a DAA agent between January 1, 2015 to April 1, 2016, eligible for coverage 6 months before and after DAA initiation were included. The primary outcome was 90 day adherence defined as proportion of days covered (PDC) ≥ 90%. Independent variables included baseline comorbidities (HIV, opioid dependence, metrics of health status, general health, comorbidities, IBD, diabetes, other), demographic (age, sex), insurance status (Medicaid vs Medicare), type of insurance coverage (commercial vs Medicaid (MassHealth)), internationally recognized patient-reported outcome (PRO) item, specific metrics of patients with chronic HIV diagnosis to ensure DAA treatment completion. RESULTS: Adherence showed no relation with yearly number of outpatient visits. CONCLUSIONS: Adherence to 5-ASA therapy is strongly associated with 90 day adherence and is strongly associated with a adherence to 5-ASA in IBD.

PG11

PRO INSTRUMENTS USED IN STUDIES OF HEPATITIS C SINCE 1960

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OBJECTIVES: To create an evidence map of the different patient-reported outcome instruments used in studies of patients with hepatitis C infection and the geographical settings in which these studies were conducted. METHODS: We searched the hero.com database (hero.com) for PRO studies on hepatitis C (including chronic hepatitis C infection) published between 1960 and November 28 2016, and analyzed the abstracts identified by the search to determine the different PRO instruments cited across the range of geographical locations. We presented the findings as an evidence map. RESULTS: We found a total of 171 abstracts that reported the use of 55 different PRO instruments. Of these 55 instruments, six were specific for liver disease or hepatitis C infection, 38 were general instruments used to evaluate quality of life, utilities or non-disease-specific symptoms such as fatigue, and 11 were specific for other conditions or diseases that were common comorbidities of people with hepatitis C infection. By far the most popular instrument was the SF-36, cited in 80 abstracts, with other tools that can be used to derive utility values, such as the EQ-5D and Health Utilities Index, also being used in several studies. Of the disease-specific tools, the most widely used was the Chronic Liver Disease Questionnaire, cited in 12 abstracts, followed by the Hepatitis Quality of Life Questionnaire and the Liver Disease Quality of Life Questionnaire. Other comorbidities that were generally adherent and depression and HIV coinfection. Sixty studies were conducted in the United States, with 13 abstracts each from Germany and Australia/New Zealand, 11 from Canada and 6 from the United Kingdom. CONCLUSIONS: Assessing patients reporting outcomes in hepatitis C have used general rather than disease-specific tools, in particular the SF-36, and were most commonly in a US population.

PG12

PATIENTS’ UNDERSTANDING OF REPORTING STool FREQUENCY IN CLINICAL TRIALS

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OBJECTIVES: Clinical trials for gastrointestinal (GI) tract diseases often involve patient-reported outcome (PRO) item, specifically stool frequency, as a primary outcome measure. The aim of this study was to examine patients’ understanding of how to accurately report stool count. METHODS: 451 participants, including 87 patients participating in a clinical trial that asked you to record the number of stools you had each day and you had a stool and you returned to the bathroom 5 minutes later and had a second stool, would you record this as 1 stool or 2 stools? in a multiple choice format. Demographic information, including age, education, level of income were recorded. RESULTS: Of 451 patients with GI related diseases provided the correct answer, 2 stools. 33.7% of patients chose the incorrect answer, where 18.2% indicated that they did not have enough information to answer that question, 9.6% stated that it depended on the amount of stool at each occurrence, and 6.1% chose 1 stool. Participants without GI related disease scored similarly with 66.4% answering correctly. The two groups did not differ in age, education, or household income. CONCLUSIONS: Too many participants answered the question incorrectly, results suggest that a third of patients were not able to determine and accurately record the stool frequency in the given scenario. These findings are consistent with regulatory guidance from the FDA (2012) on providing patients with standardized instructions and training on completing diaries for recording stool frequency.

PG13

A SYSTEMATIC REVIEW OF THE INFLAMMATORY BOWEL DISEASE QUESTIONNAIRE FOR MEASURING HEALTH-RELATED QUALITY OF LIFE IN PATIENTS WITH ULCERATIVE COLITIS

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OBJECTIVES: Ulcerative colitis (UC), an inflammatory bowel disease, substantially impacts patients’ health-related quality of life (HRQoL). The inflammatory Bowel Disease Questionnaire (IBDQ) is a disease-specific measure capturing impact of UC on four domains of functioning and well-being: Bowel symptoms, Symptomatic function, Emotional function, and Social function. Despite its frequent use in UC clinical trials, there is limited evidence on correlations between IBDQ and general health measures. Hence, we conducted a systematic literature review of the reliability, validity, and responsiveness of the IBDQ in UC patients. METHODS: Search strings with relevant terms were entered in PubMed, EMBASE, Cochrane CENTRAL, and BIOSIS Weekly databases. English-language articles reporting on measurement properties of the IBDQ among UC patients were reviewed. Data about specific psychometric properties were extracted and summarized across studies. RESULTS: Thirty-seven articles met selection criteria. The abstracted and synthesized evidence support the following conclusions about psychometric properties of the IBDQ in UC: (1) Good internal consistency (Cronbach’s α=0.70) and test-retest reliability (intraclass correlations =0.70) for all IBDQ domains; (2) Good convergent validity, that is, on correlations between IBDQ and other validated measures of patients’ functioning and well-being (mean/median t=0.52/0.51, 83% of r=0.40) and of measures of disease activity (mean/median t=0.62/0.51, all r=0.40); (3) Good discriminant validity, indicated by effect sizes (Cohen’s d=0.80) for standard mean difference of the IBDQ domain scores compared by UC patient disease activity status (mean/median d=1.79/1.9, 100% of d<0.50); and (4) Good sensitivity to change, based on statistically significant treatment-impact differences (p<0.05) in IBDQ total score in randomized-controlled trials (RCTs) with validated criterion measures of patients’ functioning and well-being (mean/median t=0.52/0.51, 83% of r=0.40). CONCLUSIONS: The IBDQ demonstrates good psychometric properties with UC patients. IBDQ domains strongly correlate with measures of clinical disease activity in RCTs, IBDQ scores reflect improvements following efficacious treatment. These results support including the IBDQ as an endpoint in RCTs to evaluate treatment effects on UC patients’ HRQoL.

PG14


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OBJECTIVES: To compare characteristics among irritable bowel syndrome with constipation (IBS-C) or chronic idiopathic constipation (CIC) patients who participated in CONTOR, a real-world longitudinal research platform, with incontinent randomized clinical trials (RCTs) to assess similarities between real-world and clinical trial patients. METHODS: This analysis utilized data from CONTOR compared with data pooled from four incontinence Phase III RCTs. CONTOR included fully-insured IBS-C/CIC patients in the US who have been constipated for >18 years from 12/2012-6/2015. Participants’ demographics, daily abdominal symptoms (0-10 scale), work productivity (WPAI-SHP), and health status (SF-12v2 Physical/Mental Component Summary (PCS/MCS)) were compared across two groups: a base-line cohort (CONTOR-Ll), and RCT participants at baseline (RCT-BL) and week 12 (RCT-wk12). Satisfaction with incontinence was evaluated at CONTOR-8L and RCT-wk12. CONTOR participants were considered incontinent-treated if they took incontinence in the week prior to CONTOR-8L. Descriptive analyses were performed. RESULTS: Across 2,952 CONTOR and 2,875 RCT participants, age and gender were similar (mean age [years]:
CONTOR: 47; RCTs: 46. Female: CONTOR: 94%; RCTs: 90%). CONTOR abdominal symptoms (pain, discomfort, bloating) were less severe compared to RCTs (CONTO:
RBC: 3.2, 3.6, 3.7, RCT: 3.7, 3.7, 3.8, 3.9). Mean VAS was similar in CONTOR and RCT populations (CONTOR: BL: 50; RCT: BL: 47; RCT-wk12: 51). Mean CONTOR MCS was worse compared to RCTs (CONTOR:BL: 43; RCT:BL: 47; RCT-wk12: 50). CONTOR participants lost more work time than RCT participants (CONTOR: BL: 3.3%, RCT:BL: 2.3%, RCT-wk12: 1.3%). A greater number of naH-activated patients from CONTOR reported satisfaction with life quality (CONTOR (n=594)/66, RCT-wk12 (n=1,653): 67%). CONCLUSIONS: CONTOR participants were generally satisfied with their treatment, more satisfied with their treatment than RCT patients at week 12, with no differences in MOS overall productivity. Findings indicate life quality-activated CONTOR results are likely generalizable to real-
world IBS-CIG patients, with observed differences potentially due to differing RCT and real-world study designs.

A REVIEW OF THE QUALITY OF LIFE BURDEN OF OPIOID-INDUCED CONSTIPATION

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OBJECTIVES: Opioid-induced constipation (OIC) is a side effect of opioid medication; it has recently been suggested that it may be more distressing than the pain of the condition itself. The object of this literature review was to describe studies reporting the quality of life (QoL) burden of OIC. METHODS: A literature review was undertaken to identify studies on the QoL burden of OIC. Six electronic databases (MEDLINE, EMBASE, CDSR, CENTRAL, HTA, MEDLINE) were searched to identify publications that reported the QoL burden of OIC. In addition, recent abstract books from key pain and health outcome meetings were interrogated to identify relevant research presented in these congresses. Results were assessed for relevance by two reviewers using data extracted. RESULTS: 413 de-duplicated abstracts were identified and a full text review resulted in the selection of 12 manuscripts and one congress abstract (5 non-cite, 5 combined). Most studies were conducted in a real world setting (n=12); there was one qualitative study. Five studies compared QoL in patients with OIC versus those without OIC, both generic and disease-specific measures showed QoL to be more impaired in OIC patients. A range of QoL instruments was used to evaluate QoL (mean observations per person (36) were high, which has not been previously described in OIC QoL research). CONCLUSIONS: The existing evidence shows QoL to be more impaired in patients with OIC. More effective treatment of OIC could reduce this burden. Relatively few studies were identified and further international research exploring the impact of OIC on patients over time is recommended. There is also a need to undertake studies to validate the PAC-QOL questionnaire in OIC patients.

A STUDY OF PATIENTS WITH SHORT BOWEL SYNDROME AND HEALTH-RELATED QUALITY OF LIFE – A POST HOC ANALYSIS USING SBS-QOL DATA FROM A PHASE III TRIAL

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OBJECTIVES: Short bowel syndrome (SBS) is a rare condition characterized by patient inability to maintain life with oral feeding, which often is treated with parenteral nutrition (PN). While the small intestinal impact of PN on patient health-related quality of life (HRQoL) has been reported by others, it is unknown how it varies in relation to days of PN and PN daily volume. METHODS: We used SBS-QOL data collected from an open-label, randomized, placebo-controlled, phase II trial of plecanatide in adult (≥18 years) patients with SBS and intestinal failure (STEPS: NCT00798867, EudraCT2008-006193-15), and its 2-year open-label extension study (STEPS-2: NCT00936644, EudraCT2009-011679-63), to examine the relationship between individual SBS-QOL component scores and days of PN and PN daily volume. Analyses were based on multiple assessments from 86 patients (mean observations per person = 12). RESULTS: Mean (SD) age of study participants was 51 (14) years and 47% were women. PN days and PN volume were significantly (<0.05) associated with adverse impacts on everyday activities, leisure activities, social life, and diarrhea/stomal output. PN days alone was significantly (<0.05) associated with adverse impacts on general well-being, diet, eating, and drinking habits, ability to work, physical health, emotional life, gastrointestinal symptoms, and other symptoms/discomfort. Daily PN volume alone was significantly (<0.05) associated with adverse impacts on mobility and self-care activities. CONCLUSIONS: In patients with SBS and intestinal failure, PN adversely impacts HRQoL. These adverse effects are dependent on both PN days and PN volume, and interventions that reduce one or both of these measures accordingly would be anticipated to improve HRQoL.

THE IMPACT OF PLECANATIDE ON QUALITY OF LIFE FOR PATIENTS WITH CHRONIC IDIOPATHIC CONSTIPATION (CIC): RESULTS FROM TWO PHASE 3 CLINICAL STUDIES

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OBJECTIVES: To investigate whether plecanatide, a uroguanylin analog, improved health-related quality of life (HRQoL) in 2 clinical trials of patients with chronic idiopathic constipation (CIC). METHODS: Patients meeting modified Rome III CIC criteria were randomized to placebo, plecanatide 3mg or 6mg daily for 12 weeks. The primary endpoint was the proportion of durable overall CSM responders (≥3 CSMS changes from baseline to ≥3 CSMS improvement from baseline at the end of treatment). A secondary endpoint was the proportion of patients with ≥3 of the last 4 weeks HRQoL assessments included: Patient Assessment of Constipation-Symptoms (PAC-SYM), PAC-Quality of Life (PAC-QOL), and Treatment Satisfaction. Results are versus placebo. RESULTS: Patients (N=2683) had baseline similarity characteristics. Pooled efficacy showed significantly greater overall durable CSM responders with plecanatide 3mg (n=184, 20.5%) and 6mg (n=176, 19.8%) vs placebo (n=103, 11.5%; P < 0.002 both doses). Significant increases in CSMS were seen from Week 1 and were maintained throughout Week 12. Plecanatide 3mg and 6mg significantly improved PAC-SYM at Weeks 4, 8 and 12 in both studies, with a mean change differences at Week 12 of -0.22 (P < 0.001) and -0.23 (P < 0.001) [Study 1] and -0.18 (P < 0.002) and -0.16 (P < 0.002) [Study 2] compared to placebo. Significant improvements were also observed for both doses at Weeks 4, 8 and 12 in both studies, the mean change differences at Week 12 for plecanatide 3mg and 6mg were -0.25 (P < 0.001) and -0.28 (P < 0.001) [Study 1] and -0.20 (P < 0.001) and -0.19 (P < 0.003) [Study 2]. Plecanatide yielded significantly (P < 0.003) higher treatment satisfaction scores at each assessment point and increased over time. CONCLUSIONS: Plecanatide 3mg and 6mg significantly improved bowel symptoms and HRQoL at all time points and increased the proportion of durable overall
The study period began on November 1, 2013 with the release of the initial second Hepatitis C from the KPMAS Hepatitis C registry, as per pre-specification.

Hochberg adjusted P values controlled for Type I error. was tested using multivariable regression. The study was aimed to assess awareness about hepatitis B among people aged 65 and greater in Pakistan. The study aimed to assess awareness about hepatitis B among residents of Pakistan, Punjab. A cross-sectional survey was conducted involving 636 respondents from 15th December 2015 to 15th March 2016. Respondents above 18 years of age and those domiciled in Punjab were the only target audience. Data was collected by self-distribution of pre-tested and validated questionnaire at public places like shopping malls, parks, household etc. Data was analyzed through the Cox proportional hazard model. The average age was 80.8 vs 35.91 (p = 0.0001), constipation: 45.90 vs 32.73 (p = 0.0001), dementia: 23.07 vs 0.11 (p = 0.0001); acute gastric ulcer: 0.35 vs 0.18 (p = 0.0038); acute peptic ulcer: 0.21 vs 0.10 (p = 0.0010); and 148 (3.6%) with SBP. A total of 67.54% of patients had a calculable MELD-Na. Receipt of therapy was 57.62% (diabetes) for ascites, 54.29% (secondary prophylaxis) and 60.61% (primary prophylaxis) for SBP and 49.83% for HE. A total of 68.16%, 71.45%, 72.38% of patients with ascites, HE and SBP respectively, were avoiding non-recommended medications. Regression for (2) demonstrated overweight patients (OR 0.665, 95% CI: 0.462-0.952) and non-responders/non-primary care (OR 0.402, 95% CI: 0.208-0.775) were less likely to receive and provide quality care, respectively. Results for (4) showed that obese patients (OR 0.458; 95% CI: 0.289-0.725) were less likely to receive and provide quality care, respectively. All statistical significance was at p < 0.05. However, no statistically significant association was noticed regarding gender, age & residency of the study participants. Overall awareness score of respondents was estimated to be 22.8 ± 4.63. Conclusion: Based on findings it was concluded that majority of the participants 89.8% were aware of hepatitis B.
conducted by pooling several years (2005-2011) of data from National Ambulatory Medical Care Survey and the outpatient department of the National Hospital Ambulatory Medical Care Survey. The final study sample was identified from 20,879 ambulatory visits among adults (age ≥18 years) with MS and depression. Ambulatory visits with MS were identified by using ICD-9-CM of 340.xx, while visits with depression was identified by using ICD-9-CM of 296.30, 300.4 or 311.5. The answer to the question “Regardless of the diagnoses written….does the patient now have: depression?” was “yes.” Dependent variable of this study was pharmaceutical treatment for depression or with or without psychotherapy. Predictors of depression treatment were assessed by conducting multivariate logistic regression. Complex survey designs of the datasets were adjusted to obtain national level estimates. RESULTS: According to the study findings, between 2005-2011 approximately 2.1 million visits involved a diagnosis of MS and depression. Depression treatment was observed in 57.25% of the study sample. Selective serotonin reuptake inhibitors were the most prescribed antidepressant class, and fluoxetine was the most prescribed individual antidepressant in the study sample. Individuals who were 40 years or older were 81% less likely (Odds Ratio 0.189, 95% CI 0.036-0.997) to receive depression treatment compared those who were in the age group of 18-39 years. With the increase in each chronic condition, the likelihood of receiving depression treatment contributed to patients being misdiagnosed or under-diagnosed, resulting in a diagnosis late in the disease course. The objective of this study is to conduct a systematic review of the literature to explore the potential causes and barriers that lead to under-diagnosis and/or a mis-diagnosis of AD and dementia. METHODS: PubMed database was searched to identify studies published from July 2008 to December 2016. The searching criteria included studies about AD and dementia completed on humans, English language, and published between 2008 and 2016. Two reviewers screened the title, abstract, and full-text manuscript against the inclusion/exclusion criteria. The data were collected if the results. Publications were excluded if they did not meet those criteria or were duplicate articles. RESULTS: A total of 358 articles were obtained from the literature search, of which five articles were selected for full review if the abstract, self-administered, internet-based survey, were analyzed. Non-adherence was assessed by the 8-item Morisky Medication Adherence Scale (non-adherence indicated by scores <0, with 0=perfect adherence). Patients were grouped by AED class: sodium channel blocker (SCB), gamma-aminobutyric acid analog (GABA), synaptic vesicle protein 2A (SV2A), or multiple mechanism (MM). Demographic and health characteristics evaluated were the include age, gender, and seizure severity. Outcome evaluated included seizure frequency, health-related quality of life (HRQoL, short-form-36 (SF-36) version 2), work productivity and activity impairment (6-item WPFA), health status utilities, and indirect costs. Adjusting for patient characteristics, generalized linear models were used to compare differences in outcomes by AED group. RESULTS: Of 709 eligible patients, 236 (33%) were adherent and 473 (67%) were non-adherent. Adherence did not differ by AED class. Among non-adherent patients (mean age=42, 53% females), 34% (25%)...
received a SCB, 25 (5%) GABA, 99 (21%) SV2A, and 104 (22%) MM. After adjusting for covariates, GABA patients had more seizures in the past 30 days vs MM, SCB, or SV2A (19.5 vs. 1.3, 2.62, 0.53, each p < 0.001). Patients on SCB or SV2A vs MM had higher mental component HRQoL scores (45.89, 45.57 vs. 40.02, both p < 0.05). No differences in HRU and direct costs were observed. CONCLUSIONS: In this nationally-representative survey, non-adherent patients with epilepsy treated with SCB and SV2A AEDs had fewer seizures, higher mental well-being and health utilities, decreased work impairment, and lower indirect costs versus other AED classes.

PND9
A MIXED TREATMENT COMPARISON OF DROXIDOPA AND MIDODRINE FOR THE TREATMENT OF AUTONOMIC ORTHOSTATIC HYPOTENSION Han Y1, Joe W1, Chen J1
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OBJECTIVES: No head-to-head comparisons of droxidopa and midodrine for neurogenic orthostatic hypotension (NOH) have been conducted. NOH is characterized by a dynamic disorder of autonomic function associated with autonomic neuropathy. CONCLUSIONS: Comparisons of these two agents have been conducted in patients with autonomic dysfunction and were included in a systematic review of studies of droxidopa and midodrine. Droxidopa and midodrine are both effective in treating NOH, with no significant difference between the two drugs in terms of efficacy and safety. Midodrine is preferred for treatment of NOH due to its longer duration of action and fewer side effects compared to droxidopa.

PND10
RETROSPECTIVE ANALYSIS OF TWO CLINICAL STAGING SYSTEMS FOR AMYOTROPHIC LATERAL SCLEROSIS (ALS) USING DATA FROM A PHASE II TRIAL OF EDARAVONE
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OBJECTIVES: To summarize trends in published literature regarding real-world evidence (RWE) studies for disease-modifying drugs (DMDs) in patients with multiple sclerosis (MS). METHODS: A systematic search of peer-reviewed studies published from 2010 to 2016 using the PubMed database was conducted. Studies evaluating RWE (prospective cohort studies, registries, case series, surveys, and randomized controlled trials) and retrospective [administrative claims, electronic health record, and chart reviews] studies were included. Search terms used were: multiple sclerosis AND (disease modifying OR interferon OR peginterferon OR glatiramer OR teriflun- mide OR dimethyl fumarate OR natalizumab OR mitoxantrone OR alemtuzumab OR daclizumab) AND (cortical OR observational OR retrospective OR database OR database). The search was restricted to articles published in English. Publications that did not report primary data were excluded. RESULTS: A total of 862 articles were identified using the search strategy; 313 were excluded (69 not evaluating MS, 70 not evaluating DMDs, 45 reviews/editorials, 37 pre-clinical and clinical studies, 35 study design/methodological studies, 33 meta-analyses, and 24 models). Two-thirds (68%) of the studies were prospective and one-third (32%) were retrospective. The majority of studies evaluating RWE used a non-comparative design (50%), while 40% used a comparative or non-comparative design. The majority of studies included patients with MS (70% non-comparative vs 30% comparative and non-comparative). The proportion of studies that included patients with MS increased from 47 to 130. The proportion of studies that did not report primary data was 51% to 68%, whereas the proportion of studies that did report primary data decreased from 38% to 21%. CONCLUSIONS: The proportion of RWE studies examining DMDs in MS is growing; additional research is needed to determine the quality of studies and the impact on decision making.

PND11
FEASIBILITY OF A COMPARATIVE META-ANALYSIS OF VMAT2 INHIBITORS FOR THE TREATMENT OF TARDIVE DYSKINESIA
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OBJECTIVES: Tardive dyskinesia (TD) is a persistent and often disabling movement disorder associated with antipsychotic therapy for which there is no approved treatment. Tetrabenazine, a vesicular monoamine transporter 2 (VMAT2) inhibitor, has been studied for the treatment of TD and is listed in TD treatment guidelines. Two novel VMAT2 inhibitors have shown promising efficacy in recent clinical trials. The objective of this analysis was to assess the feasibility of conducting a meta-analysis comparing tetrabenazine versus the VMAT2 inhibitors in development. METHODS: A systematic literature search of clinical trials for use of selective VMAT2 inhibitors in TD was undertaken in the databases Pubmed, Embase, and Cochrane (1980-August 2016). Data were collected for the study design, duration, size, sites, comparators, outcomes, efficacy and safety. Feasibility assessment for meta-analysis was conducted based on the potential for developing an evidence network for all selected trials. RESULTS: A total of 491 references were relevant in 893 patients with movement disorders, including TD, for three VMAT2 inhibitors: tetrabenazine, deutetraabenazine and tetrabenazine. Two TD randomized controlled trials were identified for each drug in N=35-222 patients. 42% (95% confidence interval [CI]; 34-50) of the studies were RCTs, 11% (95% CI; 7-16) were non-RCTs, and 46% (95% CI; 35-57) were observational studies. CONCLUSIONS: Our feasibility analysis suggests that both King’s and MTOS possibly may be useful in capturing differences in disease progression in clinical trials of new therapeutic agents in ALS.

PND12
REAL-WORLD EVIDENCE FOR DISEASE-MODIFYING DRUGS IN MULTIPLE SCLEROSIS: TRENDS IN THE LITERATURE
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OBJECTIVES: To summarize trends in published literature regarding real-world evidence (RWE) studies for disease-modifying drugs (DMDs) in patients with multiple sclerosis (MS). METHODS: A systematic search of peer-reviewed studies published from 2010 to 2016 using the PubMed database was conducted. Studies evaluating RWE (prospective cohort studies, registries, case series, surveys, and randomized controlled trials) and retrospective [administrative claims, electronic health record, and chart reviews] studies were included. Search terms used were: multiple sclerosis AND (disease modifying OR interferon OR peginterferon OR glatiramer OR fingolimod OR teriflun- mide OR dimethyl fumarate OR natalizumab OR mitoxantrone OR alemtuzumab OR daclizumab) AND (cortical OR observational OR retrospective OR database OR database). The search was restricted to articles published in English. Publications that did not report primary data were excluded. RESULTS: A total of 862 articles were identified using the search strategy; 313 were excluded (69 not evaluating MS, 70 not evaluating DMDs, 45 reviews/editorials, 37 pre-clinical and clinical studies, 35 study design/methodological studies, 33 meta-analyses, and 24 models). Two-thirds (68%) of the studies were prospective and one-third (32%) were retrospective. The majority of studies evaluating RWE used a non-comparative design (50%), while 40% used a comparative or non-comparative design. The proportion of studies that included patients with MS increased from 47 to 130. The proportion of studies that did not report primary data was 51% to 68%, whereas the proportion of studies that did report primary data decreased from 38% to 21%. CONCLUSIONS: The proportion of RWE studies examining DMDs in MS is growing; additional research is needed to determine the quality of studies and the impact on decision making.

PND14
DRUG-SPECIFIC DISCONTINUATION RATES FOR AVAILABLE MULTIPLE SCLEROSIS TREATMENTS
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OBJECTIVES: To estimate drug-specific annual discontinuation rates for available disease modifying treatments of relapse remitting multiple sclerosis

A189
V A L U E I N H E A L T H 2 0 ( 2 0 1 7 ) A 1 – A 3 8 3
Bonthapally V2, Hunt I3, Erder H4, Meng Y1, Akehurst R1, but the burden of SRSE and RSE is clearly substantial. A comprehensive structured literature review on the humanistic and economic burden of EPILEPTICUS (SRSE) patients should consider likelihood of discontinuation when choosing treatment. Associated with varying responses and subsequent discontinuation; providers and patients consider likelihood of discontinuation when choosing treatment.

CONCLUSIONS: Annual treatment discontinuation ranged from 1.9% to 15.5% of patients, with an average annual discontinuation of 7%. Tensofenide (Tmg, Azaobigio) and Dimethyl fumarate (Tecfidera) had the highest discontinuation rates of available treatments with 15.5% and 13.3% annual discontinuation, respectively. Natalizumab (Tysabri), ocrezulimab (Ocrevus), interferon beta-1a (250 mcg, Betaseron), and alemtuzumab (Lemtrada) had annual discontinuation proportions below 5%. Most common reasons for treatment discontinuation included adverse events, disease progression, and loss to follow up. CONCLUSIONS: Disease-modifying treatments for relapse-onset multiple sclerosis are associated with responses and subsequent discontinuation; providers and patients should consider the likelihood of discontinuation when choosing treatment.

PND15 THE BURDEN OF ILLNESS ASSOCIATED WITH SUPER REFRACtORY STATUS EPILEPTiCUS (SRSE)

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OBJECTIVES: SRSE is a life-threatening form of status epilepticus (SE) that continues or recurs despite multiple therapeutic interventions (first-, second-, and third-line agents). We aim to do a systematic review on the epidemiology, health-related quality of life (HRQOL) and economic burden associated with refractory SE (RSE) and SRSE. METHOD: ODS: A structured, comprehensive literature review was conducted to identify articles from hospital databases, guideline databases, regulatory and health technology assessment agency websites and conference proceedings. Data were extracted from eligible articles (reporting on RSE or SRSE and providing data on at least one topic of interest). Summaries of studies meeting predefined criteria are presented. RESULTS: One hundred and sixty four articles met the inclusion criteria. Projections or estimates of epidemiology varied by country, incidence of SRSE was 13,100,000 cases/year in the US (1 article) and 3,100,000 cases/year in Germany (1 article). Publications on the human burden of SE (16 articles) reported that patients with SRSE had a lower HRQOL compared with RSE patients. However, patients with RSE (30 articles) also experienced functional impairment and required considerable care after discharge. Caregiver burden of RSE and SRSE was sparsely reported (SRSE: n = 0; RSE: n = 2); however, surveys of parent views indicated that parents found it stressful when their child had a RSE episode, however, despite this, their main priority during an RSE episode was to stop their child seizing as quickly as possible. Although economic data were scarce (8 articles), cost of SE was estimated in one study. The cumulative direct costs of cases identified using the study algorithm as SRSE, accounted for 122.8 million in Germany (2013). CONCLUSIONS: To our knowledge this is the first comprehensive structured literature review on the humanistic and economic burden associated with SRSE and RSE. Our review indicates that the evidence base is limited but the burden of SRSE and RSE is clearly substantial.

PND16 INCIDENCE AND PREDICTORS OF ANTiPSYCHOTiCS USE AMONG PATiENTS WiTH PARKiNSON’S DISEASE

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OBJECTIVES: Most antipsychotics are considered potentially inappropriate in patients with Parkinson’s disease (PD). Limited research exists regarding factors contributing to the use of antipsychotics in patients with PD. This study examined the incidence and predictors of antipsychotic use among patients with newly diagnosed PD from a large administrative database. METHODS: We used data from 2001 to 2015 the Medical Outcomes Research for Effectiveness and Economics Registry (MOORE Registry®). The study sample included adult patients with PD (ICD-9-CM 332.0) who were followed for 3 years and Cox regression was used to examine factors associated with initiation of antipsychotics after PD diagnosis. Several demographics and clinical characteristics were included in the Cox model based on previous literature and availability in data. RESULTS: The study population included 1,452,820 patients with Parkinson’s disease (PD). Mean age at baseline was 72.06 years (SD: 9.86). The incidence of antipsychotics use was 19.25% over 3 years follow up and quetiapine was the most frequently used antipsychotic agent (44.8%). Race was the most likely predictors of antipsychotic use among African American patients (HR: 1.32, P < 0.05). Other predictors of high RSE risk were male gender, age >65, a history of psychiatric hospitalization, and increased number of hospital admissions. CONCLUSIONS: Antipsychotics are likely to be prescribed for PD patients using levodopa (HR:0.59, P<0.05), dopamine agonists (HR:0.69, P=0.02), catechol-O-methyl transferase inhibitors (HR=0.61, P=0.04) or other antipsychotic agents (HR=0.73, P=0.04).

PND17 ALLERGIES RATHER THAN ANTIBIOTICS USE ARE ASSOCIATED WITH MULTIPLE SCLEROSiS

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OBJECTIVES: The risk factors and etiology of multiple sclerosis (MS) remains unclear and controversial. Previous studies have reported contradictory associations between bees, the IBD, and MS. We investigated whether allergies are associated with MS. We hypothesized that antibiotic use might be a mediator of the association between allergies and MS. Thus, our study aimed to examine their intrinsic association. METHODS: A 1:3 matched case-control study was performed using the National Ambulatory Medical Care Survey database from 2006 to 2013 in the USA. MS cases were identified using national diagnosis codes. MS cases were matched to their controls based on year of age (difference ≤ 3 years), gender, race, payer type and region utilizing SAS 9.4. Allergy diseases and antibiotics prescriptions were extracted by ICD-9 code and drug classification code, respectively. A general structural equation model was built in STATA 13.1 based on our hypothesis. RESULTS: The weighted prevalence of MS was 133.7 per 100,000 visits. Total 829 MS patients and 2441 controls were matched. When including allergy diseases, in the model, use of antibiotics or skin allergies were significantly negatively associated with MS. Patients with respiratory tract allergies were more likely to use penicillin (Odds ratio [OR]=8.44, P<0.001) and other antibiotics (OR=3.93, P<0.001), but the association was not found in people with skin allergies. Notably, both respiratory tract allergies (OR=0.26, P=0.001) and skin allergies (OR=0.38, P=0.017) were inversely associated with the risk of MS. CONCLUSIONS: Antibiotics use might play a mediator role between the association between allergies and MS, which has not been reported in previous studies. History of allergy diseases might be considered as a protective factor of MS, suggesting that the development of immune responses against stimulatory environmental factors could inhibit responses to auto-antigens.

PND18 MORTALITY IN ALZHEiMER’S DISEASE: A SYSTEMATIC LITERATURE REVIEW

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OBJECTIVES: Mortality plays an important role in the economic evaluation of new therapies for Alzheimer’s disease (AD). A systematic literature review was conducted to consolidate data on the estimates and key variables influencing economic modeling of mortality/survival in AD. METHODS: We search 11 databases, medical literature, and conference proceedings. Data were extracted from full-text articles and summarizing reports of previous systematic reviews. RESULTS: A total of 12 studies were included in the final review, with 6 studies deriving estimates from newly-identified publications. Final estimates for mortality were derived using the study algorithm as SRSE, accounted for 122.8 million in Germany (2013). CONCLUSIONS: To our knowledge this is the first comprehensive structured literature review on the humanistic and economic burden associated with SRSE and RSE. Our review indicates that the evidence base is limited but the burden of SRSE and RSE is clearly substantial.

PND20 ALLOCATING PROVIDER RESOURCES TO ACCURATELY DIAGNOSE AND TREAT RESTLESS LEGS SYNDROME: A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: Restless legs syndrome (RLS) is a neurological disorder that is frequently underdiagnosed and misdiagnosed. Patients exhibiting RLS symptoms are more likely to have a bilateral retinal and retinal artery narrowing, or deep venous thrombosis, resulting in delays in proper treatment. Our objective was to analyze the cost-effectiveness of training primary care physicians to accurately diagnose RLS and improve pharmaceutical care for patients with PD. METHOD: This cohort study used a large administrative database from academic medical centers in the US. The study sample included adult patients with PD (ICD-9-CM 332.0). Patients were followed for 3 years and Cox regression was used to examine factors associated with initiation of antipsychotics after PD diagnosis. Several demographics and clinical characteristics were included in the Cox model based on previous literature and availability in data. RESULTS: The study population included 1,452,820 patients with Parkinson’s disease (PD). Mean age at baseline was 72.06 years (SD: 9.86). The incidence of antipsychotics use was 19.25% over 3 years follow up and quetiapine was the most frequently used antipsychotic agent (44.8%). Other predictors of high RSE risk were male gender, age >65, a history of psychiatric hospitalization, and increased number of hospital admissions. CONCLUSIONS: Antipsychotics are likely to be prescribed for PD patients using levodopa (HR:0.59, P<0.05), dopamine agonists (HR:0.69, P=0.02), catechol-O-methyl transferase inhibitors (HR=0.61, P=0.04) or other antipsychotic agents (HR=0.73, P=0.04).
evaluate the impact of CLB use on healthcare costs, the slope of monthly costs before CLB initiation was estimated using the linear regression model (eq. 3). The incremental cost-effectiveness ratio (ICER) was calculated using the following equation:

$$\text{ICER} = \frac{\text{Incremental Costs}}{\text{Incremental QALYs}}$$

where Incremental Costs is the difference in total healthcare costs between the post-clobazam and pre-clobazam groups, and Incremental QALYs is the difference in QALYs between the two groups. The ICER was interpreted as follows: a cost-effective strategy has an ICER that is less than the willingness to pay (WTP) threshold, which is often set at $100,000 per QALY gained.

In this study, we performed an economic evaluation of CLB use in patients with probable Lennox-Gastaut syndrome (LGS) using a cost-effectiveness analysis framework. The analysis was conducted from a societal perspective, including all direct medical and non-medical costs. Healthcare costs were calculated using the Medical Expenditure Panel Survey (MEPS) data, which is the largest and most comprehensive survey of the U.S. health care system. The primary outcome measure was the incremental cost-effectiveness ratio (ICER) comparing CLB users to non-users.

The total healthcare costs were calculated as the sum of direct medical costs and direct non-medical costs. Direct medical costs included hospitalization, emergency department visits, physician office visits, and other medical visits. Direct non-medical costs included medication costs, transportation costs, and other out-of-pocket costs. The costs were adjusted to 2016 USD using the medical care component of the Consumer Price Index. The QALYs were calculated using the short-form health survey (SF-6D) and the time-trade-off (TTO) methods. The SF-6D is a health state classification system that calculates a QALY score based on the patient's response to a series of questions about their health status. The TTO method estimates the willingness to give up time in exchange for a better health state.

The sensitivity analysis was conducted to assess the robustness of the results. One-way sensitivity analysis varied the WTP threshold from $50,000 to $200,000 per QALY. Two-way sensitivity analysis assessed the impact of varying the WTP threshold and the cost-effectiveness ratio simultaneously. The cost-effectiveness acceptability curve (CEAC) was used to visualize the probability that CLB use is cost-effective at different WTP values. The CEAC was generated by calculating the probability that CLB use is cost-effective at each WTP value using the Monte Carlo simulation method.
All analyses were weighted to control for the complex sample design of MEPS. RESULTS: Among adults with epilepsy (unweighted n=252; weighted n=2.8 million), 37.8% had comorbid CMDs. Patients with comorbid epilepsy and CMDs had approximately three times higher total annual expenditures than patients without CMDs ($15,359 vs $5,314 [P < 0.001]). Annual expenditures for prescription medications, hospital care, outpatient care, and non-health care were all increased for patients with co-occurring CMDs. OLS regression indicated that patients with comorbid CMDs had 45% (β=0.372; p<0.001) higher expenditures than patients without CMDs. CONCLUSIONS: The current study highlights the high prevalence of CMDs and increased healthcare expenditures due to these patients with epilepsy. The potential burden of comorbid CMDs should be considered by providers in the management of chronic conditions in patients with epilepsy.

PND26

COST CONSEQUENCE ANALYSIS OF SC PEGINTERFERON BETA-1A EVERY 2 WEEKS VERSUS SC INTERFERON BETA-1ATIV IN PATIENTS WITH RRMS IN FIVE EUROPEAN COUNTRIES

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OBJECTIVES: To evaluate the economic and clinical impacts of treatment with subcutaneous peginterferon beta-1a (SC PEG-IFN) vs. SC interferon beta-1a (SC IFN beta-1a) for relapsing-remitting multiple sclerosis (RRMS) in five European countries (EUS). France, Germany, Italy, Spain, and UK. METHODS: A cost-consequence model, from the national payer perspective, was developed to compare country-specific costs of treating patients with SC PEG-IFN vs. SC IFN beta-1a. The model evaluates clinical and economic consequences of switching all patients who are currently on SC IFN beta-1a to SC PEG-IFN. A Markov model over two years with three month cycles was computed. Costs of relapse and disability status are from a cross-sectional cost of illness study (Koebel et al. 2016). The annualized relapse rate and confirmed disability progression hazard ratios for SC PEG-IFN were compared with SC IFN beta-1a as derived from the results from Tolley et al. 2015 and Coyle et al. 2016. The RRMS populations treated with SC IFN beta-1a are from actual 2016 utilization. RESULTS: The number of RRMS patients treated with SC IFN beta-1a ranged from 2,810 in France to 11,699 in Germany. The use of SC PEG-IFN in place of SC IFN beta-1a reduced the number of relapses, and cost of DMT-relapse, and disability status in each country. The sum of these cost savings ranged from $44,404 in France to $63,155,057 in Germany, for a total savings of $178,871,314 over two years (64.2% due to drug, 27.1% to relapse, and 8.7% to disability status cost savings) across the EUS. Total savings per patient ranged from €3,460 in France to €10,865 in Spain. CONCLUSIONS: These results suggest that use of SC PEG-IFN compared with SC IFN beta-1a is a cost-saving strategy in the EUS. Additional research incorporating adherence and side effects are necessary to analyze treatment options.

PND27

COST CONSEQUENCE ANALYSIS OF SC PEGINTERFERON BETA-1A EVERY 2 WEEKS VERSUS SC INTERFERON BETA-1ATIV IN PATIENTS WITH RRMS IN THE UNITED STATES

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OBJECTIVES: To evaluate the economic and clinical impacts of treatment with subcutaneous peginterferon beta-1a (SC PEG-IFN) vs. SC interferon beta-1a (SC IFN beta-1a) for relapsing-remitting multiple sclerosis (RRMS) in the United States. METHODS: A cost-consequence model, adopting a national perspective, was developed to compare costs of SC PEG-IFN vs. SC IFN beta-1a. The model evaluates clinical and economic consequences of switching all patients who are currently on SC IFN beta-1a to SC PEG-IFN using costs and baseline clinical characteristics specific to the US. A Markov model over two years with cycle times of three months study was computed. Costs of relapse and disability status are from a cost of illness study (Koebel et al. 2006). The hazard ratios for clinical outcomes of SC PEG-IFN vs. SC IFN beta-1a treatment were estimated using the results from Tolley et al. 2015 and Coyle et al. 2016. The RRMS populations treated with SC IFN beta-1a is from actual 2016 utilization. RESULTS: The number of RMS patients treated with SC IFN beta-1a was 19,77. The use of SC PEG-IFN in place of SC IFN beta-1a reduced the number of relapses by 10,244 and added 2,129 relapse-free years among the cohort. SC PEG-IFN also slowed disease progression (192 additional patients had an Expanded Disability Status Scale (EDSS) of ≤ 6.0 compared to SC IFN beta-1a), and reduced drug costs, relapse costs, and disability status costs. The sum of these cost savings for the cohort was $217,982,252 over two years (86.4% due to drug costs, 12.1% to relapse costs, and 34.5% to disability status cost savings). Total savings per patient were $111,666. CONCLUSIONS: The results of this model suggest that use of SC PEG-IFN compared with SC IFN beta-1a in the treatment of RMS in the US is a cost-saving strategy. Additional research incorporating adherence and side effects are necessary.

PND28

EXCESS COSTS ASSOCIATED WITH CENTRAL SLEEP APNEA IN THE ELDERLY

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OBJECTIVES: Central sleep apnea (CSA) occurs when the brain fails to signal the diaphragm to contract during sleep, resulting in an involuntary cessation of breathing. There are limited recent data on the economic and clinical burden of CSA among the elderly. This study evaluated the costs of this disease using data from the Medicare program. METHODS: Patients newly diagnosed with CSA between January 1, 2011 and December 31, 2013 (‘cases”) were identified using the Medicare 5% Standard Analytical Files. Non-CSA controls were identified in the Medicare 5% non-financial data for 1.1 to 1.5 years. All patients were required to have continuous enrollment 12 months before index and at least 30 days post-index diagnosis. Resource utilization and medical costs were evaluated from inpatient, outpatient, and mental health care. The Hungarian National Health Insurance Fund Administration spent $1,743 billion Hungarian Forint (HUF) (17.982 million USD) for the treatment of patients with head trauma. The annual average number of patients was 23,786 (7,253 HUF (12.5 USD) per patient) while the average number of patients per inhabitant was 7,253 HUF (12.5 USD). Major costs drivers were for elderly patients with head trauma (84.4 % of total health insurance costs), outpatient care (8.8%) and primary care (2.6 %). The number of patients with head trauma was 146,973 per 1000 population. We found the highest number of patients (146,973 patients) in 2015. CONCLUSIONS: Head trauma represents a significant burden for the health insurance system. Reimbursement of patient and outpatient care is the major cost drivers for head trauma in Hungary.
COST-EFFECTIVENESS ANALYSIS OF ALEMTUZUMAB FOR THE TREATMENT OF MULTIPLE SCLEROSIS IN BULGARIA, 2016

Dijambazov S, Vekov T

Medical University Pleven, Pleven, Bulgaria

OBJECTIVES: The aim of the study is to offer pharmacoeconomic guidelines for the treatment of early versus delayed treatment with interferon beta-1a in clinically isolated syndrome (CIS) based on clinical data on therapeutic efficacy and economic data on comparative cost-effectiveness of potential therapeutic alternatives. METHODS: A systematic review of the published data on the health technology assessment of active ALE for the treatment of RMS conducted in other countries was carried out. The following databases have been used: MEDLINE, EMBASE, Web of Science, and Cochrane Library, literature from 2012 to 2016. The analysis includes assessments which were based on clinical data on the cost-effectiveness of interferon (IFN) or daclizumab (CUD) analysis. The results are expressed as financial health results expressed as quality adjusted life years (QALY). The data on health benefits (a QALY) have been directly calculated for the disease and the use of daclizumab. CONCLUSIONS: Data analysis of therapeutic efficacy, safety and pharmacoeconomic analysis leads to the conclusion that daclizumab can be recommended as second and first therapeutic choice for the treatment of patients with active RMS disease.

THE COST-EFFECTIVENESS OF CLOZAPINE vs. QUETIAPINE IN THE TREATMENT OF PARKINSON’S DISEASE PSYCHOSIS

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OBJECTIVES: Parkinson’s disease psychosis (PDP) imposes a high economic burden on patients and societal resources. The prevalence of psychosis was estimated to be 25%-40% in the lifetime course of Parkinson’s disease. Clozapine and quetiapine are atypical antipsychotics indicated for the treatment of PDP. The aim of this study was two-fold: to estimate the cost-effectiveness of clozapine and quetiapine in PDP patients with PDP. METHODS: This study applied decision tree approach to perform cost-effectiveness analysis, from a third party perspective. The study obtained clinical data from published clinical trials on clozapine and quetiapine in the cost-effectiveness analysis, from a third party perspective. The study obtained clinical data from published clinical trials on clozapine and quetiapine in the cost-effectiveness analysis, from a third party perspective. The study obtained clinical data from published clinical trials on clozapine and quetiapine in the cost-effectiveness analysis, from a third party perspective. The study obtained clinical data from published clinical trials on clozapine and quetiapine in the cost-effectiveness analysis, from a third party perspective. RESULTS: The results indicate that almehtuzumab was found to be cost-effective versus SC INB-1a. The use of almehtuzumab was associated with slower EDSS worsening and reduced relapse burden compared with SC INB-1a. The quality-adjusted life-years obtained with almehtuzumab and SC INB-1a were 7.02 and 5.76, respectively, and total costs per patient were USD 453,031 and USD 716,627, respectively. In the base case, almehtuzumab was cost-effective versus SC INB-1a. CONCLUSIONS: Almehtuzumab is both cost-saving and more effective when compared with SC INB-1a in RMS patients with an inadequate response to prior treatment, from a US payer perspective. REFERENCES: Chinlott J, et al. BMJ 2003;326:522; Coles AJ, TwymanCL, Arnold DL, et al. Lancet 2012,380:1829-39.

COST-EFFECTIVITY ANALYSIS OF ALEMTUZUMAB WITH SUBCUTANEOUS INFERNON BETA-1A FOR THE TREATMENT OF RELAPSING-REMITING MULTIPLE SCLEROSIS: US PAYER PERSPECTIVE

Smith A, Hashemi L, Wandstrat T

Stratford, CA, USA

OBJECTIVES: To compare the cost-effectiveness of alemtuzumab versus subcutaneous interferon beta-1a (IFN-beta) in relapsing-remitting multiple sclerosis (RRMS) from the US payer perspective. METHODS: A 3-year Markov model with 3-month cycles was developed. Expected outcomes: proportion of patients without relapse during 24 months, survival, and total cost per patient. Markov model was based on published trials. Costs were projected life-years obtained with alemtuzumab and SC IFNB-1a were 7.02 and 5.76, respectively, and total costs per patient were USD 453,031 and USD 716,627, respectively. In the base case, alemtuzumab was cost-effective versus SC IFNB-1a. CONCLUSIONS: Almehtuzumab is both cost-saving and more effective when compared with SC IFNB-1a in RMS patients with an inadequate response to prior treatment, from a US payer perspective. REFERENCES: Chinlott J, et al. BMJ 2003;326:522; Coles AJ, TwymanCL, Arnold DL, et al. Lancet 2012,380:1829-39.

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related to the management of epilepsy. METHODS: Patients with at least two diagnosis of epilepsy between January 2011 and December 2013 were selected from four neurology public health databases. New epilepsy patients, patients with a history of AED or psychotropic drug treatment, and patients younger than 18 years were excluded. New patients with at least 3 years of follow-up were included in the study. RESULTS: A total of 67,460 epilepsy patients had at least one hospitalization for epilepsy care, of which 1,422 (2.1%) had an epilepsy-related hospitalization for the first time in 2011. The most frequent AEDs were: valproic acid (38.5%), lamotrigine (36.8%), and levetiracetam (20.7%). CONCLUSION: The management of epilepsy is associated with a significant economic burden. Compared to non-refractory epileptic patients, refractory patients have a much higher health care resources utilization and costs.

PND38 EVIDENCE MAP OF COST-UTILITY MODELS IN MULTIPLE SCLEROSIS PUBLISHED SINCE 1960
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OBJECTIVES: To create an evidence map of studies reporting cost-utility models for multiple sclerosis, and the geographical jurisdictions for which these studies were conducted. METHODS: We searched the hecro.com database (www.hecro.com) to identify cost-utility models in multiple sclerosis (MS) that were published between 1960 and 28th December 2016. We analysed the abstracts identified by the search to determine the different types of interventions modelled across the range of geographical locations, by date and type of MS. We presented the findings as an evidence map. RESULTS: We found a total of 42 abstracts. Of these, 14 were on relapsing-remitting MS, six were on progressive MS and 22 were on any type of MS or did not specify. Fifteen abstracts modelled the use of interferon beta-1b, 11 interferon beta-1a and seven were on any type of interferon-beta. Fourteen abstracts modelled the cost-utility of glatiramer acetate, interferon beta-1b, interferon beta-1a and none were published before 1997. METHODS: The base case patient was a 45-year-old female with a MS severity rating of 1 according to the Expanded Disability Status Scale. The perspective of analysis was from a Colombian health system. Time horizon was 20 years; the annual discount rate was 5% for benefits and costs. Outcomes: probability of not progressing to a more advanced disease state, quality-adjusted life years (QALY). Results: The incremental cost-effectiveness ratio (ICER) was $18,000 per QALY gained for glatiramer acetate versus interferon beta-1b. CONCLUSION: Glatiramer acetate is cost-effective compared to interferon beta-1b for treating patients with MS.

PND39 ECONOMIC BURDEN ASSOCIATED WITH THE MANAGEMENT OF EPILEPSY
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OBJECTIVES: The propose of this study was to describe the characteristics of epileptic patients and to estimate health care resources utilization and cost associated with the management of epilepsy. METHODS: Patients with at least two diagnosis of epilepsy between January 2011 and December 2013 were selected from four neurology public health databases. New epilepsy patients, patients with a history of AED or psychotropic drug treatment, and patients younger than 18 years were excluded. New patients with at least 3 years of follow-up were included in the study. RESULTS: A total of 67,460 epilepsy patients had at least one hospitalization for epilepsy care, of which 1,422 (2.1%) had an epilepsy-related hospitalization for the first time in 2011. The most frequent AEDs were: valproic acid (38.5%), lamotrigine (36.8%), and levetiracetam (20.7%). CONCLUSION: The management of epilepsy is associated with a significant economic burden. Compared to non-refractory epileptic patients, refractory patients have a much higher health care resources utilization and costs.
population, but may not adequately capture the early need, potentially under-estimating the economic burden of AD in this program.

PND42 MARKET ACCESS CONSIDERATIONS IN PHARMACEUTICAL IN-LICENSING VALUATIONS

Obanajuan A, Mukku S, Eladhodhi A, Samuel J, Leung SK, Digicomfo F, Old Golazale A

OBJECTIVES: Value of assets in licensing deals is based on the asset’s ‘approvability’, with the estimated value of the asset increasing as the likelihood of regulatory approval grows with each successful clinical development stage. This study aimed to assess the ‘reusability’ and price potential in the EU5 of a CNS asset that faces generic competition. METHODS: In-depth interviews with 10 former senior national and regional level payers from EU5 were conducted, along with analysis of historic EU5 at-launch prices of CNS drugs using IMS data. RESULTS: The asset’s successful Phase III trial was 6-weeks long and conducted against placebo as the comparator. Assuming EMA approval, European payers unanimously agreed that this data would not be sufficient for negotiating premium prices in the EU5 markets. Payers requested 6-month-long direct and/or indirect comparative studies against standard of care (SoC) therapies in the EU5, all of which are generic. To avoid generic price referencing, superiority in efficacy analyses, >4 months of continuous AD treatment before age analysis of the new GA formulation was launched in genericised EU5 markets showed that comparative studies demonstrating non-inferiority in efficacy and superiority in safety vs generic comparators might lead to 3-4 times premium price over a generic price, while superiority in both efficacy and safety to >5 times premium price. We estimated that with the existing data the asset would be reimbursed at €1-€1.6 per day in EU5 (vs estimated €15 per day in the US). With additional data the asset could be reimbursed at €2-€3.5 per day. CONCLUSIONS: Estimating the EU5 reimbursement and price potential is a crucial consideration in asset valuation process that can significantly alter the asset’s NPV. Market access analysis should be carried out early in the development process to ensure that the clinical development plan addresses the ‘reusability’ issues.

NEUROLOGICAL DISORDERS – Patient-Reported Outcomes & Patient Preference Studies

PND43 QUANTIFYING THE BENEFITS OF INJECTION-RELATED PAIN REDUCTION ON PATIENT OUTCOMES

Davies M, Johnson SJ, Espinosa R, Skup M

OBJECTIVES: Evaluate patient outcomes for a new formulation of the multiple sclerosis (MS) drug glatiramer acetate (GA) associated with reduced injection-related pain. METHODS: This retrospective, closed-cohort study included adults from the Truven MarketScan Commercial database with ≥2 claims with MS diagnosis, ≥6 months of continuous GA treatment before age analysis of the new GA formulation, and ≥6 months of data after the index date (earliest claim for new formulation [switchers] or GA claim closest to index date of match [non-switchers]). Non-switchers were propensity-score matched 1:1 to switchers using baseline demographic characteristics. Differences in demographics, comorbidities, or baseline costs following approval of the new formulation, switchers (n=1,362, non-switchers, n=2,093), with the estimated value of the asset increasing as the likelihood of regulatory approval grows with each successful clinical development stage. This study aimed to assess the ‘reusability’ and price potential in the EU5 of a CNS asset that faces generic competition. METHODS: In-depth interviews with 10 former senior national and regional level payers from EU5 were conducted, along with analysis of historic EU5 at-launch prices of CNS drugs using IMS data. RESULTS: The asset’s successful Phase III trial was 6-weeks long and conducted against placebo as the comparator. Assuming EMA approval, European payers unanimously agreed that this data would not be sufficient for negotiating premium prices in the EU5 markets. Payers requested 6-month-long direct and/or indirect comparative studies against standard of care (SoC) therapies in the EU5, all of which are generic. To avoid generic price referencing, superiority in efficacy analyses, >4 months of continuous AD treatment before age analysis of the new GA formulation was launched in genericised EU5 markets showed that comparative studies demonstrating non-inferiority in efficacy and superiority in safety vs generic comparators might lead to 3-4 times premium price over a generic price, while superiority in both efficacy and safety to >5 times premium price. We estimated that with the existing data the asset would be reimbursed at €1-€1.6 per day in EU5 (vs estimated €15 per day in the US). With additional data the asset could be reimbursed at €2-€3.5 per day. CONCLUSIONS: Estimating the EU5 reimbursement and price potential is a crucial consideration in asset valuation process that can significantly alter the asset’s NPV. Market access analysis should be carried out early in the development process to ensure that the clinical development plan addresses the ‘reusability’ issues.

PND44 PATIENT CHARACTERISTICS AND TREATMENT ADHERENCE AMONG PATIENTS TREATED WITH DELAYED-RELEASE DIMETHYL FUMARATE FOR RELAPSING REMITTING MULTIPLE SCLEROSIS IN ISRAEL

Desai S, Huang M, Kison NY, King S, Hellstern M, Schonfeld S, Birnbaum HG, Lee A

OBJECTIVES: Few studies have examined the characteristics and treatment patterns of patients using oral disease-modifying treatments (DMTs) for relapsing remitting multiple sclerosis (RRMS) outside the US. This retrospective cohort study reports the characteristics, MS symptoms, and treatment adherence among patients initiating treatment with a leading oral DMT – delayed-release dimethyl fumarate (DMF, also known as gastro-resistant DMF) – in Israel. METHODS: Patients aged ≥18 years diagnosed with MS and with ≥1 prescription from DMF were selected from de-identified electronic health records data from a health fund in Israel (1/2013-1/2016). Patients were required to have continuous enrollment with the health fund for ≥12 months before (baseline) and ≥6 months after (follow-up) the first observed prescription (index) date. Patient characteristics during baseline and adherence during the follow-up period, as measured by medication possession ratio (MPR), were described. RESULTS: Of the 179 patients meeting the selection criteria (mean age: 49 years; ≥30% male, 114 (64%) previously used injectable DMTs for RRMS). The average duration from MS diagnosis to index date was 69 months (median: 45 months). Nearly half of the patients had indications of neuropathic or musculo-skeletal pain in the year before index, 26% bladder or bowel problems, 16% vision issues, 15% cognitive or psychiatric disorders, and 15% depression. The mean MPR during the 6-month follow-up period was 0.81 (median: 0.91); over two-thirds (69%) of the patients were considered adherent (MPR ≥ 0.8). CONCLUSIONS: Patients initiating DMF in Israel and considerable symptom burden, and many used injectable DMTs prior to treatment initiation, possibly reflecting the recently revised acceptable payment of the medication in Israel. Most patients were adherent to treatment during the follow-up period; further research is needed to understand long-term adherence among Israeli patients.

PND46 RETROSPECTIVE, CLAIMS-BASED ANALYSIS DEMONSTRATES LIMITED PRESCRIBING AND ADHERENCE TO 5-DAY LOW DAILY DOSE IMMEDIATE RELEASE (AMT-IR) IN PATIENTS WITH PARKINSON’S DISEASE (PD)


OBJECTIVES: To describe adherence and persistence with low daily dose levodopa immediate release (AMT-IR) treatment for PD patients. METHODS: A retrospective claims-based analysis was conducted utilizing Symphony Health data to evaluate current AMT-IR utilization patterns in PD patients persistent on levodopa for at least 4 years (indicating presence of LDL (Sub), 2012). Persistence was defined as continuous therapy without refill gaps > 90 days. Adherence was defined as ≤5 days between expected and actual refill dates. RESULTS: Among 22,000 patients persistent on levodopa for 4 years, approximately 1,500 (6.8%) had taken ≤5 days between expected and actual refill dates. The average starting dose was approximately 200 mg/day amantadine HCl (equivalent to 162 mg amantadine). Only 15% of patients started at 300mg/day amantadine HCl (equivalent to 246 mg amantadine) or greater. At one year, among those initiated on ≤500mg/day (P43 mg amantadine), 38% were persistent while only 4% were
OBJECTIVES: Elicit health utilities for health states of amyotrophic lateral sclerosis (ALS) in the general population of South Korea using standard gamble (SG) and Euro-QoL-5D (EQ-5D) as well as to identify the factors which cause differences in the two utility measures.

METHODS: Four ALS health state descriptions according to disease severity were constructed: mild, moderate, severe, and terminal state. Utilities of these states were measured using SG and EQ-5D from 202 respondents, who were selected using a stratified random sampling method to represent the general Korean population.

RESULTS: When disease severity increased, both SG and EQ-5D showed systematic decreases. The utility values between SG and EQ-5D for each state, excluding the mild state, were significantly different: utility value for mild was 0.880 ± 0.101 vs. 0.877 ± 0.053 (p = 0.716); moderate, 0.787 ± 0.154 vs. 0.722 ± 0.092 (p < 0.001); severe, 0.629 ± 0.186 vs. 0.446 ± 0.186 (p < 0.001); and terminal, 0.346 ± 0.206 vs. 0.014 ± 0.144 (p < 0.001). The differences in utility values between SG and EQ-5D in health states progressively increased as patients’ health states became more deteriorated. The differences in utility for moderate, severe, and terminal state were 1.06, 1.20, and 1.36 times greater, respectively, compared to that of mild state. The differences in utility were 7% higher in women than men (p = 0.03).

CONCLUSIONS: The study found that utility values of SG were significantly higher than those of EQ-5D. In addition, the difference between SG and EQ-5D gradually increased as patients’ health became severe, implying that general population was risk averse. It is recommended that a future study be performed to find the causes of the differences between utility derived from SG and EQ-5D in the Korean population.

PND48

COMPARISON OF HEALTH UTILITY MEASURES FOR AMYOTROPHIC LATERAL SCLEROSIS IN THE GENERAL KOREAN POPULATION: STANDARD GAMBLE AND EURO QOL-5D

Kim J1, Lee S1, Lee S1, Sim SJ, Suh D1

Chung-Ang University, Seoul, South Korea

OBJECTIVE: To elicit health utilities for health states of amyotrophic lateral sclerosis (ALS) in the general population of South Korea using standard gamble (SG) and Euro-QoL-5D (EQ-5D) as well as to identify the factors which cause differences in the two utility measures.

METHODS: Four ALS health state descriptions according to disease severity were constructed: mild, moderate, severe, and terminal state. Utilities of these states were measured using SG and EQ-5D from 202 respondents, who were selected using a stratified random sampling method to represent the general Korean population.

RESULTS: When disease severity increased, both SG and EQ-5D showed systematic decreases. The utility values between SG and EQ-5D for each state, excluding the mild state, were significantly different: utility value for mild was 0.880 ± 0.101 vs. 0.877 ± 0.053 (p = 0.716); moderate, 0.787 ± 0.154 vs. 0.722 ± 0.092 (p < 0.001); severe, 0.629 ± 0.186 vs. 0.446 ± 0.186 (p < 0.001); and terminal, 0.346 ± 0.206 vs. 0.014 ± 0.144 (p < 0.001). The differences in utility values between SG and EQ-5D in health states progressively increased as patients’ health states became more deteriorated. The differences in utility for moderate, severe, and terminal state were 1.06, 1.20, and 1.36 times greater, respectively, compared to that of mild state. The differences in utility were 7% higher in women than men (p = 0.03).

CONCLUSIONS: The study found that utility values of SG were significantly higher than those of EQ-5D. In addition, the difference between SG and EQ-5D gradually increased as patients’ health became severe, implying that general population was risk averse. It is recommended that a future study be performed to find the causes of the differences between utility derived from SG and EQ-5D in the Korean population.

PND47

LEVERAGEING DISEASE MANAGEMENT & TECHNOLOGY TO HELP MULTIPLE SCLEROSIS PATIENTS ADHERE TO TREATMENT PLAN

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OBJECTIVES: Determine if patients who enroll in a CareMed Specialty Pharmacy led disease management program for the treatment of Multiple Sclerosis (MS) with SC/IM therapy are more adherent than patients who are not enrolled in such a support program. Recent MS study results show that adherence of patients on SC/IM therapy is 70% vs. 30% of patients any disease management programs. Further, MS patients who took their medication consistently were found to have 66% fewer emergency room (ER) visits and 23% lower medical costs than those MS patients who did not. Average MS-related medical costs for patients in the lowest medication adherence range were $23,253, while those in the highest adherence range averaged $17,814, resulting in an average savings over $5,400.

METHODS: Enroll 1,647 patients in a disease management program and track their adherence to SC/IM therapy over the course of 12 months. Develop a robust disease management program with input from physicians and patients. Conctruct a pharmacy based MS patient facing interactive portal. Integrate analytic and programmatic approaches to support patient adherence. Adherence metrics of this study were: 1) Number of missed doses in four weeks; 2) Reason dose was missed; 3) Perceived side effects; 4) Ease of administration; 5) Medication satisfaction. Results: 97.4% of all SC/IM therapy doses for participating in CareMed’s disease management program were administered vs. 82% of all SC/IM therapy doses for patients not participating in a disease management program. Conclusions: Pharmacy led MS focused disease management programs can improve better adherence resulting in fewer ER visits and a reduction in overall medical costs. Further study regarding disease management programs and their impact on outcomes and costs is recommended.

PND50

DEVELOPING AN INSTRUMENT TO MEASURE CAREGIVER PRIORITIES FOR POTENTIAL TREATMENT FOR PRADER-WILLI SYNDROME: A COMMUNITY-CENTERED APPROACH

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OBJECTIVES: Prader-Willi syndrome (PWS) is a neurodevelopmental disorder resulting from abnormalities of genes on chromosome 15. No cure for PWS exists. Emerging treatments target hyperphagia and behavioral outcomes, the impor-
The general population had a WTP of $22 per family member per month (PMPM) on average, the public preferred DMTs over pre-DMT era treatments. On average, the DMTs have transformed MS by delaying its progression and reducing relapses. However, these therapies can be expensive and may have side effects.

OBJECTIVES: The aim of this study was to assess the health-related quality of life (HRQoL) of thalassemia patients by comparing it with HRQoL of healthy persons and to evaluate the factors associated with HRQoL among thalassemia patients and level of depression of their caregivers. METHODS: This cross-sectional study was conducted in Thalassemia Center, Bahawal Victoria Hospital, Bahawalpur from February 2016 to March 2016 among 150 patients ranging from 2 to 18 years in age. Patient’s HRQoL was measured using PedsQL (Pediatric Quality of Life) 4.0 generic core scale and the depression level in their caregivers was assessed using the Patient Health Questionnaire-9 (PHQ-9). HRQoL of healthy control group was also measured using same questionnaires. RESULTS: The mean score of psychosocial functioning was higher in control group (95.81 74.40) as compared to patients (38.5724.29). The school functioning score (26.8426.08) was lowest of psychosocial measures in thalassemia patients, followed by emotional functioning (30.2330.18) and social functioning (60.1029.87) score. The mean physical health score was found to be 49.2023.92 in patients whereas control group showed the mean score of 89.0611.91. Majority (28%) of the caregivers showed severe depression while 20.7% showed moderately severe depression and (18%) showed mild depression. CONCLUSION: In conclusion, thalassemia has substantial negative effect on HRQoL of children and their caregivers. Continuous psychological support from health authorities, improvement in policies made by government and school officials and more understanding from society can be helpful in enhancing quality of life of these patients and their caregivers.

CHOICE OF TREATMENTS AND WILLINGNESS TO PAY TO INSURE FOR MULTIPLE SCLEROSIS DISEASE MODIFYING THERAPIES

Sandaiberg EA1, Cohen JT2, Wakeford C3, Lin P1

OBJECTIVES: 1) To design and test a patient simulation platform representative of challenging populations (rare diseases, small subpopulations). This study demonstrated the promise of using simulation to observe prescribing behavior across different contexts. Limitations exist, such as the need for real-time costs for the development of comprehensive, realistic patient profiles and currently, the inability to identify information accessed by the physician beyond categories of information viewed. Next steps include the comparison of collected data to prescribing databases and the exploration of other applications—simulating environmental changes (insurance coverage, etc.), forecasting, and message testing.
PD who have been discharged from all professional medical institutions in 2015 were examined. RESULTS: The hospitalized patients with PD were from third-grade to secondary-grade hospitals and private hospitals, and community health centers(272) and nursing homes(373). The average expenditure of all cases was RMB 27083. The average cost of patients in above-mentioned institutions were respectively RMB 37275.7 ± 14712 and 20587. The medical costs consumed largest (45.2%) in the third-grade hospitals, while only cost less than 1.5% in other institutions. The largest part accounting for the expenses in the nursing homes, secondary-grade hospitals and community health centers were for medications services (including outpatient medical services and other services, et al), which respectively accounted for 54.5%, 48.97% and 40.53%. The fee of drugs, not including Traditional Chinese Medicine(TCM), was more than 19.5% in each institution. The ratio of TCM expenditure in the community health centers was largest (13.29%), while the ratios in others were less than 6%. In private hospitals, the largest part of the expenditure was treatment (21.0%). CONCLUSIONS: PD causes significant expense for the health care system. The discrepancies between the expenditure of PD problems pose the challenges for the reducing economic burden of this section of the society. This argues for more research to evaluate the rationality of some expenditure among patients in various institutions.

PND60
RETROSPECTIVE COMPARISON DESCRIBING FUNCTIONAL, AND CLINICAL DIFFERENCES OF U.S. NURSING HOME RESIDENTS WITH PARKINSON’S DISEASE WITH AND WITHOUT PSYCHOSIS
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CVS Health, San Antonio, TX, USA, 2CVS Health, Livonia, MI, USA, 3CVS Health, Englewood, OH, USA, 4ACADIA Pharmaceuticals Inc, San Diego, CA, USA
OBJECTIVES: Describe demographic, functional, and clinical differences between nursing home residents (NHR) with Parkinson’s disease (PD) and PD with psychosis (PDP). METHODS: A retrospective analysis was conducted using linked and de-identified Minimum Data Set (MDS) assessments and prescription claims of NHR from 2/1/2016-9/30/2012. Differences between PD (MDS item 3530, ICD 332.0 or 332.1 and PDP (PD plus documentation of psychosis, hallucinations, or delusions) were evaluated by Chi-square analysis. Longitudinal comparison of age- and gender-matched PD and PDP cohorts from baseline (first full MDS) to completion (last full MDS) was examined. RESULTS: The most frequent adverse effect for both groups was constipation, with PDP having twice the rate (33.3% vs. 16.6%, p < 0.001). CONCLUSIONS: Longitudinal comparison of matched cohorts (n=473 per group) showed PDP residents had more functional deterioration regarding activities of daily living (p<0.001, 20.3% vs. 11.3%) and mood disturbance (p<0.001, 19.1% vs. 11.1%). PDP residents were also more likely to have hospitalization (p<0.001, 12.2% vs. 7.3%) and emergency department visits (p<0.001, 10.5% vs. 4.4%) compared to PD.

PND74
HEALTHCARE SPENDING AND BURDEN AMONG ELDERLY WITH ALZHEIMER’S DISEASE AND RELATED DEMENTIAS (ADRD)
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OBJECTIVES: The objective of our study is to estimate the excess burden of annual total direct out-of-pocket spending and out-of-pocket spending on different types of healthcare services among elderly Medicare beneficiaries with Alzheimer’s Disease and Related Dementias (ADRD) by comparing them to Medicare beneficiaries without ADRD. METHODS: We used data from 2012 Medicare Current Beneficiary Survey. The study sample comprised older adults (age ≥65 years), living in the community, with positive total healthcare expenditures, and enrolled in Medicare throughout the calendar year (462 with ADRD, and 7,160 without ADRD). We estimated the total out-of-pocket spending on healthcare and out-of-pocket spending by service type: inpatient, outpatient, home health, prescription drugs, and others. We measured out-of-pocket spending burden by calculating the percentage of annual total direct out-of-pocket spending burden as having this percentage above 10%. Multivariable analyses included ordinary least squares regressions and logistic regressions that adjusted for predictors of Medicare beneficiaries, individual health care practices and environmental characteristics. RESULTS: The average annual per-capita out-of-pocket healthcare spending was greater among individuals with ADRD compared to those without ADRD as compared to those without ADRD (E32,85 vs. $1,895), home health and prescription drugs accounted for 52% of total out-of-pocket spending among individuals with ADRD and 34% among individuals without ADRD. Higher out-of-pocket spending burden by those with ADRD persisted even after adjustment for other factors (Beta=1.49; 95% CI=1.1-1.1, 1.97) compared to those without ADRD. Our results showed that ADRD is associated with excess out-of-pocket healthcare spending compared to those without ADRD. CONCLUSIONS: Medicare beneficiaries with ADRD have higher out-of-pocket expenditures as compared with Medicare beneficiaries without ADRD. The financial burden as a percent of income is higher with Medicare beneficiaries with ADRD as compared with Medicare beneficiaries without ADRD.

PND77
ALZHEIMER’S DISEASE IN CHINA: A DECISION MAKING TOOL FOR RESOURCE ALLOCATION
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OBJECTIVES: to model the future disease burden and economic impact scenarios of Dementia and Alzheimer’s disease (AD) in China so as to provide a tool for health resource allocation. METHODS: Literature search was conducted on PubMed using pre-specified keywords. Research articles (n=50) on prevalence and cost of AD dementia in China were identified based on pre-specified criteria. Prevalence data was used against projected Chinese population in 2030 to forecast number of AD dementia cases. This data was then inputted into MS Excel based model to predict the economic cost of dementia in 2030. Further, different scenarios based on prevalence and cost estimates were generated. RESULTS: Our model predicts by 2030 the number of people with dementia in China would grow to 7.8 Mn, a growth of over 50% compared to 2015 (5.1 Mn). This is equivalent to 2014 AD dementia cases in the US. These numbers are more likely to have high out-of-pocket spending burden (AOR =1.49; 95% CI=1.1-1.1, 1.97) compared to those without ADRD. Our results showed that ADRD is associated with excess out-of-pocket healthcare spending compared to those without ADRD. CONCLUSIONS: Medicare beneficiaries with ADRD have higher out-of-pocket expenditures as compared with Medicare beneficiaries without ADRD. The financial burden as a percent of income is higher with Medicare beneficiaries with ADRD as compared with Medicare beneficiaries without ADRD.

PND86
EVALUATION OF THE EPIDEMIOLOGY AND TREATMENT LANDSCAPE IN PEDIATRIC MULTIPLE SCLEROSIS IN THE UNITED STATES
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1NYU Langone Health/Innsbruck Center, New York, NY, USA, 2New Providence, NJ, USA, 3CVS Health, San Antonio, TX, USA, 4ACADIA Pharmaceuticals Inc, San Diego, CA, USA
OBJECTIVES: Pediatric multiple sclerosis (MS) is a challenging condition to quantity and understand due to the evolving changes in diagnosis criteria, introduced in 2007 and revised in 2012, the limited evidence on the epidemiology of the disease and the efficacy and safety of therapies, and the lack of long-term data. No treatments have been approved for pediatric MS. This study aims to identify the epidemiological data and treatment landscape for children with MS in the US. METHODS: Two systematic searches were performed in MEDLINE (1966-2016) and EMBASE (1974-2016) to identify studies examining the epidemiology of pediatric MS, and any treatment guidelines or consensus statements or guidelines in the US. Hand searches of MS societies and organizations were conducted to identify further evidence. International or regional guidelines were also considered. RESULTS: Of 623 references identified in the first search, 12 focused on the prevalence, incidence, or demographics of pediatric MS, 54 focused on natural history, and two considered framework for future healthcare resource allocation for AD, Dementia and Mental Health investments in China.

PND90
SELF-REPORTED INSOMNIA AND SLEEP CHARACTERIZATION IN THE UNITED STATES
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OBJECTIVES: To evaluate sleep characteristics (difficulty initiating sleep [DIS], difficulty maintaining sleep [DMS], non-restorative sleep [NRS]) and time asleep (TAS) within the last 6 months in patients with self-reported insomnia. METHODS: Using data from a nationally representative research survey fielded in 2016, sleep characteristics, quality of life, emergency department visits and productivity loss were assessed in participants with insomnia. Standardized sleep questionnaires were used to characterize sleep complaints. Descriptive and multivariable models with US population-based weighting was used to obtain adjusted odds ratios (ORs) and 95% confidence intervals (CIs) across patient groups. RESULTS: Of 300,371 NHR, 6,551 PD (2.2%) were more likely to have high out-of-pocket spending burden (AOR =1.49; 95% CI=1.1-1.1, 1.97) compared to those without ADRD. Our results showed that ADRD is associated with excess out-of-pocket healthcare spending compared to those without ADRD. CONCLUSIONS: Medicare beneficiaries with ADRD have higher out-of-pocket expenditures as compared with Medicare beneficiaries without ADRD. The financial burden as a percent of income is higher with Medicare beneficiaries with ADRD as compared with Medicare beneficiaries without ADRD.

PND92
REVIEW OF THE EPIDEMIOLOGY AND TREATMENT LANDSCAPE IN PEDIATRIC MULTIPLE SCLEROSIS IN THE UNITED STATES
Krupp LB1, Viera MG2, Boulus FC3, *Tolosano H, Peneva D4, Pourrahmat M5, Duffy E6
1NYU Langone Health/Innsbruck Center, New York, NY, USA, 2New Providence, NJ, USA, 3CVS Health, San Antonio, TX, USA, 4ACADIA Pharmaceuticals Inc, San Diego, CA, USA
OBJECTIVES: Pediatric multiple sclerosis (MS) is a challenging condition to quantify and understand due to the evolving changes in diagnosis criteria, introduced in 2007 and revised in 2012, the limited evidence on the epidemiology of the disease and the efficacy and safety of therapies, and the lack of long-term data. No treatments have been approved for pediatric MS. This study aims to identify the epidemiological data and treatment landscape for children with MS in the US. METHODS: Two systematic searches were performed in MEDLINE (1966-2016) and EMBASE (1974-2016) to identify studies examining the epidemiology of pediatric MS, and any treatment guidelines or consensus statements or guidelines in the US. Hand searches of MS societies and organizations were conducted to identify further evidence. International or regional guidelines were also considered. RESULTS: Of 623 references identified in the first search, 12 focused on the prevalence, incidence, or demographics of pediatric MS, 54 focused on natural history, and two considered
both. The mean age at diagnosis with MS was 15 years, and as high as two-thirds of patients were female. The prevalence of pediatric MS ranged from 0.39 to 9.70 per 100,000, with incidence between 1.03 and 2.3 per 100,000 children-years. Of 81 references identified in the second search, only three focused on recommendations for pharmacological treatments for children. The efficacy and safety of disease-modifying therapies suggested by experts, however, was not reported in observational studies or small retrospective case reports and series.

CONCLUSIONS: There is variation in the reported prevalence and incidence of pediatric MS in the US. Clinical evidence from randomized controlled trials is needed to support treatment guidelines for the pediatric MS population.

PN63
A COMPARISON OF ANTIEPILEPTIC DRUGS APPROVED BY THE US FOOD AND
DRUG ADMINISTRATION AND HEALTH CANADA
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OBJECTIVES: Antiepileptic drugs (AEDs) sales have been increasing globally. The US Food and Drug Administration (FDA) and Health Canada (HC) are two regulatory agencies that use different approval processes and regulatory actions to approve new drugs. The aim of this study was to conduct a comparative analysis of antiepileptic drugs screened in the period 1956-2016 by these two regulatory agencies.

METHODS: In the study period, all AEDs approved by the FDA and HC were collected from the Drugs@FDA database, the Health Canada Drug Product database, and the Health Canada Notice of Compliance (NOC) database. For each AED, the following data were extracted: approval date, indications, contraindications, dosage forms, routes of administration, strengths, boxed warnings, market status and review status. Differences in these characteristics were assessed qualitatively and quantitatively.

RESULTS: Of the 46 drugs on the WHO ATC list, 13 AEDs were never submitted to or approved by the FDA and HC; 33 AEDs were approved by either the FDA or HC; only 19 AEDs were approved by both regulatory agencies. The number of AEDs’ indications approved by the FDA (on average, only 1 indication was higher than the HC’s (1.63±0.83), though the difference was not statistically significant. The FDA approved more indications in 7 AEDs (36.8%) while HC approved more indications for only one drug. The average number of contra-indications approved by HC (2.89±2.77) was higher than the average number of contraindications approved by the FDA (1.53±1.54). Other differences were identified in drug approval dates, restrictions, limitations, boxed warning, dosage forms, and strengths.

DISCUSSION: There are significant differences in AEDs’ characteristics approved by the FDA and HC. More research may be needed to compare the clinical evidence that lead to these discrepancies between the two regulatory agencies.

PN64
GENERIC COST-EFFECTIVENESS ANALYSIS MODELS AS A PRECISION MEDICINE
DECISIONMAKING TOOL: A CASE EXAMPLE
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OBJECTIVES: Economic evaluation is integral to informed healthcare decisionmaking in the rapidly growing and changing field of precision medicine, however this research is time consuming and expensive involving highly-skilled researchers. Generic models are proposed as a novel approach to address this critical evidence shortage to allow users to input local values. The purpose of this study is to develop and test a generic pharmacoeconomic cost-effectiveness model. METHODS: A generic model was developed on a published country-specific model for the routine HLA-B*15:02 screening for new adult epilepsy patients to prevent carbamazepin-induced Stevens Johnson Syndrome and Toxic Epidermal Necrolysis (SJS/TEN) versus two strategies without screening. A country-specific model was compared and modifed based on evidence reviews and multidisciplinary international team consensus to incorporate generalizable assumptions and parameter values. Input parameters requiring user-provided values were identified to reflect local conditions and real-world sensitivity analysis. The generic model was transparently documented, tested and cross validated by comparing its incremental cost-effectiveness ratio (ICER) results using country-specific input values to results of country-specific models from Thailand, Malaysia and Singapore for the same input values.

RESULTS: The base-case and probabilistic sensitivity analyses results for the generic and country-specific models for all 3 countries were consistent in terms of whether HLA-B*15:02 screening was cost-effective at the country-specific cost-effectiveness threshold value. Differences between the generic and country-specific model results were largely due to differences in model structure and assumptions. CONCLUSIONS: A generic pharmacoeconomic cost-effectiveness model is feasible, cost-effective and efficient tool to provide rapid and standardized evidence for decisionmaking reliably, more quickly and without staff extensively trained in decision modeling, as well as facilitate understanding what conditions can meet cost-effectiveness thresholds.

PN65
DEMографICs, CLINICAL CHARACTERISTICS, AND TREATMENT PATTERNS OF
HUNTINGTON DISEASE PATIENTS TAKING TETRAEBENAZINE FOR CHOREA:
FINDINGS FROM THREE DIFFERENT DATA SOURCES
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OBJECTIVES: Huntington disease (HD) is a multifaceted neurodegenerative disorder characterized by involuntary movements, specifically chorea. Tetraebenazine (TBZ), the only FDA-approved treatment in HD, has been shown to be efficacious for chorea control, although, tolerability concerns exist. This analysis aims to examine and compare demographics, clinical characteristics, and treatment patterns of HD patients with chorea who are prescribed TBZ from three different databases.

METHODS: Data were gathered from descriptive retrospective analyses of two large administrative data sets and one electronic health record (EHR) database, IBM Exploryx. Patients were identified from Optum or Truven if they had a claim of HD chorea (ICD 333.4) with continuous medical and prescription coverage pre- and post-index date (date of first TBZ claim) or from Exploryx using EMRs of patients diagnosed with HD with ≥ 1 TBZ prescription and complete dosing information. Discontinuation was defined as having ≥ 90-day therapy gap in both claims analyses and either switching or stopping TBZ in the following period in Exploryx. REsults: 2,077 and 2,047 patients with HD-chorea were identified from Truven and IBM, respectively, and approximately 1,200 patients from Optum. Less than 15% of patients identified from all three databases had any initiation of TBZ. Of those taking TBZ, there were no gender differences. TBZ discontinuation rates were 35% and 46% in the Truven and IBM databases, respectively. In the Exploryx analyses, 68% discontinued/switched from TBZ during study period. An increase in depression diagnosis after TBZ initiation was observed in all three analyses. CONCLUSIONS: Results were consistent in showing a low rate of treatment initiation and high rate of TBZ discontinuation in patients with HD-chorea, indicating an unmet need for an efficacious and tolerable treatment in these patients. Further research is needed to understand the reasons for low treatment initiation rates and high discontinuation rates with TBZ in the HD population.

PN66
TREATMENT PATTERNS IN TUBEROUS SCLEROSIS COMPLEX (TSC) PATIENTS
WITH RENAL ANGIOMYOLIPOMA AND SUBEPENDYMAL GIANT CELL
ASTROCYTOMA (SEGa)
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OBJECTIVES: TSC is a rare multi-organ disease, often with neurologic and renal complications. This study examined commercial and Medicaid insurance treatment patterns (everolimus, sirolimus, and surgeries) in TSC patients with renal angiomyolipoma or SEGa in the US. METHODS: Patients with ≥1 diagnosis of TSC and with renal angiomyolipoma or SEGa were extracted from the MarketScan® Commercial/Medicaid database (2005-8/31/2016), Optum (2012-8/31/2016) and Truven (01/01/2011-8/31/2016) databases. Patients were followed from index date (earliest TSC, renal angiomyolipoma or SEGa diagnosis) until inpatient death or end of data. The proportion of patients treated or not treated, and of initial treatment and subsequent treatment during the variable follow-up. RESULTS: The final sample included 1,497 TSC patients (n=896 renal angiomyolipoma only, n=411 SEGa only, and n=190 with both). Compared with commercial patients (n=896), Medicaid patients (n=513) had the same mean age (22 years), a higher proportion of males (50.3% vs. 42.9%), and a longer follow-up period (48 vs. 38 months). Treatment rates were similar between commercial and Medicaid (58.0% vs. 61.7%, p=0.182), but it took significantly more days for Meds and patients to initiate treatment (57 vs. 516 days, p=0.001). In the commercial cohort, among the 46.4% patients starting treatment with surgery, 33.7% had repeat surgeries and 16.2% switched to drug treatment; among the 11.0% patients starting treatment with a drug, only 4.4% had subsequent surgeries. In the Medicaid cohort, among 48.0% who started treatment with surgery, 57.8% had repeat surgeries and 10.2% switched to drug treatment; among the 14.4% patients starting treatment with a drug, 16.2% had subsequent surgeries. Analyses were conducted separately for patients with renal angiomyolipoma only, SEGa only, and both renal angiomyolipoma and SEGa. CONCLUSIONS: This analysis finds that only 58.0%-61.7% of TSC patients with renal angiomyolipoma or SEGa received treatments and Medicaid patients had a longer time to initiate treatment than Commercial patients.

RESPIRATORY-RELATED DISORDERS – Clinical Outcomes Studies

PR51
ASSESSING THE HOSPITAL READMISSION AND MORTALITY RATES AMONG
ELDERLY PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE
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OBJECTIVES: To evaluate the 30- and 60-day readmission and mortality rates of patients diagnosed with chronic obstructive pulmonary disease (COPD) in the US Medicare population. METHODS: Patients aged ≥65 years on the admission date with ≥1 stay between stay and a subsequent hospital discharge were included. The National Classification of Diseases 9th Revision Clinical Modification diagnosis codes: 490. xx, 491.xx, or 496.xx were identified using Medicare data from 01/01/2010 through 12/31/2015. The discharge date was designated as the index date. Patients were required to have continuous medical and pharmacy benefits for 1 year before the admission date and 2 months after the discharge date. Patients who died within 2 months post-discharge date were also included. Demographic and clinical characteristics were examined. Descriptive analyses were conducted at 30- and 60-month time periods. The 30- and 60-day readmission and mortality rates after discharge were computed. Descriptive analysis was performed, and mean and standard deviation were provided for continuous variables as well as numbers and percentages for categorical variables. RESULTS: A total of 279,768 patients were identified after
applying the selection criteria. The mean age of Medicare patients with COPD was 77.8 years (standard deviation [SD] = 7.7). Female (61.2%) and white (90.0%) patients were more prevalent in the database which Ricoiguat included in the study. The average Charlson comorbidity index score was 2.9 (SD = 2.7). Comorbid conditions: 59.6% of patients were smokers; 45.7% had moderate or severe renal disease, 40.5% had congestive heart failure, 39.2% had diabetes, and 37.5% had any malignancy. The 30-day hospital readmission rate was 20.3%, and the mean time-to-30-day-readmission was 12.5 days. The 60-day hospital readmission rate was 29.0%, and the mean time-to-60-day-readmission was 22.4 days. The 30- and 60-day mortality rates were high: 6.5% and 8.9%, respectively.

CONCLUSIONS: US Medicare patients diagnosed with COPD had significant hospital readmission and mortality rates in the 30 or 60 days following hospital discharge.

PR53

RESULTS OBTAINED IN PATIENTS TREATED WITH OMALIZUMAB IN COSTA RICA'S SOCIAL SECURITY (COSTA RICA SOCIAL SECURITY)

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OBJECTIVES: Omalizumab is an humanized antibody IgE, used in Caja Costarricense de Seguro Social for the treatment of severe persistent asthma with inadequate control with the available medicines, including inhaled corticosteroids. This study is aimed to assess the results obtained in patients treated with omalizumab in COSTA RICA SOCIAL SECURITY (CRSS) and increased for LABA cohorts (odds ratios [ARF vs LABA] 0.94, p = 0.427 for SABA or SAMA and 0.68, p = 0.0016 for SABA/SAMA usage). An increase in number of exacerbations and office visits was observed for the post-index period for both cohorts; increases in office visits were higher for the LABA than the ARB cohort (incidence rate ratios [ARF vs LABA] 0.87, p = 0.15 for exacerbations and 0.92, p = 0.012 for office visits). CONCLUSIONS: ARF treatment is associated with lower SABA/SAMA use and office visits compared with inhaled LABA treatment in community-based COPD patients and may represent a potential alternative treatment choice for inhaled LABAs.

PR54

RIOCIUGAT IN THE PHARMACOLOGICAL TREATMENT OF PULMONARY ARTERIAL HYPERTENSION: A SYSTEMATIC REVIEW

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OBJECTIVES: To perform a systematic review (SR) of the efficacy of pharmacological treatment of Pulmonary Arterial Hypertension comparing Ricoiguat with other available medications or with placebo. METHODS: Following the steps described in the PRISMA guideline, a search for randomized controlled clinical trials was conducted for patients which Ricoiguat used in combination with other therapies, in databases MEDLINE, LILACS, Web of Science, Science Direct, Cochrane Library Wiley and in the gray literature (Google Scholar, Capes Bank of Theses and Clinical Trials). Studies were included according to reference criteria analyzed were: death, 6-minutes walking distance (6MWD), WHO functional class improvement, stabilization or worsening, hemodynamic variables (pulmonary vascular resistance, cardiac index, pulmonary-artery pressure), clinical worsening, hospitalizations, in-dwelling lines and adverse events cases, categorized 379 after the duplicated articles withdrawal. After exclusion by title and abstract by two independent reviewers, 47 studies remained. Through the gray literature, 6 studies were obtained, counting 53 studies for full article review and the eligibility criteria were verified. Five studies were selected to compose the SR. Compared with placebo, Ricoiguat showed improvements in 6MWD, pulmonary vascular resistance, WHO functional class and time to clinical worsening, also maintained after one year of use. In summary, this review was not a systematic review of treatment give patients and patients on background PAH-targeted therapy. CONCLUSIONS: This work may be used as a management and decision support tool, based on the same rationality that imposed by the new clinical guidelines.
PRS7 COMPLIANCE WITH A QUALITY MEASURE AND INCORPORATION OF AN EVIDENCE-BASED PRACTICE IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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OBJECTIVES: To assess the prevalence and study e-cigarette (e-cig) user characteristics among Chronic Obstructive Pulmonary Disease (COPD) patient population in the United States. METHODS: The National Health Interview Survey (NHIS) data were used to generate weighted prevalence estimates. Using NHIS sampling weights to generate data representative of the US adult civilian noninstitutionalized population with age ≥ 18 years (Weighted N = 239,688,457). COPD individuals were those who responded yes to the question “Have you ever been told by a doctor or other health professional that you had chronic obstructive pulmonary disease, also called COPD?” Current e-cig users were those using e-cigs for ever use. RESULTS: Of 56,055 patients who met inclusion criteria, 4,512 (8.0%) received an inhaled corticosteroid and bronchodilator, 202 (0.36%) received systemic macrolide therapy, and 41 (0.07%) received both interventions. Within six months of index-date exacerbation, 7,987 (14.25%) patients experienced another exacerbation. Usage was higher among current smokers and those who wanted to quit tobacco smoking.

PRS8 PREVALENCE AND CHARACTERISTICS OF E-CIGARETTE USERS AMONG COPD PATIENT POPULATION IN THE UNITED STATES

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OBJECTIVES: To estimate the prevalence and study e-cigarette (e-cig) users among COPD subjects evaluated were age, sex, race, census region, marital status, current smoking status, type of employment, number of current jobs, smoking status, BMI, current use of combustible or smokeless tobacco products, and quit attempt. Chi-squared tests were used to compare the data. RESULTS: Out of 404 students were enrolled in the study. The vast majority of our cohort were aware (87%) of COPD, proportion of use were found to be higher (P < 0.026) were significant compared with Tiotropio (TIO), Indacaterol/glicopirronio (QVA149), Indacaterol/Tiotype (IND+TIO) and Fluticasone/Salmeterol (FCS) as maintenance bronchodilator therapy. CONCLUSIONS: Usage was higher among current smokers and those who wanted to quit tobacco smoking. The results of our analysis employed NHIS sampling weights to generate data representative of the overall US population. RESULTS: Bivariate analysis, receipt of macrolide therapy was associated with nationality, gender, race, mother education. After controlling for the effects of confounders using binary logistic regression, e-cigarette users were more likely to be male, Malay, and being a child of less educated father. Moreover, SSb total score (aOR = 1.20, P < 0.001), conventional cigarette use (aOR = 1.79, P = 0.002), hookah use (aOR = 8.51, P < 0.001), and cigarette smoking for parents (aOR = 0.30, P = 0.008) were significantly contributing to the ever use of e-cigarette. CONCLUSIONS: The prevalence of e-cigarette use was moderately high among students enrolled in health science program compared to the general student population in Malaysia. In this study, it would be useful for health science students to explore their inner position toward e-cigarette smoking. Whether they smoke because they ignore the risk or because they don’t even seek it or do they accept the risk but procrastinate the attempt to quit.

RESPIRATORY-RELATED DISORDERS – Cost Studies

PRS10 ADDING RESLIZUMAB TO U.S. MANAGED CARE FORMULARY FOR TREATMENT OF SEVERE EOSINOPHILIC ASTHMA RESULTED IN NET TOTAL COST SAVINGS

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OBJECTIVES: Reslizumab, a humanized interleukin-5 monoclonal antibody, is a new treatment to reduce the risk of clinical asthma exacerbations (CAE) in patients with severe eosinophilic asthma. A budget impact model was developed to assess the economic impact of adding reslizumab to existing severe eosinophilic asthma treatment from the perspective of a U.S. managed care organization (MCO). METHODS: A hypothetical MCO with 1,000,000 members was used in the model. The model structure was based around the current clinical pathway of patients eligible for treatment with reslizumab. Prevalence of severe eosinophilic asthma was estimated using age-specific prevalence data from the Centers for Disease Control and Prevention, US census demographic data and published literature. CAE, relative risk reduction of CAE associated with reslizumab, use of CAEs, and costs, and data were taken from published literature. The model accommodates a 5-year time horizon. Sensitivity analyses were performed using the upper and lower limits of 95% confidence intervals for the CAE rate and the relative risk reduction 20% to 50% from the published literature. When reslizumab was included as a treatment option to a 1,000,000-member health plan, the base-case model resulted in an overall cost savings of $862 in year 1, $7,150 in year 1, $12,911 in year 4, $25,937 in year 5. Total cost savings were due to lower drug costs of reslizumab compared to omalizumab and mepolizumab and medical cost offsets from reduction of CAE. Sensitivity analyses showed that the result was most sensitive to the relative risk reduction estimates and the CAE rate. Conclusions: When reslizumab was included as a treatment option among health plan members, total cost of patients whose cost of treatment is already high.

PRS11 COST-EFFECTIVENESS AND BUDGET IMPACT ANALYSIS OF UMEC/VI FOR THE TREATMENT OF COPD PATIENTS IN COLOMBIA

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OBJECTIVES: To evaluate the cost-effectiveness and budget impact of UMEC/VI compared with Tiotropio (TIO), Indacaterol/glicopirronio (QVA149), Indacaterol/Tiotropio (IND+TIO) and Fluticasone/Salmeterol (FCS) as maintenance bronchodilator therapy in patients aged ≥ 40 with moderate to severe COPD from the Colombian National Health System (NHS) perspective. Umeclidinium/vilanterol (UMEC/VI) is a long-acting beta 2 receptor antagonist (LABA).

METHODS: A hypothetical MCO with 1,000,000 members was used in the model. The model structure was based around the current clinical pathway of patients eligible for treatment with reslizumab. Prevalence of severe eosinophilic asthma was estimated using age-specific prevalence data from the Centers for Disease Control and Prevention, US census demographic data and published literature. CAE, relative risk reduction of CAE associated with reslizumab, use of CAEs, and costs, and data were taken from published literature. The model accommodates a 5-year time horizon. Sensitivity analyses were performed using the upper and lower limits of 95% confidence intervals for the CAE rate and the relative risk reduction 20% to 50% from the published literature. When reslizumab was included as a treatment option to a 1,000,000-member health plan, the base-case model resulted in an overall cost savings of $862 in year 1, $7,150 in year 1, $12,911 in year 4, $25,937 in year 5. Total cost savings were due to lower drug costs of reslizumab compared to omalizumab and mepolizumab and medical cost offsets from reduction of CAE. Sensitivity analyses showed that the result was most sensitive to the relative risk reduction estimates and the CAE rate. Conclusions: When reslizumab was included as a treatment option among health plan members, total cost of patients whose cost of treatment is already high.

prs12 ECONOMICAL IMPACT OF TREATMENT WITH OMAлизУМAB IN COSTA RICAN PRIMARY CARE

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OBJECTIVES: To assess the budget impact generated by the use of Omalizumab in Caja Costarricense de Seguro Social (CCSS) and to estimate the cost effectiveness


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of the intervention in Costa Rica’s Social Security. METHODS: Based on the effectiveness study previously conducted, that demonstrated that giving treat-
maintenance to patients with uncontrolled severe asthma in Costa Rica’s Social Security, significantly improves their clinical condition after 6 months, we collected information on the amount of units of Omalizumab bought and costs. Then, we conducted a model (decision model) to evaluate the cost of clinical management of a patient with severe asthma with and without Omalizumab, using effectiveness data in clinical practice documented in CCSS. Cost data for medicines was obtained from the price paid registered in CCSS database, hospitalization cost and Emergency Room (ER) attention costs were obtained from the CCSS institutional tariff model. RESULTS: Between January 2012 and December 2014, a total of 33 patients received omalizumab, with a total consumption of 570.224.01 of drug. Last registered dose (vial with 150mg) price in December 2015 was US$553.93. In the base case scenario modeled, that considered a 4-day hospitalization time and 7-hour ER attention, the cost of treatment per patient without Omalizumab was US$14,526.4, and with Omalizumab it was US$13,779.43, saving US$747 using Omalizumab – a cost-effectiveness ratio of US$633 per hospitalization avoided (cost saving technol-
ology). In the most pessimistic scenario in the sensitivity analysis conducted, that considered no hospitalizations avoided neither ER attentions avoided, there was an incremental cost of US$13,271.4, that represents about 1.31 times Costa Rica’s GDP per capita (US$10,100 in 2015). CONCLUSIONS: Considering effectiveness in clinical practice, omalizumab is a cost-saving technology when prescribed to patients with uncontrolled severe allergic asthma in Costa Rican Social Security.

PRS13 IMPACT OF IMPROVED STOVE ON COST OF ILLNESSES THAT ARE RELATED TO HOUSEHOLD AIR POLLUTION IN PAKISTAN Malik A, Fatmi Z, Jamal T, Aga Khan University, Karachi, Pakistan

OBJECTIVES: Use of biomass fuel for household cooking is one of the major sources of household air pollution. In low and middle income countries, improved stoves have been introduced to control air pollution and reduce burden and economic burden of respiratory and other related illnesses. The objective of this paper is to estimate the cost of respiratory and other related illnesses in households that used traditional stove versus improved stove. METHODS: We collected data from 605 household (217 treated, 388 control) in Sindh and Punjab provinces in September 2014. We estimate cost of medical care for treated and control households due to respiratory illnesses and eye illnesses in the women and children using the women and children health survey database; hospitalization cost and Emergency Room (ER) attention costs were obtained from the ECLIPSE and TORCH studies, respectively (Briggs A, et al. Med Decis Making 2016). Treatment effects (mean [standard error]) at 12 weeks on forced expiratory volume in 1 second and St George’s Respiratory Questionnaire score were obtained from two UMEC head-to-head studies: +33 mL [4.3] and -0.64 units [0.48] respectively (Kheal R, et al. ERJ Open Res 2016). We recruited 611 patients across treated and control groups. RESULTS: We conducted a prospective study during August 2013-July 2014 in a public tertiary referral hospital. We enrolled sequentially COPD patients with dose inhaled corticosteroids and at least two hospitalizations within a six-month period. Resource utilization was calculated and resource costs were obtained from the official Brazilian procedure table (SIGTAP). Resource utilization that could not be derived from the literature and premature deaths were obtained through the Brazilian social security database. We screened 577 unique patients with an average daily consumption of 2,121 micro-
grams of budesonide and 57 micrograms of formoterol, and the hospitalization rate was 2.65 per patient-year. The calculated total direct costs incurred by the total severe uncontrolled population in Brazil was BRL 24.8 million, of which, 78% are due to hospitalizations and 17% due to drug dispensation. The calculated indirect costs were BRL 416.2 million, of which, 90% are due to prematurity deaths and 10% in current and future discounted human capital costs. CONCLUSIONS: Despite relatively low direct costs, severe uncontrolled asthma is a disabling and life-threatening disease, responsible for substantial indirect costs.
average £57,818 per event, with the mean length of stay of 5.87 days. The cost per hospitalization increased 100.3% during the studied period (262.496 to £54,044). The mean annual length of the stay by the end of 15 years. Total costs for hospitalizations for COPD among regions in Brazil increased in the North (+25.1%), Northeast (+20.8%) and Southeast (+22.2%) and decreased in the South (-31.6%) and Midwest (-15.7%) regions. CONCLUSIONS: The cost of hospitalization for COPD has an important economic impact on the health-care system in Brazil. There is a trend to increase in the North, Northeast and Southeast regions, reflecting difficulties of the health system to provide adequate management of COPD patients. Unmet health care needs and the high status in patients with COPD should be considered in short and medium-term.

PRS18
DETERMINATION OF DIRECT COSTS OF THE PULMONARY ARTERIAL HYPERTENSION TREATMENT IN COLOMBIA
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OBJECTIVES: To develop a costing exercise that allows comparing the direct costs in each functional class (FC) I to IV, of Pulmonary Arterial Hypertension (PAH) from perspective of the third-party-payer. METHODS: PAH is a disease with a very low prevalence in Colombia, high rate mortality and deterioration in HRQoL, make it to be one of the most important diseases. The treatment cost of a patient with PAH varies considerably according to the disease progression, mainly influenced by the hospital and pharmacological costs that it requires. Treatment cost for patient during a year of staying in each FC of the disease were estimated, according to WHO classification, pharmacological costs for each stage were included taking into account the clinical recommendations observed in the SEPAR-ALAT2 guide. A literature review was carried out to compare information in treatment scheme necessary to the patient. The analysis was made in an average patient of a year of treatment, these costs include outpatient, hospital management, medication support, and medical consultations required, the exercise allows to evidence a high cost in FC IV, this being US $ 7,189 per month, while in FC-II and III costs are US $ 2,950 and US $ 2,918 per month respectively, a patient over a year of treatment would represent a cost of US $ 294 per month. CONCLUSIONS: The results of the exercise demonstrate the need to concentrate the focus of patient care, to avoid its progressive progression to IV class, which represents a high cost to health system. In addition to this, the progressing patient represents a higher occupation of hospital resources, which also implies a considerable deterioration in HRQoL.

PRS19
ECONOMIC IMPACT OF EXACERBATIONS DUE TO CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS IN THE PERSPECTIVE OF BRAZILIAN PRIVATE HEALTHCARE SYSTEM
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OBJECTIVES: To evaluate the economic burden exacerbations due to COPD in the Brazilian private healthcare system. METHODS: The Oricon database is an administrative data database containing all lives of the Private System. Eligibility criteria were patients with ≥40 years with the ICD-10 codes: J41, J40, J41, J42, J43, J44, J45, J46, J47, J48, J49, J440 from 2010 to 2015. A total of 11,345 patients were identified and costs related to hospitalization or outpatient treatment were analyzed using an exchange rate of 1 USD = 3.22 BRL. RESULTS: From 2010 to 2015 we observed an increasing cost per event (impact years), ranging from USD 4,228 in 2010 to USD 9,398 in 2015. Raising costs may be explained, at least in part, because of Brazilian annual currency inflation. The direct medical costs of hospitalized patients was much higher than outpatient treatment. The mean outpatient exacerbation treatment cost was USD 102.61 while the inpatient treatment, the mean cost was USD 9,398. CONCLUSIONS: The cost of exacerbations due to COPD increased in the North, Northeast and Southeast regions, ranging from USD 4,228 in 2010 to USD 9,398.72 in 2015. Raising costs may be explained, at least in part, because of Brazilian annual currency inflation. The direct medical costs of hospitalized patients was much higher than outpatient treatment. The mean outpatient exacerbation treatment cost was USD 102.61 while the inpatient treatment, the mean cost was USD 9,398.72 per month, in FC-II and III costs are US $ 2,950 and US $ 2,918 per month respectively, a patient over a year of treatment would represent a cost of US $ 294 per month. CONCLUSIONS: The results of the exercise demonstrate the need to concentrate the focus of patient care, to avoid its progressive progression to IV class, which represents a high cost to health system. In addition to this, the progressing patient represents a higher occupation of hospital resources, which also implies a considerable deterioration in HRQoL.

PRS20
ASSESSING THE ECONOMIC BURDEN AND 30-DAY READMISSION RATES AMONG PATIENTS WITH PNEUMONIA IN THE US VETERANS HEALTH ADMINISTRATION POPULATION
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OBJECTIVES: To assess health care costs, 30-day readmission rates, and predictors of 30-day readmission among patients with pneumonia in the US Veterans Health Administration (VHA) population (01OCT2010-30SEP2015). METHODS: Patients included the VHA population for diagnosed with pneumonia (International Classification of Disease, 9th Revision, Clinical Modification codes 480-486) were identified during the identification period (01OCT2011-30SEP2014). The initial diagnosis date was designated as the index date. Patients without a pneumonia diagnosis, but with the same age, race, and gender as study pneumonia patients were identified for comparison. For control patients, the index date was randomly selected to minimize selection bias that might have been required to have specific medical and pharmacy benefits for 1 year pre- and post-index date. Health care costs and 30-day readmission rates during the 1-year follow-up period were compared among 1:1 matched patients with and without pneumonia. Logistic regression was used to examine the predictors of 30-day readmission. RESULTS: After matching, there were 165,849 patients in each group. Compared to patients without pneumonia, those with pneumonia incurred higher inpatient ($32,134 vs $860; p < 0.0001), outpatient ($6,092 vs $1,963, p < 0.0001), and total costs ($61,167 vs $2,764; p < 0.0001) as well as a higher 30-day readmission rate (33.4% vs 0.5%; p < 0.0001). The likelihood of 30-day readmission was lower among patients aged 18-64 years versus ≥65 years (odds ratio [OR]: 0.9; p < 0.0001) and higher among male (OR: 1.2; p < 0.0001), black (OR: 1.4; p < 0.0001), and white patients (OR: 1.3; p < 0.0001) compared to those of other races and those with higher Charlson comorbidity index (CCI) scores (OR: 1.1; p < 0.0001). CONCLUSIONS: Patients with pneumonia had significantly higher 30-day readmission rates and economic burden than those without pneumonia. Age, gender, race, and CCI score were significant predictors of 30-day readmission.

PRS21
MEDICAL, ABSENTEEISM, AND MORTALITY COST OF ASTHMA IN THE UNITED STATES
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OBJECTIVES: The cost of asthma is an important measure of the impact of the disease on society. Presenting the burden of the disease in monetary terms provides critical information to decision makers for better allocation of healthcare resources. In this paper we provided estimated medical costs, productivity costs, and costs of absenteeism (missed school and workdays) and mortality attributable to asthma using the most recent data available. METHODS: The primary source of data for this study was the 2008-2013 household component of the Medical Expenditure Panel Survey (MEPS). We used a 30-day cumulative model to estimate annual per person medical expenditure and negative binomial models to estimate asthma-related absenteeism. We applied a human capital approach to measure the value of 0.529 lost school days annually which represents more than 8.6 million work and more than 5.1 million school days lost nationally due to asthma, for a total loss of $2.9 billion. The total cost of asthma was $62.6 billion, of which $57.9 billion was for medical expenditures and $4.7 billion was attributed to absenteeism and mortality. CONCLUSIONS: The cost of asthma represents a significant economic burden in the United States. Our study results highlight the urgent need to improve and continue strategies to prevent and control asthma, and thereby reduce its economic burden.

PRS22
PREVALENCE AND TREATMENT COST OF NON-COMMUNICABLE DISEASES RELATED TO SMOKING IN INDONESIA
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OBJECTIVES: This study aimed to estimates the current incidence and treatment cost of 19 diseases. Proportion of smoking attribution toward diseases and treatment cost due to smoking were calculated using smoking attributable fraction (SAF) formula, using the prevalence of smoking and relative risk of each disease on society. Presenting the burden of the disease in monetary terms provides critical information to decision makers for better allocation of healthcare resources. In this paper we provided estimated medical costs, productivity costs, and costs of absenteeism (missed school and workdays) and mortality attributable to asthma using the most recent data available. METHODS: The primary source of data for this study was the 2008-2013 household component of the Medical Expenditure Panel Survey (MEPS). We used a 30-day cumulative model to estimate annual per person medical expenditure and negative binomial models to estimate asthma-related absenteeism. We applied a human capital approach to measure the value of 0.529 lost school days annually which represents more than 8.6 million work and more than 5.1 million school days lost nationally due to asthma, for a total loss of $2.9 billion. The total cost of asthma was $62.6 billion, of which $57.9 billion was for medical expenditures and $4.7 billion was attributed to absenteeism and mortality. CONCLUSIONS: The cost of asthma represents a significant economic burden in the United States. Our study results highlight the urgent need to improve and continue strategies to prevent and control asthma, and thereby reduce its economic burden.

PRS23
CALCULATION OF YEARS OF LIFE LOST (YLL) CAUSED BY TUBERCULOSIS ILLNESS IN MONGOLIA
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OBJECTIVES: In Mongolia, tuberculosis is the sixth cause of death among all death causes, and first reason of death which caused by infectious diseases. Any research and calculation on YLL caused by tuberculosis were not
conducted. Objective of the study was to estimate YLL caused by tuberculosis among Mongolian. METHODS: In this analysis we used data of population illness burden of tuberculosis in 2015. The YLL calculation method was used, as which WHO uses for YLL calculation. The analysis of social and economic lost accumulated from GDP per person. In 2015, the average life expectancy of population was 70.4 years, and the average GDP in that year was $3,943.00. RESULTS: In 2015, about 240 people have died due to pulmonary and extra-pulmonary tuberculosis and 177 of them were male and 63 of them female. Consequently, the YLL calculated as 6085 and 3 person per 100,000 population died due to pulmonary and extra-pulmonary tuberculosis. Based on GDP per capita, economic cost equals to $23,993,155.00. CONCLUSIONS: In 2015, preventable YLL caused by tuberculosis was equal to 6085. Furthermore, YLL high in 25-49 age group was recorded. Therefore, the middle age group comprises the main national human resource and it is causing greatness in our country.

PR505

COST-EFFECTIVENESS OF ROFLUMILAST AS ADD-ON TO TRIPLE INHALED THERAPY VERSUS TRIPLE INHALED THERAPY IN PATIENTS WITH SEVERE AND VERY SEVERE CHRONIC OBSTRUCTIVE PULMONARY DISEASE ASSOCIATED WITH CHRONIC BRONCHITIS IN THE UK


OBJECTIVES: To assess the cost-effectiveness of roflumilast (Rof) added to triple inhaled therapy (ICS/LABA/LAMA) versus ICS/LABA/LAMA alone in UK patients with severe chronic obstructive pulmonary disease (COPD), chronic bronchitis and ≥2 moderate or severe COPD exacerbations in the past year. Data used were from the phase 3b/4 clinical trial REACT’s (NCT01329029) valid cases set, as a proportion of REACT patients did not meet the licence criteria for Rof. METHODS: An Excel-based cohort state transition (Markov) model estimated total costs and outcomes over 40 years from a UK National Health Service and Personal Social Services perspective. The model has three GOLD-based states: severe COPD, very severe COPD, and death. All patients enter in the severe state and there is an irreversible transition from severe to very severe COPD. Background rates of moderate and severe exacerbations were estimated from published articles and adjusted on basis of disease severity and treatment in the trial sub-population treated with triple therapy. Published health-related quality of life weights were applied to health states and exacerbations to generate quality-adjusted life years (QALYs). Results were expressed as incremental gains for Rof at £2996 per QALY gained. List prices for drugs were used. RESULTS: Rof reduced the annual rate of exacerbations (moderate or severe) compared with ICS/LABA/LAMA alone (rate ratio [RR] 0.80, p=0.0117). There was a greater reduction in rates of severe (RR: 0.66, 95% CI [0.45, 0.93]), moderate (RR: 0.89, p=0.047) exacerbations. Rof treatment resulted in the avoidance of >1 severe and 0.6 moderate exacerbations per patient. Approximate incremental gains for Rof were 0.17 QALYs at £2996 per patient per year and 0.12 QALYs per patient per QALY (£2996) treatment with a 70% probability of being cost-effective at a £20,000/QALY threshold. ROF remained cost-effective under several different sensitivity analyses, and also had favorable cost-effectiveness when evaluated in patients with very severe COPD. CONCLUSIONS: Rof as add-on to ICS/LABA/LAMA is cost-effective for patients with severe COPD and frequent exacerbations.
for different patients group according to COPD severity. RESULTS: 147 (34.5%) out of all 426 enrolled COPD patients were employees and more than half of them (53%) worked full work. The average number of missed working hours per patient per year was 192 (24 days). The average reduced productivity was approximately 65.5% and the earlier retirement was reported by 56 patients. Indirect costs per patient generated due to reduced productivity were much higher than the indirect costs generated due to absenteeism – 3750.64 euro (SD=854.11) vs 521.45 euro (SD=380.15) per patient, respectively. The highest indirect costs per patient were associated with premature retirement – 25 353 euro (SD=436.50). The indirect costs are higher in the patients groups with more severe disease which is statistically significant (p<0.05). CONCLUSIONS: COPD has significant indirect costs. With the progression of the disease the indirect costs increased and mostly that for the lost productivity.

ECONOMIC PERSPECTIVE

OBJECTIVES: Conventional economic analyses excludes important economic gains attributed to smoking cessation therapy. In addition to smoking-attributable mortality and morbidity from quitting smoking, there is an established relationship between smoking and reduced productivity and wage effects.

In this prototype analysis we assess how public investments in smoking cessation that achieve a single smoking abstinence can influence public government revenue and social transfers costs in Taiwan.

METHODS: A modified generational accounting framework was developed to assess relationships between smoking attributed morbidity and mortality and public economic consequences including lifetime tax revenue gains. The generational accounting framework was used to determine the current prevalence of smoking in Taiwan, a cohort model was developed for smokers, former-smokers and non-smokers.

The model simulated the lifetime discount of smoking individuals treated for five year age bands, and the benefit-cost ratio (BCR) of smoking cessation investments. Comparable models were built for males and females based on 2016 Taiwanese dollars (NTD). RESULTS: For different age cohorts of male smokers, those who quit smoking had a key increase in lifetime earnings of NTD127,150 ranging from NTD120,000 for those aged 25-30, and NTD28,500 for those aged 61-65. The average present value of additional lifetime tax was NTD24,350, with a difference of NTD0.775 in lifetime health costs between smokers and former smokers. The average lifetime earnings loss and average tax gains in females was NTD108,680, and NTD20,810, respectively. The BCR ratio based on treatment costs ranged from 1.13 - 1.36 for male smokers. Similar BCR ratios were identified for female smokers. CONCLUSIONS: We demonstrate that lifetime tax revenue gains are greater from investments in smoking cessation compared with the tobacco tax revenue loss in those aged 25 – 65 in males and females. Lifetime tax revenue gains were greater in older aged persons indicating that early intervention offers more fiscal benefits.

RESPIRATORY-RELATED DISORDERS – Patient-Reported Outcomes & Patient Preference Studies

PRS31 TARGETED LITERATURE REVIEW OF ADHERENCE TO THERAPIES IN CYSTIC FIBROSIS (CF)

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OBJECTIVES: To assess adherence to different CF therapies, association of adherence with outcomes, and factors influencing adherence. METHODS: A targeted literature review of studies published from 2010 to 2016. An article was retrieved for full review if the abstract met each of the following criteria: referred to adherence of CF therapies; named,inhaled treatments, oral treatments, airway clearance therapy (ACT) and other mode of treatment; with a sub-group of patients with sub-optimal adherence. RESULTS: A total of 19 studies qualified for inclusion. Overall long-term (<12 months) adherence to ivacaftor is high but it is low for other CF treatments such as antibiotics, dornase alfa, hypertonic saline, pancreatic enzymes (PE), airway clearance therapy (ACT) and vitamins. Patients are more adherent to inhaled therapies compared to oral therapies such as PE and vitamins, and among inhaled treatments, more patients are adherent to tobramycin inhalations at 12 months than dornase alfa or hypertonic saline. Adherence to ivacaftor is high but it varied by treatment, as reported on the MMAS (rho 0.17-0.66), chi square tests, respectively at P<0.05. CONCLUSIONS: Smoking is one of the leading risk factors in the development of several diseases worldwide. The aim of the study was to analyse the effect of the Law amendment among healthcare professional employees from the Heart Institute of the University of Pécs, and also to measure how it affected smoking behaviour. METHODS: The research was based on a cross-sectional study with quantitative methods. At baseline, N=161 employees were enrolled from the Heart Institute of the University of Pécs. N=155 were still included in the analysis. The subjects were asked to fill in a self-made questionnaire. The questions were centered around five topics: socio-demographic characteristics, smoking behaviour, environmental tobacco smoke exposure, awareness of negative effects for health and attitude related to control policy. The analyses were made with MS Excel 2007/2010 and SPSS software. The analyses include t-tests, chi square tests, linear regression, and ANOVA. RESULTS: The main challenges concerning the future regulations of the Law modification as opposed to smokers was proved with significant difference (P=0.0002368; P<0.05). A marked difference was also found with respect to the rating of passive smoking among smoker, and non-smoker healthcare professionals (P=0.01514, P<0.05). Tobacco use among smoker employees has not changed. While some of the subjects reduced the amount of cigarettes they smoked daily, others continued to go through the same amount. To summarise, no change has been recorded (P=1, P<0.05). CONCLUSIONS: Smoking continues to be the main public health issue in our country, requiring continuous action in the future. Another Law amendment is going to be introduced by the government to control the packaging of the cigarettes. Further more research should be conducted with a focus to measure the efficiency of the newer Law modifications.

PRS33 INHALER CONFIDENCE AND SATISFACTION AMONG CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) PATIENTS WITH COMORBIDITIES – A COMPARISON OF HAND-HELD VERSUS NEBULIZED MAINTENANCE BRONCHODILATORS

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OBJECTIVES: Hand-held (HH-LA) or nebulizer (Neb-LA) devices are traditionally used to deliver long-acting bronchodilators for maintenance treatment of COPD. However, a significant proportion of COPD patients with cardiovascular and neurological (CV&N) comorbidities may have low confidence in operating hand-held inhaler devices as instructed. This study compared patient-reported confidence and satisfaction with device use and their association with other PRQ among COPD patients with ≥1 CV&N comorbidities treated with HH-LA or Neb-LA. METHODS: Data from 2015 Adelphi US Respiratory Disease Specific Programme, a nationally representative survey of a panel of patients with physician diagnosis of respiratory disease, N=909. Neb-LA use was overrepresented in the COPD population, Neb-LA patients were oversampled (n=204) to augment the sample size. CV&N comorbidities included Alzheimer’s, dementia, Parkinson’s, cerebrovascular disease, congestive heart failure and coronary artery disease. PRQs included: (i) confidence and satisfaction with inhaler device, (ii) Morisky medication adherence scale (MMAS) and (iii) COPD assessment test (CAT). Categorical and continuous outcomes variables were tested using chi-square and independent samples t-test, respectively at P<0.05. RESULTS: Of 909 COPD patients, 28.7% had ≥1 CV&N comorbidities (160/705 on HH-LA; 101/204 on Neb-LA). Baseline characteristics were comparable between patients treated with HH-LA or Neb-LA (P=0.26). A significantly higher proportion of Neb-LA than HH-LA patients in this sub-group reported being ‘very’ or ‘completely’ confident (73.7% vs. 55.2% p=0.034) and ‘very’ or ‘extremely’ satisfied (86.8% vs. 66.1%; p=0.01) with using their device. Greater confidence with use of Neb-LA in this sub-group was associated with better adherence, as reported on the MMAS (rho=0.30, p=0.02) but not CAT (rho=0.07). CONCLUSIONS: In this survey of COPD patients with cardiovascular or neurological comorbidities, use of Neb-LA was associated with greater patient reported confidence and satisfaction with device use as compared to treatment with HH-LA. Greater confidence was also associated with better adherence for Neb-LA patients.

PRS34 Salford Lung Study in Chronic Obstructive Pulmonary Disease (COPD): Follow-Up Interviews on Patient-Facing Extenders

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OBJECTIVES: To explore the experiences of participants in SLS COPD (an open-label study comparing fluticasone furoate/ vilanterol versus usual care in COPD) 1) METHODS: Subsamples of patients completing SLS COPDusual care. Interviews were conducted face-to-face and included closed-ended study-specific questions on: background/lifestyle, COPD symptoms/daily life impact, environmental/temporal trigger factors, self-management/disease awareness, control, exacerbation experience, specific dimensions of disease impact. Experi- ences were recorded in written format, face-to-face) included the closed-ended plus additional open-ended questions. Qualitative data were analysed descriptively, qualitative data were
respiratory-related disorders – health care use & policy studies

prs7
the patients’ cost of the montelukast therapy
kepaly b1, csákvári t2, vajda k1, kovács g3, horváth l1, endrei d1, boncz l1
university of pés, pés, hungary, university of pés, zalagyar, hungary, 2zucchiény istván university, győr, hungary

objectives: the aim of our study is to analyze the public price of the montelukast sodium therapy in Hungary within the generic competition.

methods: data derived from the nationwide pharmaceutical database of Hungarian National Health Insurance Fund Administration. we analyze the annual turnover and price of the medications containing the active substance montelukast sodium from 2007 to 2016. we constructed: cost of therapy, co-payment, quasi co-payment, dpt (days of treatment).

results: before the appearance of generic medications (october, 2011), the public price of the brand-name singular 10 mg tablets was 7 usd on (lifed category legal title). due to the blind bid methods of the hungarian national health insurance fund administration the public price of singular decreased to 1.5 usd in january, 2013. the public price of the generic drugs started from about 2 usd (october, 2011) and decreased to about 0.7 usd (april, 2013). due to the increasing dpt the total amount of the public price paid by the patients had increased until 2011, it reached the amount of 1 million usd, then due to the generic competition and its prolonged effects it decreased to 490.000 usd. the total amount of public price of the brand-name singular moved to the generics during 3 years (2011-2014). the dct of the originator singular 10 mg tablets decreased from 0.67 usd to 0.16 usd. no significant decrease was observed for the generic montelukast.

conclusions: due to the availability of the patients’ access to drugs containing montelukast sodium increased significantly.

prs38
correlates of marijuana use within the past year among adults in the united states
adji bokéyé e1, osazuwa-peters n2, li x1, tutlam n3, tobo bb, burroughs te1, buchanan pm1
1saint louis university center for outcomes research (slucor), saint louis, mo, usa, 2saint louis university, saint louis, mo, usa, 3saint louis university, saint louis, mo, usa

objectives: to examine the correlates of marijuana use in the past 12 months among us adults. methods: data from 2013-2014 national survey on drug use and health, a cross-sectional nationally representative survey, identified 64,901 adults aged 21 and above. outcome variable was self-reported marijuana use in the past 12 months. independent variables included gender, smoking, marijuana use, other illicit drug use. weighted, multivariate logistic regression models were constructed to examine the association between independent variables and marijuana use. results: the prevalence of past-year marijuana use among respondents was approximately 12%. in the adjusted model, there was a dose response association between age and marital status and marijuana use. respondents who were 35-49 years old (aor = 1.13; 95% ci: 1.21 - 1.55) and 21-34 years old (aor = 2.89; 95% ci: 2.57 - 3.26) were more likely to have used marijuana in the past year compared to those who were 50+ years as were widowed/divorced/separated (aor = 1.27; 95% ci: 1.11 - 1.45) and never married (aor = 2.14; 95% ci: 1.95 - 2.35) compared married respondents. past-year users were more “likely of use” compared to non-users (aor = 11.4; 95% ci: 10.4 - 12.4), and black (aor = 1.32; 95% ci: 1.18 - 1.47) versus white. past-year users, in addition to frequent marijuana use, also were more likely to smoke cigarettes within the past year and use other illicit drugs such as cocaine within the past year. men, blacks, and individuals with more mental health problems or other substance users were more likely to use marijuana. comprehensive screening, treatment for use of multiple substances, and additional research and patient education on the possible harms of marijuana use are needed. primarily in the age of increasing policy changes, at the state level, around the legalization of marijuana, these findings may have important public health implications.

prs39
predictors of nebulized arformoterol use: a retrospective analysis among medicare beneficiaries with chronic obstructive pulmonary disease
gilmert tp1, ganapathy v2, xu z1, celli br3, sharka g4, cho Reyes s5, navare m6
1university of california san diego, la jolla, ca, usa, 2sunovion pharmaceuticals inc., 3baylor scott & white health, austin, tx, usa, 4university of texas medical branch, galveston, tx, usa, 5advance health solutions, llc, san diego, ca, usa, 6advance health solutions, llc, new york, ny, usa

objectives: to evaluate predictors of nebulized long-acting beta agonist (laba) orformoterol (brovana) use among medicare beneficiaries with chronic obstructive pulmonary disease (copd). methods: this retrospective cohort study used medicare administrative data from 2010-2014 to identify beneficiaries with ≥2 copd outpatient visits with ≥2 ICD-9-CM codes corresponding to chronic obstructive pulmonary disease (ICD-9-CM codes: 491.xx, 492.xx, and 496). inclusion criteria required beneficiaries to have ≥2 copd medication claim(s) and continuous enrollment in medicare parts A, B, and D. after excluding deaths, beneficiaries who initiated brovana (study group, n = 450,178) to examine the relationship between having copd and the use of brovana. methods: logistic regression analyses were employed to examine predictors of brovana use. odds ratios, 95% confidence intervals, and p-values were computed. results: in this analysis, 91% were Caucasian (91%), 60% were female, and 36% were dual-eligible. mean age was similar among brovana users (72.2 ± 10.1 years) and controls (72.3 ± 10.2 years). beneficiaries were more likely to receive brovana if they were using LAMAs (OR = 1.1, 95% CI: 1.1, 1.2), inhaled SABAs (OR = 1.1, 95% CI: 1.1, 1.2), systemic corticosteroids (OR = 1.5, 95% CI: 1.4, 1.6), or

analysed by qualitative descriptive approach. results: 400 patients were interviewed (standard, n = 360; extended, n = 40). mean age (SLS COFP entry-follow up interview) among gender and gender (53.3%) were reasonably represented with changes observed in patients completing SLS COFP, 37% were current smokers. Breathlessness was the most frequently reported COFP symptom (88.5%) and the most improved/worsened (26.8%) in patients with qualitative analysis revealed hospital impact differentially and impact differentially among asthma patients. this three-cell, randomized, double-blind taste test was conducted among 985 adult smokers at 23 shopping malls throughout the united states. participants were randomized to one of three test cells in which they tasted two pieces of flavored NRT gum (1 piece of Nicorette and 1 piece of leading store brand). each cell represented a flavor – mint (n = 319), fruit (n = 314), or cinnamon (n = 312). participants were asked to chew the gum for 1 minute, and “park” the gum for 1 minute before disposing. after waiting 10 minutes and cleansing their palate, participants tasted the second piece of gum in the same manner. upon completion, subjects were asked a comparative question related to flavor preference and two questions related to whether the gum tasted refreshing and invigorating. results: overall, participants significantly preferred the taste of Nicorette gum to the store brand gum, 69% to 31% (p = 0.0001). smokers preferred the taste of Nicorette gum across all flavors, mint, 79% to 21% (p < 0.0001), fruit, 68% to 32% (p < 0.0001), and cinnamon, 58% to 42% (p = 0.0003). all of the responders, 85% and 65% claim Nicorette had a refreshing and invigorating taste, respectively, compared with their responses of 53% (OR = 4.47; 95% CI: 3.40 – 5.89), very severe (n = 4215.85); 60.5% managed this at home (testing/ antibiotics and/or oral corticosteroids). Mean/total overall QoL score: 6.5/10; reported QoL changes during SLS COFP were: improvement (35.3%), no change (41.3%), deterioration (21.3%). No specific/serious adverse events were reported in interviews.

conclusions: Quantitative and qualitative data confirm breathlessness as the primary symptom, impacting most on mobility, daily activities and self-care; however, patients focused more on long-impacts of COPD than symptoms alone. this first, detailed evidence of COPD experiences over an extended period adds valuable information to the SLS COFP findings. funding: GSK (117537). INEM/F/2016 375-1253.
methyloxanthines (OR=1.4, 95% CI 1.3, 1.5), Brovana® users were more likely to have a COPD-related hospitalization (OR=1.3, 95% CI 1.2, 1.4), an outpatient pulmonary visit (OR=1.4, 95% CI 1.3, 1.5), and longer dependence (OR=2.0, 95% CI 1.9, 2.1) in the year prior to initiating Brovana® (all p<0.001).

CONCLUSIONS: In this analysis, Medicare beneficiaries who received Brovana® were less likely to die (OR=0.7, 95% CI 0.6, 0.8), less likely to be on omalizumab (OR=0.7, 95% CI 0.6, 0.8), and were less likely to have a prior COPD-related hospitalization. These results suggest that Brovana® users may be sicker and likely to have higher COPD severity than non-Brovana® users. More work is needed to identify subgroups of patients who may benefit most from Brovana® therapy.

PRS40
PRESCRIBING PRACTICES OF ANTIBIOTICS FOR THE TREATMENT OF RESPIRATORY TRACT INFECTIONS IN THE BAHAWAL VICTORIA HOSPITAL, PUNJAB, PAKISTAN
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OBJECTIVES: Estimate the prescribing practices for mild/moderate respiratory tract infections (RTIs) based on the principles established by the standard treatment guidelines. METHODS: Prescriptions and medication charts written during the period of November 2014 to March 2015 with the diagnosis of upper and lower RTIs were collected from ENT, Pulmonology, pediatrics 1 and pediatrics 2 wards of the Bahawal Victoria Hospital. A data collection form was designed for this study. All prescribed antibiotics and demographic information of the patients were extracted and analyzed by using SPSS 21.0. RESULTS: Among the 789 participants (56% males and 44% females), the most commonly prescribed antibiotic classes were; penicillins (47%), macrolide (39%), cephalosporins (30%) and fluoroquinolone (29%). The most commonly prescribed antibiotics were; erythromycin (48.7%), augmentin (36.9%) and ceftriaxone (27.7%), respectively. The overall level of inappropriate prescribing for all the patients based upon application of the standard treatment guidelines was 55.9%. The major reasons for the inappropriate prescribing were; wrong drug (29.3%), wrong dose (33.5%), wrong frequency (34.3%) and wrong duration (30.2%), respectively. CONCLUSIONS: The study has revealed high levels of inappropriate prescribing for the RTIs and in-addition has underlined the need for formulation of evidence-based treatment guidelines. The results have significant implications for the health status of patients being cured for mild/moderate RTIs and propose the need for appropriate interventions to be established and presented by authorities to address the matters raised.

PRS41
RACE AND ETHNICITY AMONG CHILDREN WITH ASTHMA IN THE UNITED STATES: ASSOCIATION WITH ASTHMA, ASTHMA CONTROL AND OUTCOMES
Sullivan PW1, Ghuysen Y1, Navaratnam P1, Friedman H1, Oriti B2, Kavati A4, Lanzer B1, Panettieri Jr. RA3, Corren J4
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OBJECTIVES: To assess demographics, clinical characteristics, and healthcare resource utilization (HCURU) and costs among asthma patients prior to omalizumab initiation in a real-world environment. METHODS: This retrospective observational study utilized US claims data from the HealthCore Integrated Research Database between 01/01/2006 and 04/30/2016. The study population consisted of patients treated with omalizumab claims within the first 6 months post-index period; index date=first omalizumab claim date, aged ≥6 years, and ≥12 months pre- and post-index. Exclusion enrollment criteria: Patients demographics, clinical characteristics, and HCURU and costs within the 12 month pre-index period (baseline) were presented using descriptive statistics. Costs were adjusted to 2016 US dollars. RESULTS: The study identified 768 asthma patients newly treated with omalizumab with a mean (s.d.) age of 45.7 (±19.9) years of age. At baseline, 78.0% patients had ≥1 visit to an allergist/immunologist; 74.5% had allergic rhinitis; 83.2% had spirometry testing; and 81.5% had total immunoglobulin E (IgE) testing for allergy. Among patients who received medications that were inhaled corticosteroids (ICS)-long-acting beta agonists (LABA) combinations (defined as use of a short-acting or fixed combination of ICS/LABA corticosteroids plus LABA), had ≥1 asthma exacerbation, and significant all-cause and asthma-related costs within the 12 month pre-index period in a real-world clinical setting.

PRS42
A REAL WORLD PROFILE OF THE BASELINE CHARACTERISTICS OF ASTHMA PATIENTS NEWLY TREATED WITH OMALIZUMAB IN THE UNITED STATES
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OBJECTIVES: To assess demographics, clinical characteristics, and healthcare resource utilization (HCURU) and costs among asthma patients prior to omalizumab initiation in a real-world environment. METHODS: This retrospective observational cohort study utilized US claims data from the HealthCore Integrated Research Database between 01/01/2006 and 04/30/2016. The study population consisted of patients treated with omalizumab claims within the first 6 months post-index period; index date=first omalizumab claim date, aged ≥6 years, and ≥12 months pre- and post-index. Exclusion enrollment criteria: Patients demographics, clinical characteristics, and HCURU and costs within the 12 month pre-index period (baseline) were presented using descriptive statistics. Costs were adjusted to 2016 US dollars. RESULTS: The study identified 768 asthma patients newly treated with omalizumab with a mean (s.d.) age of 45.7 (±19.9) years of age. At baseline, 78.0% patients had ≥1 visit to an allergist/immunologist; 74.5% had allergic rhinitis; 83.2% had spirometry testing; and 81.5% had total immunoglobulin E (IgE) testing for allergy. Among patients who received medications that were inhaled corticosteroids (ICS)-long-acting beta agonists (LABA) combinations (defined as use of a short-acting or fixed combination of ICS/LABA corticosteroids plus LABA), had ≥1 asthma exacerbation, and significant all-cause and asthma-related costs within the 12 month pre-index period in a real-world clinical setting.

PRS43
CHARACTERISTICS OF HOSPITALIZED PATIENTS WITH COMMUNITY-ACQUIRED BACTERIAL PNEUMONIA (CAP) AT GREATEST RISK FOR PROLONGED HOSPITAL LENGTH OF STAY IN AN INTEGRATED DELIVERY NETWORK
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OBJECTIVES: Hospitalization of patients with CAP causes a major burden on the US health care system. There are increasing efforts to reduce length of hospital stay (LOS) among pneumonia patients. This study attempts to identify CAP patients at increased risk for prolonged LOS. METHODS: A retrospective study of hospitalized patients with CAP in the Geisinger IDN medical network 2010-2015 data set was performed. Inclusion criteria: (1) age ≥18 years, (2) primary diagnosis for CAP, (3) ≥1-year enrollment before index CAP hospitalization, (4) received cefazolin + macrolide or a fluoroquinolone on hospitalization day 1 or 2 and continued for ≥2 days. The primary outcome was LOS ≥8 days. RESULTS: During the study period, 1,089 patients met study criteria. The mean (sd) age was 66.7 (16) years. The geometric mean (sd) and median LOS were 4.1 (8.0) and 4.0 days, respectively. Of the 1,089 patients, 171 (15.7%) had LOS ≥8 days. LOS ≥8 days was similar between the following groups: age ≥65 vs. <65 years (14.4% vs. 16.4%), body mass index ≥30 vs. <30 (12.6% vs. 17.4%), presence of COPD/bronchitis vs. absence of COPD/bronchitis (16.1% vs. 12.8%), CCI ≥2 vs. 0-1 (13.0% vs. 4.4%), and presence-CAP/CVV hospitalization vs. no previous hospitalization (15.7% vs. 15.8%). Patients with a CURB-65 score ≥3 had a statistically significantly higher risk of prolonged LOS ≥8 days vs those with CURB-65 score ≤2 (19% vs. 14%, p<0.001). Patients with LOS ≥8 days had a modest elevated risk of 30-day readmissions/repeated ED visits. CONCLUSIONS: Patient populations with CAP thought to be at an increased risk for unfavorable health outcomes were not found to be at an increased risk for prolonged LOS. These findings highlight the need to better delineate patient populations at greatest risk for prolonged LOS.

PRS44
HOSPITAL ADMISSIONS PATTERNS IN ADULT PATIENTS WITH COMMUNITY ACQUIRED BACTERIAL PNEUMONIA (CAP) WITHOUT MAJOR COMORBIDITIES AND LIMITED DISEASE SEVERITY USING A REAL WORLD DATABASE: METHODS: To identify hospital admissions patterns among adult patients with CAP relative to disease severity using U.S. hospital data. There are increasing efforts to reduce length of hospitalization (LOS) and costs among asthma patients newly treated with omalizumab (defined as use of a short-acting or fixed combination of ICS/LABA corticosteroids plus LABA), had ≥1 asthma exacerbation, and significant all-cause and asthma-related costs within the 12 month pre-index period in a real-world clinical setting.
CPI scores ≥ 2. The 30-day in-hospital mortality rate per 1,000 was 3.4 for the hospitalized study patients: 3.7 (95% CI 2.9 - 4.6) for those with CPI ≥ 1, and 1.9 (95% CI 0.8 - 3.8) for those with CPI < 2. CONCLUSIONS: More than one third of CABP patients in this study were hospitalized. Most hospitalized patients had CPI ≤ 1. Given costs associated with managing hospitalized CABP patients, these findings highlight the need for healthcare systems to adopt well-defined criteria for hospital admission based on presence of comorbidities. These results demonstrate the need to better delineate patient populations at risk for hospitalization and in-hospital mortality, and for identifying outpatient treatments that can effectively reduce hospital admissions.

PRSI
A STUDY OF PREVALENCE, BELIEFS AND ATTITUDE AMONG HEALTHCARE PROFESSIONALS TOWARDS SMOKING AND ITS CESSATION IN SOUTH PUNJAB, PAKISTAN
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OBJECTIVES: This study aimed to investigate the Prevalence, Beliefs and Attitude of healthcare professionals towards Cigarette smoking and its cessation. METHODS: A cross-sectional study was carried out among health care professionals including general and family physicians, nurses and pharmacist in the southern Punjab, Pakistan. A self-administered questionnaire was distributed amongst 200 healthcare professionals with response rate of 80%. Data was analyzed by using SPSS. Descriptive statistics was applied to evaluate the data and chi square test was used to check association between independent and dependent variables. RESULTS: Among total 160 respondents, 109 (68.12%) were physicians, 24(15%) were pharmacists and 27(16.8%) were nurses. Significantly greater proportion agreed that smoking was a harmful activity. Almost all of the participants considered smoking as an addictive behavior. Most non-smokers agreed that smoking cessation was the single biggest step in improving health while majority of the non-smoking professionals identified smoking as individual's life style choice. Most of the respondents had no negative beliefs and attitudes towards discussing smoking. More than half of the respondents declared that they are not appropriately trained to help patients in quitting smoking. 79% of all students believed that doctors should play a role model in smoking cessation by not smoking themselves. CONCLUSIONS: There is a need for an increased emphasis on inhibited smoking-related attitude development among health care professionals. Strategies should be made to encourage physicians, pharmacist and nurses to quit smoking as patients consider them as a role model and steps should be taken to train all the health care professionals regarding patient counseling for smoking cessation.

PRSI4
THE INTENTION TO QUIT SMOKING AND IMPORTANCE EVALUATION ON SMOKING CESSATION APP FEATURES
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OBJECTIVES: Given that 630 million Chinese own smartphones, smartphone application (apps) for smoking cessation are increasingly used in China to help smokers quit. We aim to analyze the intention to quit smoking among Chinese smokers with smartphones and their evaluation on the importance of smoking cessation App features. METHODS: Questionnaire survey was used to collect data among smokers owned smartphones during 1 May 2016 and 31August 2016. Cumulative-odds logistic regression was used to analyze the influencing factors of intention to quit smoking. Descriptive analysis was employed to analyze demographic characteristics of smokers and their evaluation on the importance of smoking cessation App features. RESULTS: The score of intention to quit smoking among 74% of smokers was ≥5 with a total score of 10. Only 4.4% of smokers with smartphones downloaded smoking cessation App. Intention to quit smoking was influenced by factors of the living regions (OR=1.224, 95% CI 1.03-1.46) and trying to quit smoking before (OR=3.202, 95%CI2.08-4.93). There was no statistical significance between Intention to quit smoking and the importance score of APP features (P=0.05). However, features including “clinical expert support”, “I will change with the follow-up needs” and “interests of smokers and share the process of smoking cessation with family members and friends” have higher importance scores (2.78, 2.73 and 2.82 respectively). CONCLUSIONS: The Intention to quit smoking is lower among smokers with smartphones in China. Moreover, the utilization rate of smoking cessation App is low considering the significant smoking population with smartphones. Therefore, the improvement and promotion of effective mobile smoking cessation technology based on high evaluation importance from smokers is critical to reduce the smoking and increase health.

SYSTEMIC DISORDERS/CONDITIONS - Clinical Outcomes Studies
PSY1
ASSESSMENT OF HOSPITALIZATIONS DUE TO OVERDOSE AMONG MISSISSIPPI'S DIVISION OF MEDICAID (DOM) BENEFICIARIES WITH OPIOID PRESCRIPTIONS
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OBJECTIVES: Treatment of chronic non-cancer pain with prescription opioids has increased over the past 20 years. The Centers for Disease Control and Prevention guidelines for prescribing opioids for chronic pain stressed the increased risk associated with higher morphine equivalent daily doses (MDD). Higher MDD have been associated with increased risks of overdose and death. This study examined the relationship between MDD levels and hospitalization due to overdose in the Mississippi Medicaid program. METHODS: A retrospective observational study was conducted, using Mississippi Medicaid claims data. Over 18 years, continuously enrolled, and having opioid prescription claims between July 1, 2015 and June 30, 2016. Patients in long term care, in hospice care or with a cancer diagnosis were excluded. The distribution of each opioid level meeting the inclusion criteria using quantile dispersion, days supply and a conversion factor for the strength prescribed. Inpatient claims were used to identify hospitalization for overdose within 30 days of an opioid prescription. Logistic regression was conducted to determine the odds of hospitalization at MEDD levels compared to less than 50 MDD. RESULTS: 38,262 beneficiaries were prescribed opioids during the study period and met the inclusion criteria. Of these, 19.8% had MDD >50 mg and 6.6% had MDD >90 mg levels. The odds of hospitalization at MEDD levels due to overdose were identified. Compared to patients with daily MDD levels less than 50mg , patients with MDD levels > 50 mg were 2.5 times (95% CI: 1.677-4.081) as likely to have a hospitalization for an overdose event and patients with daily MDD levels >90 mg were 2.6 times (95% CI: 1.680-3.721) as likely to have an overdose hospitalization. CONCLUSIONS: Although the percentage of beneficiaries having hospitalizations due to opioid overdose is small, the odds of an overdose is significantly increases with higher MDD levels.
PSY4
THE PREVALENT OF IN-HOSPITAL FALLS IN U.S. SURGICAL ADULT PATIENTS ON PAIN MANAGEMENT LOWEST IN BUPIVACAINE LIPOSOME INJECTABLE SUSPENSION COMPARED TO EITHER A FEMORAL NERVE BLOCK OR BUPIVACAINE LIPOSOME INJECTABLE SUSPENSION
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OBJECTIVES: For obvious reasons hospitals want to avoid a patient falling while in hospital. For patients receiving opioids, falls are considered opioid-related adverse events but robust prevalence data is unknown. The purpose of this quantitative study was to benchmark the prevalence of in-hospital falls for surgical patients on pain management (both opioid and non-opioid) in the U.S. between 2012-2015. METHODS: The analysis was conducted using Premier’s hospital database. The cohort included patients (18-64 years) undergoing major/minor surgery or post-operative pain management between Oct, 2012 and Sep, 2015. Three major types of pain management were investigated: femoral nerve blocks (FNB), bupivacaine liposome injectable suspension and opioids. Opioid use was further broken down to oral, parenteral and Intravenous Patient Controlled Analgesics (IV PCA) sub-groups. Falls occurring during hospitalization were identified by ICD9 codes and/or service charges. The yearly point prevalence of falls was measured for each type of pain management and sub-groups based on the ratio of falling patients to the total surgical population of each pain therapy. RESULTS: The overall prevalence of inpatient falls for pain management were very low, with the highest prevalence on patients receiving a FNB (0.34%), followed by bupivacaine liposome injectable suspension group (0.28%). Opioid patients were the least likely to experience falls (0.25%). Among opioids, patients on oral opioids were prone to more hospital falls (0.27%) than parenteral (0.25%), or IV FPC opioids (0.26%). Falls decreased over the three years: FNB (0.46%) > bupivacaine liposome injectable suspension (0.33%) > opioids (0.27%) > (0.22%). CONCLUSIONS: The prevalence of in-hospital falls is very low. This study revealed that opioid use alone to relieve pain may not contribute to falls more than a FNB or bupivacaine liposome injectable suspension. Further studies may investigate correlation, risks and consequences related.

PSY5
ASSOCIATION BETWEEN BODY MASS INDEX CATEGORIES, OSTEOARTHRITIS PREVALENCE, & TOTAL HEALTHCARE EXPENDITURES AMONG PATIENTS WHO ARE OVERWEIGHT OR OBSE
Johnston SS1, Hsiao C2, Goldstein LJ3, Daskiran M4, Scamuffa R5
1Johnson & Johnson Co., New Brunswick, NJ, USA, 2Global Health Economics and Market Access, Ethicon Inc., Cincinnati, OH, USA, 3Epidemiology & Health Informatics, Medical Devices, Johnson & Johnson Co., New Brunswick, NJ, USA, 4Johnson & Johnson, New Brunswick, NJ, USA, 5Johnson & Johnson, Markham, ON, Canada
OBJECTIVES: To examine the association between body mass index (BMI) categories, osteoarthritis prevalence, and total healthcare expenditures among patients who are overweight or obese. METHODS: Retrospective, observational study using U.S. electronic medical records linked to administrative claims data (Optum Integrated database). Patients selected for study were aged 18-64 years, had a recorded BMI between 25-80 during 2014, and had a recorded BMI between 25-80 during 2014, were continuously enrolled in health insurance for 6 months before and after the last BMI measurement (12-month evaluation period) in 2014. Patients were classified into BMI categories using U.S. electronic medical records linked to administrative claims data (Optum Integrated database). Patients selected for study were aged 18-64 years, had a recorded BMI between 25-80 during 2014, were continuously enrolled in health insurance for 6 months before and after the last BMI measure-ment (12-month evaluation period) in 2014. Patients were classified into BMI categories using the last recorded BMI in 2014: 25-29.9 (overweight); 30-34.9 (obese/class-I [OCII]); 35-39.9 (obese/class-II [OCIII]); >40 (obese/class-III [OCIII]). Multivariable regressions adjusting for patient demographics were used to examine the association between BMI category and total healthcare expenditures (Cost Ratio [CR] = 1.08, P < 0.002, adjusted=$22,477 vs. $20,837) and 23% higher pharmacy expenditures (CR = 1.23, P < 0.001, adjusted=$5,287 vs. $4,527); Compared with overweight patients: OCII patients did not have significantly higher total healthcare or pharmacy expenditures; OCIII patients did not have significantly higher total healthcare expenditures but did have 17% higher pharmacy expenditures (CR = 1.30, P < 0.001, adjusted=$5,895 vs. $4,527). CONCLUSIONS: Among patients with T2DM who are overweight or obese, poor HbA1c control and high levels of obesity are associated with total healthcare expenditures and pharmacy expenditures.

PSY7
DEVELOPMENT OF RECOMMENDATION FOR GESTATIONAL WEIGHT GAIN IN THE CHINESE PREGNANT WOMEN: A LONGITUDINAL STUDY
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OBJECTIVES: To develop a recommendation for gestational weight gain for the Chinese pregnant women. METHODS: We conducted a retrospective longitudinal study involving repeated measures of weight data at a referral medical center in China. Pregnancy data were used for pre-defined adverse outcomes were eligible for inclusion. We used two-level linear spline model to predict weight gain by gestational age (week) according to pre-pregnancy BMI categories (Chinese population standard). We reported the recommended gestational weight gain and the range of weight gain 7 weeks before and 7 weeks after pregnancy. We plotted the recommended gestational weight gain charts by week of gestation, stratified by pre-pregnancy BMI. The MWin 2.30 and SAS 9.4 were used for analysis; RESULTS: We collected data from 10,931 pregnant women during their singleton pregnancies. After removing individuals with pre-defined adverse outcomes, 4,566 pregnant women with 50,589 repeated measurements of weight were finally included. For under-weight (pre-pregnancy BMI <18.5 kg/m2), normal (18.5-23.9 kg/m2), overweight (24.0-27.9 kg/m2), and obese (≥28.0 kg/m2) pregnant women, the recommended gestational weight gains are 12.7-17.4 kg, 12.4-17.2 kg, 10.9-16.1 kg, and 9.3-14.6 kg, and the corresponding rates of weight gain are 2.40, 2.35, 2.14, and 1.95 kg/month between 14 and 36 weeks of gestation. We recommended recommended weight gain chart similar at 10th to 14th gestational week (about 0.5 kg/month) and in the last month (about 1 kg/month). CONCLUSIONS: The recommendation for the gestational weight gain is specifically applicable for the Chinese pregnant women, with important implications for the pregnancy weight management.

PSY8
A SYSTEMATIC LITERATURE REVIEW ON CARCINOID HEART DISEASE IN PATIENTS WITH CARCINOID SYNDROME
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OBJECTIVES: Carcinoid heart disease (CHD) is a life-threatening complication of carcinoid syndrome (CS). Our aim was to review published findings to assess epidemiology and outcomes in CS patients with CHD. METHODS: A systematic literature review was conducted in PubMed, Embase, Cochrane Library and ClinicalTrials.gov without data restrictions. From 380 de-duplicated records screened, 72 full-text articles were reviewed for eligibility and 39 publications were selected (EU n=21, US n=18). Data on study design, patient characteristics, CHD prevalence and outcomes were collected. RESULTS: No CHD-specific trials were found. Observed CHD patient sample sizes varied from 7 to 265 (median: US 65; EU 27), with study periods of 1-28 years (median: US 20y, EU 5y). Reported prevalence of CHD in CS varied from 16% to 28% but rose to 40-85% in CS patients referred for echocardiography because of suspected CHD. Urinary 5-hydroxyindoleacetic acid (u5-HIAA) levels were on average, 2-4 fold higher in CHD patients compared to non-CHD CS. Peak 5-HIAA levels were linked to CHD progression (odds ratio, 1.08 for each increase of 25mg per 24h). CHD patients had higher heart rate and morbidity and all-cause mortality in CHD patients. In prospective carcinoid adenocarcinoma tumours, reported 5-year overall survival was 37% for CHD patients and 71% for non-CHD patients. CHD outcomes have improved over time with greater use of advanced anatomic and physiologic assessment, better perioperative management and surgery outcomes. Valvular surgery can achieve acceptable outcomes and better functional status, although perioperative mortality remains at 15-20% across studies. Tumour progression determines long-term survival after surgery. CONCLUSIONS: Development of prospective CHD registry is needed to further examine treatment options and refine CHD management and outcomes. National registries and international collaboration are needed.
PSY9 COMPARATIVE ASSESSMENT OF PREEMPTIVE POTENTIAL OF DEXMEDETOMIDINE AND TRAMADOL IN PERIOPERATIVE SHIVERING UNDER SPINAL ANESTHESIA: A RANDOMIZED, CONTROLLED STUDY

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OBJECTIVES: There is equivocal evidence about preemptive potential of Dexmedetomidine and Tramadol in reducing incidence of post spinal shivering with effects on haemodynamics. METHODS: Sixty American Society of Anesthesiologist’s grade I & II patients of either sex, aged between 18 to 60 years, scheduled for elective surgeries under spinal anaesthesia were divided into two equal sized groups [n=30]. After neuro-axial blockade with 3.5 ml bupivacaine 0.5% (Heavy), patients were administered with preemptive I.V. Dexmedetomidine (1 µg/kg) or I.V. Tramadol (1 mg/kg) in random order determined by chit-pull system. Haemodynamic parameters, grade of shivering as per Wrench system were recorded from administration of test drug till 135 minutes post administration at regular intervals and sedation score as per Filos was observed at 90 minutes post drug administration. Any adverse events during the study were also recorded. Comparability of the two groups was assessed using Fisher’s exact and chi-square test. RESULTS: Difference in the incidence of perioperative shivering (Grade ≥2) and haemodynamic profile of both groups was evaluated using Chi-square test and unpaired t-test respectively. RESULTS: Dexmedetomidine group demonstrated lesser incidence of perioperative shivering under spinal anaesthesia (3.3%) than that in Tramadol group (20%) (P-value = 0.044). A sedation score of ≥2 was observed in more number of patients in group B (66%) as compared to that in group D (20%) (P-value = 0.001). Group B presented higher occurrence of nausea (56%) compared to that in Group D (nil) (P-value = 0.019). However, incidence of bradycardia and hypotension were higher in group D as compared to that of group T. CONCLUSIONS: Dexmedetomidine was found to be a better perioperative premedication over Tramadol with additional benefit of sedation without respiratory depression.

PSY10 CONSISTENCY OF CLINICAL RESPONSE TO RECOMBINANT HUMAN PARATHYROID HORMONE 1-84 (RHPTH[1-84]) AMONG PATIENTS WITH HYPOPARATHYROIDISM

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OBJECTIVES: Among patients with hypoparathyroidism, rhPTH(1-84) has demonstrated superior efficacy compared to placebo in achieving target serum calcium and reductions in calcium and active vitamin D supplementation. We assessed whether patient and disease characteristics might be associated with clinically-significant differences in clinical response to rhPTH(1-84). METHODS: Data were drawn from phase II trial (RIPLACE: NCT0073561; EudraCT:2008-00003-34) that randomized patients with hypoparathyroidism to receive rhPTH(1-84) (n=84) or placebo (n=40). Clinical response was defined as a composite of ≥50% reductions in calcium and active vitamin D supplementation and achieving target serum calcium at Week 24 compared to baseline. The potential for effect modification was assessed across multiple subgroup analyses and in a multivariable analysis that combined predictors for clinical response. Potential correlates of response included demographics, vitamin D dose, calcium dose, disease duration, weight, PTH, serum calcium phosphate, and renal function. RESULTS: Baseline characteristics of the study population were diverse. The difference in clinical response rates with rhPTH(1-84) vs. placebo was 52% (55% vs. 3%) in the overall population and the subgroup analysis examining response rates according to age, gender from 40% to 100%. No evidence of effect modification was detected. Four predictors of response to rhPTH(1-84) were identified in a multivariable model: shorter duration of hypoparathyroidism, lower weight, normal total serum calcium, and lower prescribed calcium dose. When patients were divided into two groups with predicted rates of response higher vs. lower than median, response rate differences were 45% in the lower group and 62% in the higher group. CONCLUSIONS: Across multiple studied subpopulations, including subpopulations defined by multiple markers, differences in clinical response rates range from 40% to 100% with rhPTH(1-84) vs. placebo. These results highlight the consistency of high and clinically significant response rates to rhPTH(1-84) across a broad range of hypoparathyroidism patients.

PSY11 EVALUATING THE IMPACT OF A CLINICAL DECISION SUPPORT TOOL TO REDUCE CHRONIC OPIOID DOSE AND DECREASE RISK CLASSIFICATION IN HIGH RISK VETERANS IN THE VETERANS HEALTH ADMINISTRATION

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OBJECTIVES: To determine the influence of a clinical decision support tool (CDST) in reducing morphine equivalent monthly dose (MEMD), Risk Index for Oversedose or Serious Prescription Opioid-Induced Respiratory Depression (RISORD) score and class in veterans receiving chronic opioid therapy (COT). METHODS: This retrospective analysis evaluated the impact of a CDST, Chronic Opioid Therapy Clinical Reminder (COT-CR), on decreasing opioid prescribing. COT-CTR correlates quality of life to current opioid regimen through a prompted pain assessment. COT veterans were identified through the VISION 21 data warehouse; an electronic health records database. Patients who received COT-CTR (treatment) and did not receive COT-CTR (control) were matched using propensity scoring. In the primary analysis, we used an interrupted time series design to evaluate changes in MEMD for the intervention and control groups before and after the index date, defined as the date on which participants received their primary care provider (12 months before and 6 months after). The secondary analyses used a retrospective cohort design to evaluate changes in RISORD score and class from the index date to the study end. RESULTS: Across the secondary analyses, the intervention group had a significantly greater rate of decrease in RISORD score compared to the control group (8.8% vs. -5.8%, P=0.030). Comparative changes in risk class were insignificant. CONCLUSIONS: A trend towards decreased MEMD in RISORD score and class was observed for both groups in the post-index period. Comparative reduction in MEMD and RISORD score was statistically significant for the intervention group. Combined with other efforts, this CDST is beneficial in minimizing opioid use and risk.

PSY12 COMPARATIVE EFFICACY OF IBRUTINIB MONOTHERAPY VERSUS OBINUTUZUMAB PLUS CHLORAMBUCIL IN THE TREATMENT OF CHRONIC LYMPHOCYTIC LEUKAEMIA (CLL): A MATCHING ADJUSTED INDIRECT COMPARISON (MAIC)

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OBJECTIVES: As there are no head-to-head trials of ibritunib versus obinutuzumab plus chlorambucil (OBI-CHLOR) in patients with previously untreated CLL, a MAIC was performs to assess their relative effects on progression-free survival (PFS) and overall survival (OS) while adjusting for other treatments. METHODS: Individual patient data from RESONATE-2 (ibrutinib versus CHLOR) and aggregate data from CLL11 (OBI-CHLOR versus CHLOR) were available. As per the MAIC technique, patients from RESONATE-2 not meeting the CLL11 inclusion criteria were excluded. The remaining RESONATE-2 patients were reweighted to match all relevant baseline characteristics reported for CLL11 (CIRS score, age, Binet stage, IgM microglobulin, del11q, ECOG status, creatinine clearance, sex and unmutated IGHV). Hazard ratios for ibrutinib vs CHLOR for investigator assessed (IV) PFS, independent review committee (IRC) assessed PFS and OS were recalculated for the weighted population and subsequently used in a Bayesian Network Meta-Analysis to compare with OBI-CHLOR. The results were compared with those of a traditional indirect comparison (IC) RESULTS: The traditional IC HR (95% CI) for PFS was 0.48 [0.22–2.02; P(HR<1)=97%] and 0.47 [0.21–2.02; P(HR<1)=99%. A sedation score of of 0.044). A sedation score of ≥2 was observed in more number of patients in group B (66%) as compared to that in group D (20%) (P-value = 0.001). Group B presented higher occurrence of nausea (56%) compared to that in Group D (nil) (P-value = 0.019). However, incidence of bradycardia and hypotension were higher in group D as compared to that of group T. CONCLUSIONS: Dexmedetomidine was found to be a better perioperative premedication over Tramadol with additional benefit of sedation without respiratory depression.

PSY13 COMPARATIVE EFFECTIVENESS OF TARGETED IMMUNOMODULATORs FOR THE TREATMENT OF MODERATE-TO-SEVERE PLACe Psoriasis: A SYSTeMATIC REViEW AND NETWORK META-ANALYsis

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OBJECTIVES: To evaluate the comparative effectiveness of targeted immunomodulators for adults with moderate-to-severe plaque psoriasis. METHODS: We performed a systematic literature review of randomized controlled trials of targeted immunomodulators — TNF-a inhibitors (adalimumab, etanercept, infliximab), ustekinumab, IL-17A inhibitors (secukinumab, ixekizumab, brodalumab), and apremilast (the only oral agent) — that evaluated the comparative clinical benefits or harms relative to placebo or each another. We searched and included studies from MEDLINE, EMBASE, and Cochrane-indexed articles, as well as ‘grey literature’ sources such as conference abstracts. The primary outcome in nearly all trials was a 75% improvement on the Psoriasis Area and Severity Index (PASI 75) during induction (10–16 weeks). To evaluate direct and indirect comparisons, we conducted a network meta-analysis (NMA) using a multinomial model within a Bayesian framework and adjusted for placebo response. RESULTS: We identified 36 RCTs, which included 8 direct comparisons. Across trials, the average participant was 44 years old and had positive PASI for 12.9, 22.3%. The primary outcome composite efficacy of both treatments was 75% for ustekinumab (69-74%), brodalumab (85-86%), and apremilast (42-45%). Heterogeneity was 91% for efalizumab (69-79%). In the secondary analyses, the intervention group had a significantly greater rate of decrease in RISORD score compared to the control group (8.8% vs. -5.8%, P=0.030). Comparative changes in risk class were insignificant. CONCLUSIONS: A trend towards decreased MEMD in RISORD score and class was observed for both groups in the post-index period. Comparative reduction in MEMD and RISORD score was statistically significant for the intervention group. Combined with other efforts, this CDST is beneficial in minimizing opioid use and risk.
COST-UTILITY OF USTEKINUMAB IN THE TREATMENT OF MODERATE TO SEVERE PSORIASIS IN PATIENTS WITH PREVIOUS BIOLOGIC THERAPY

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OBJECTIVES: To evaluate the cost-utility of ustekinumab in moderate to severe psoriasis compared with the use of infliximab, adalimumab, etanercept and secukinumab. A Markov model from a third-party payer’s perspective was performed, using quality-adjusted life-years (QALYs) as the final outcome measure, which was modelled through Psoriasis Area Severity Index (PASI) 50, 75 and 90. The model timeframe was ten years with a 5% discount rate. The comparison was conducted by constructing Delphi panels of expert physicians, in which the direct medical costs were considered: cost of first biologic and treatment with a second biologic after failure or non-response to initial medication (failure was an absence of 25% or more of PASI improvement or other biologic therapy starting biologics). A probabilistic sensitivity analysis on prices and key variables of the model was also performed.

RESULTS: The total discounted costs of treatment per patient for a 10-year period were (USD): ustekinumab $37,682; infliximab $48,157; adalimumab 40mg, etanercept 50mg, etanercept 25mg and secukinumab 300mg, respectively. Shorter time on treatment with first biologic implied lower QALYs. The cost utility analysis of ustekinumab compared to all alternatives resulted in more QALYs to patients at the lowest cost. CONCLUSIONS: The results show that the use of ustekinumab is the alternative that added more QALYs to patients at the lowest cost in the long term in comparison to the use of any anti-TNF or anti-IL-17.

INJECTIONS IN TOTAL KNEE ARTHROPLASTY

The use of ustekinumab is the alternative that added more QALYs to patients at the lowest cost.

OBJECTIVES: To investigate the efficacy and tolerability of novel injection techniques in Total Knee Arthroplasty (TKA) and to identify any impact on pain.

CONCLUSIONS: The results show that PAI was associated with lower pain scores, shorter time on treatment with first biologic implied lower QALYs. The cost utility analysis of ustekinumab compared to all alternatives resulted in more QALYs to patients at the lowest cost. CONCLUSIONS: The results show that the use of ustekinumab is the alternative that added more QALYs to patients at the lowest cost in the long term in comparison to the use of any anti-TNF or anti-IL-17.

Comparative effectiveness of nerve blocks versus periaxial injections in total knee arthroplasty

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OBJECTIVES: To evaluate the efficacy and tolerability of novel injection techniques in Total Knee Arthroplasty (TKA) and to identify any impact on pain.

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Hereditary ATTR (hATTR) amyloidosis is a rapidly progressive, life-threatening disease caused by a mutation in the transthyretin (TTR) gene, resulting in sensory, motor and autonomic neuropathies, and cardiac dysfunction. The aggressive disease course can lead to significant morbidity, disability, and mortality. The objective of this study was to evaluate the efficacy of RYGB for medically uncontrolled T2D in patients with mild obesity.

METHODS: A systematic review and meta-analysis was conducted, following the respective PICOT search strategy (P: BMI <35 kg/m2 and few Asian patients; I: RYGB; C: Clinical treatment; O: Total T2D control; Glycated hemoglobin (HbA1c) variation and follow up; D: Randomized Clinical Trial (RCT)) and a minimum sample size of 20 patients per arm. Research databases included MEDLINE, Embase and Cochrane CENTRAL, with full published papers up to June 2016. The qualities of the RCTs were evaluated by risk of bias criteria and the GRADE evaluation was done by each outcome. Meta-analysis was performed with fix or random methods according to data heterogeneity. RynMan 5.0 was employed for the analysis.

RESULTS: 5 RCTs were included in the final analysis, with follow-up times ranging from 12 to 36 months and a great proportion of patients with BMI <35 kg/m2. Total and partial T2D control were significantly higher within the surgical patients (RR: 20.58 [5.02; 84.35], RR: 20.71 [5.16; 83.12], respectively, with a high level of recommendation. HbA1c dropped (-1.85 [-2.1; -1.53]) with a high level of recommendation.

CONCLUSIONS: High level of evidence suggests that RYGB is the best treatment option for patients with mild obesity and uncontrolled T2D after medical treatment.

Hereditary ATTR amyloidosis is a rapidly progressive, life-threatening disease caused by a mutation in the transthyretin (TTR) gene, resulting in sensory, motor and autonomic neuropathies, and cardiac dysfunction. The aggressive disease course can lead to significant morbidity, disability, and mortality. The objective of this abstract is to describe the safety and efficacy of patisiran, an investigational RNAi therapeutic for the treatment of hereditary transthyretin amyloidosis (hATTR-AL). Towards this aim, we conducted a phase 2 open-label extension (OLE) study of patisiran, an investigational RNAi therapeutic for the treatment of hereditary transthyretin amyloidosis (hATTR-AL).

The presence or absence of T2D was assessed at baseline and at each month during follow-up. The following parameters were assessed: hemoglobin (HbA1c) variations; T: Minimum of 6 months of follow up; D: Randomized Clinical Trial (RCT)) and a minimum sample size of 20 patients per arm. Research databases included MEDLINE, Embase and Cochrane CENTRAL, with full published papers up to June 2016. The qualities of the RCTs were evaluated by risk of bias criteria and the GRADE evaluation was done by each outcome. Meta-analysis was performed with fix or random methods according to data heterogeneity. RynMan 5.0 was employed for the analysis.

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CONCLUSIONS: High level of evidence suggests that RYGB is the best treatment option for patients with mild obesity and uncontrolled T2D after medical treatment.

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Roux-en-Y GASTRIC BYPASS IN TYPE 2 DIABETES PATIENTS WITH MILD OBESITY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: To evaluate the efficacy and tolerability of novel injection techniques in Total Knee Arthroplasty (TKA) and to identify any impact on pain.

CONCLUSIONS: The results show that PAI was associated with lower pain scores, shorter time on treatment with first biologic implied lower QALYs. The cost utility analysis of ustekinumab compared to all alternatives resulted in more QALYs to patients at the lowest cost. CONCLUSIONS: The results show that the use of ustekinumab is the alternative that added more QALYs to patients at the lowest cost in the long term in comparison to the use of any anti-TNF or anti-IL-17.

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to baseline. CONCLUSIONS: Preliminary 24-month data demonstrated long-term administration of patisiran was generally well-tolerated, and supports the therapeutic hypothesis that patisiran can safely and potentially halt or improve neuropathy progression in hATTR amyloidosis patients.

PSY11

COST-EFFECTIVENESS OF AZACITIDINE COMPARED WITH LOW-DOSES OF CHEMOTHERAPY (LDC) IN MYELODYSPLASTIC SYNDROME (MDS)

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OBJECTIVES: Aim of this research was to perform a cost-effectiveness analysis of a cohort of MDS patients treated with Azacitidine and LDC. The sensitivity analysis was performed to explore the underlying mechanisms of the observed associations.

METHODS: This study used a microsimulation approach to model patient outcomes in a hypothetical cohort of 1,000 MDS patients. The simulation was based on the EORTC-CMML-2004 trial and included patients with MDS, and those without CHB with an adjusted odds ratio (AOR) of 0.12 and 95% CI: (0.02-0.85). Adjusted analyses, adults with CHB were less likely to report MetS compared to those without CHB with an adjusted odds ratio (AOR) of 0.12 and 95% CI: (0.02-0.85).

RESULT: Overall survival was projected to increase by 72.26 weeks with azacitidine. Incremental expected total costs for azacitidine compared to LDC was MMD $68,045. However, the cost of the procedure was lower with azacitidine. Incremental expected total costs for azacitidine compared to LDC was MMD $48,932 per LYG. PSA showed that azacitidine was a highly cost-effective option in 94.49% of the simulated cases. With an incremental cost-effectiveness ratio of 0.10, 95% CI: 0.03-0.41) and dyslipidemia (AOR = 0.42, 95% CI: 0.21-0.84) were less likely among those with CHB compared to no CHB. No association between CHB and other metabolic components were found. CONCLUSIONS: A significantly inverse association between CHB and MetS was found in the study. Future studies need to explore the underlying mechanisms of the observed associations.

PSY12

NUMBER OF TRANSTHYRETIN FAMILIAL AMYLOID POLYNEUROPATHY CASES IN BRAZIL

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OBJECTIVES: Translating familial amyloid polyneuropathy (TTR-FAP) is a rare, highly disabling, life-threatening disease characterized by progressive sensorimotor and autonomic neuropathy that presents either as sporadic cases or familial cases, then often in geographical clusters such as Northern Portugal, Sweden, or Japan. It is irreversible and fatal within 7 to 12 years of symptom onset in the absence of therapy. Acknowledging that the epidemiological data of TTR-FAP across Brazil is inadequately documented, the study was to estimate the number of disease symptomatic cases in this country. METHODS: Analysis of the number of TTR-FAP symptomatic cases in Brazil was performed based on a published epidemiological data of TTR-FAP in Portugal, according to Farman et al., 2016, considering that the Brazil has an important Portuguese influence due to colonization. Using the Portugal epidemiological data, the TTR-FAP prevalence in Brazil was calculated considering the number of resident population in Portugal in 2016 (TTR-FAP diagnosed patient) / (N resident population). To estimate the number of Portuguese immigrants in Brazil (luso-Brazilian population), a search of grey literature sources (secondary data) was made. The number of TTR-FAP symptomatic cases in the country was estimated by applying the TTR-FAP prevalence in Portugal to the number of luso-Brazilian patients. RESULTS: TTR-FAP prevalence estimate in Portugal was 1.92 (2000 symptomatic cases diagnosed / 1,04 million resident population). According to found secondary data on grey literature sources, currently 425 luso-Brazilian live in the country, resulting in approximately 800 symptomatic cases of TTR-FAP in Brazil. CONCLUSIONS: TTR-FAP is a rare disease and devastating. In Brazil, the number of TTR-FAP symptomatic cases was close to the number of the disease symptomatic cases in geographic regions, which could be associated with a burden impact to the Brazilian Public Health.

PSY20

WHICH PAIN ETIOLOGIES ARE MOST LIKELY TO RESULT IN LONG TERM OPIOID USE?: RESULTS FROM A LARGE NATIONALLY REPRESENTATIVE INCEPTION COHORT STUDY

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OBJECTIVES: This study sought to explore the relationships between pain etiology and the probability of long term opioid use among persons newly prescribed an opioid. METHODS: We identified cancer-free persons with new opioid use episodes who were greater than 13 years of age without a prior history of substance abuse from a nationally representative database of commercially insured population from 2006-2015. We categorized individuals into 11 mutually exclusive pain etiology categories based on their medical claims: Trauma and Surgery, Trauma, Surgery, Burn, Delivery, Dental Procedure, Chronic pain, new chronic pain, Inpatient stay, Emergency department visit. Chronic pain was assessed in prior six months and all others were assessed in the week prior to receiving an opioid. Patients were followed until opioid discontinuation (a gap of at least 180 days without opioid use), eligibility loss or study end (September 2015). Cox proportional Hazards models were used to model the time to opioid discontinuation controlling for potential confounders. RESULTS: We identified a total of 1,051,115 patients and median time to follow up was 5 years. Chronic pain diagnoses (25.58%) followed by non-chronic pain (24.87%) and trauma (9.89%) were the most frequent etiologies for an opioid. Persons with chronic pain had the highest probability of continued opioid use at one year (98.91%) and dental procedures had the lowest (0.92%). Relative to surgery patients, those with a chronic pain diagnosis had the lowest likelihood of discontinuation (HR=0.73; p<0.001) followed by patients who had an inpatient stay (HR=0.76; p<0.001) or surgery and trauma (HR=0.77; p<0.001). CONCLUSIONS: Patients prescribed with opioids for chronic non cancer pain are the most likely to use opioid over long periods. Persons with surgery, trauma, non-trauma ED use, and deliveries prior to an opioid are significantly more likely to be prescribed for long durations suggesting that managing acute pain with opioids seldom develops into chronic opioid use.

PSY21

ASSOCIATION BETWEEN CHRONIC HEPATITIS B AND METABOLIC SYNDROME

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OBJECTIVES: The association between chronic hepatitis B (CHB) infection and metabolic syndrome (MetS) remains inconclusive. This study examined the association between CHB infection and MetS among adults in the United States with recent data and adjustments for a comprehensive set of risk factors.

METHODS: Adults aged 18 years or older who were clinically assessed for Hepatitis B and MetS from the National Health and Nutrition Examination Survey (NHANES) 2003-2004, 2005-2006, 2007-2008, 2009-2010, and 2011-2012 cycles were included in the study (n=29,906). MetS was defined according to the NCEP/ATP III guidelines. CHB was identified by the validity of Hepatitis B Agency website. 2. Extracts of the factory price from IHS, POLI and country price databases; 3. Calculation of annual treatment cost per patient per drug. 4. Analysis of annual treatment costs versus disease prevalence using simple regression analysis RESULTS: A total of 120 oral drugs were analysed for indications with at least 100 patients to 10,000 and a median of 1 per 10,000. Results show a statistically significant inverse correlation between annual treatment cost and disease prevalence in all countries,
with the treatment being more expensive the rarer the disease (France: r = 0.370, p < 0.002; Germany: r = 0.365, p = 0.002; Italy: r = 0.340, p = 0.002; Spain: r = 0.316, p = 0.041; UK: r = 0.358, p = 0.004; Sweden: r = 0.414, p = 0.014; Norway: r = 0.367, p = 0.002) when analysis was focused on the rarest diseases (prevalence between 0.1 to 10,000), a stronger correlation exists in all countries (France: r = 0.525, Germany: r = 0.482, Italy: r = 0.521, UK: r = 0.436, Sweden: r = 0.455, Norway: r = 0.466; all p < 0.05 except Sweden p = 0.07). CONCLUSIONS: In all the countries in scope, this study shows an inverse correlation between annual treatment cost and disease prevalence with high statistical significance. Although pricing is a complex process where different attributes are assessed, this study supports the idea that payers in all the countries value rarity of disease in pricing decisions.

**PSY25**

**UTILIZING AUTOMATED CLINICAL DECISION SUPPORT SYSTEMS TO REDUCE MORTALITY, MORTALITY, AND COSTS DUE TO PRESCRIPTION OPIOID OVERDOSE – A RETROSPECTIVE STUDY**

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OBJECTIVES: To estimate the risk of, and characterize risk factors associated with, serious opioid-induced respiratory depression (OIRD) among medical users of prescription opioids in two diverse patient populations and to evaluate the impact of providing automated, personalized, risk-mitigating clinical decision support on patient health outcomes and costs.

METHODS: This retrospective characterization of risk for serious prescription OIRD in national Veterans Health Affairs (VHA) and commercially insured populations (CIP) involved administrative claims data from 1.9 million VHA and over 18 million CIP patients who were dispensed a prescription opioid. Baseline factors associated with an event of serious OIRD among 7,234 cases and 28,952 controls in CIP were identified using multivariable logistic regression. Baseline factors associated with serious OIRD in CIP were compared to VHA. Associations with serious OIRD use were monotonically increasing relationship between risk and adjusted average total patient health outcomes and costs.

RESULTS: Sale of automated, personalized, risk-mitigating clinical decision support on prescription opioids in two diverse patient populations and to evaluate the impact

**PSY26**

**THE COURSE OF PREGNANCY AND DELIVERY OUTCOMES IN WOMEN WITH OVERWEIGHT AFTER IN VITRO FERTILIZATION**

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OBJECTIVES: To evaluate the character of pregnancy’s course and delivery outcomes in patients with overweight and prepregnancy induced by the primary (IVF and embryo transfer) and in patients with overweight and self-pregnancy. Statistical processing of the results obtained in the study was produced using the statistical program SPSS 21.0 (SPSS Inc., USA). For estimation of differences of quantitative indexes between groups we used Student’s criterion. The differences were considered significant at p < 0.05.

RESULTS: In the first group 23.3% of patients were overweight while 15.1% of patients belong to class I and II obesity, according to body mass index (BMI). In the second group 9.7% of patients were overweight and 7.6% were obese. The delivery outcomes by caesarean section were observed more frequently in the patients of the first group (32%) compared with the second group. Among women with overweight and obese, in the first group glucose intolerance or gestational diabetes was revealed in 12.7% cases, and in the second group these cases were revealed in 8.2% cases. In both groups, obesity and overweight were associated with age (older than 35 years, p < 0.05), hyperglycemia and hypertension (p < 0.001) and macrosomia of the fetus (p > 0.05). Macrosomia of the fetus were detected in 8.2% of patients in the first group and in 2.9% of cases in the second group. CONCLUSIONS: The patients with pregnancy induced by the IVF and ET program in comparing with women with self-pregnancy more often had overweight, which was associated with hypertension and hyperglycemia, macrosomia of the fetus.

**PSY27**

**OPTIMIZING SURVIVAL AND COST-UTILITY IN THE TREATMENT OF ACUTE AND CHRONIC GRAFT VERSUS HOST DISEASE: A CALIBRATED SYSTEM DYNAMICS MODELING APPLICATION**

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OBJECTIVES: Outliers in graft vs host disease (GVHD) can sometimes present disproportionally extreme costs and quality of life measures, which may be ignored by regression-based estimates of cost-utility. Agent Based Models (ABMs) can capture these outlier effects, which can then be applied to patients whose characteristics matter most in a potential cohort of patients. We focused on using ABMs to simulate treatments with heterogeneous patient characteristics, and compare cost-utility in a more granular fashion than extracorporal photopheresis (ECP) offered to acute vs chronic GVHD patients. Using a 20-year virtual ABM population dataset comprising 26 patients, we calibrated an ABM that simulates cost-utility for acute vs chronic GVHD patients before and after ECP. Patient characteristics such as organ involvement (skin, GI, liver, lungs, and gut) and severity (I, II, IV for acute; moderate or severe or chronic) were attributes unique to each individual in the ABM. We were able to replicate calibrated ABM to population-based estimates provided by the United Network for Organ Sharing (UNOS).

RESULTS: Our preliminary ABM findings suggest that ECP cost-utility outcomes are markedly higher than those for the analysis of acute vs chronic GVHD. We were able to illustrate outlier effects in both conditions. These outlier effects would not be captured in traditional regression and cost-utility analyses. Our findings highlight how patient-specific characteristics such as age, gender, and organ involvement matter most to severity both in acute and chronic GVHD and quality of life while minimizing cost. Simulations across the wider UNOS population confirm this effect of outliers on survivability and quality of life.

CONCLUSIONS: Using patient-level data, ABMs can illustrate survivability and cost-utility in a manner that calibrates the right treatment for the right patient at the right time, such as the application of ECP to chronic vs acute GVHD. Such calibrated ABMs may also be scalable to population-based data.

**PSY28**

**RISK OF ACUTE LIVER INJURY ASSOCIATED WITH THE USE OF ORLISTAT: SELF-CONTROLLED CASE SERIES STUDIES USING THE MARKETSCAN® COMMERCIAL CLAIMS DATABASE**

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OBJECTIVES: The objective of this study was to assess the association between the use of orlistat and the risk of acute liver injury. METHODS: A self-controlled case series (SCS) study was conducted using Truven MarketScan® Commercial Claims data (2003–2004). Patients prescribed at least one prescription of orlistat and experiencing an acute liver injury during the study period comprised the case population. Conditional Poisson regression model was used to calculate the incidence rate ratios comparing the risk of acute liver injury during periods of orlistat exposure with periods of no exposure. RESULTS: A total of 159 patients were included in this SCS study. With the SCS study design to remove the effect of differences among patients, we did not detect the association between the orlistat exposure and the risk of acute liver injury. Compared to the absence of orlistat exposure period, there was a strongly statistically significant increased risk of acute liver injury in the last 30 days treatment of orlistat (incidence rate ratio (IRR), 1.07; 95% confidence interval CI, 0.52–2.20). The similar results were found for other time periods: 90 days before the first orlistat prescription (IRR, 0.79; 95% CI, 0.38–1.75), 31–61 days of orlistat treatment (IRR, 0.59; 95% CI, 0.12–1.99), 61–90 days of orlistat treatment (IRR, 0.54; 95% CI, 0.13–2.21), post-exposure interval (IRR, 0.88; 95% CI, 0.38–2.03), and more than 90 days orlistat use (IRR, 0.77; 95% CI, 0.38–1.56). CONCLUSIONS: The significant association between the orlistat exposure and the risk of acute liver injury was not detected, even though it may be due to small sample size with the low statistical power in this SCS study with. With the safety concern of acute liver injury even in patients prescribed orlistat, precautions in the use of orlistat. Future research is needed to guide clinical decision making.

**PSY29**

**EVIDENCE-BASED BAYESIAN MODELING TO PREDICT SURVIVAL IN PATIENTS WITH SPORADIC INCLUSION BODY MYOSITIS (sIBM)**

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OBJECTIVES: sIBM is a rare muscle disease characterized by dysphagia, atrophy and weakness of proximal and distal muscles, typically manifesting in > 50s. Limited data has been published on the disease and how mortality is associated with disease progression and severity. Our objective was to predict mortality in sIBM patients based on six disease-related outcomes that may influence patient’s life span. In addition, our aim is to select the model providing best prediction of mortality against existing literature. METHOD: We conducted a literature review provided data on association between outcomes related to manifestation of sIBM and mortality in elderly people and patients with neurodegenerative diseases. Demographic and disease-related outcomes data from sIBM patients were collected at annual meetings of the Myositis Association. Gender- and age-stratified survival curves from WHO served as reference survival rate. Simulation of mortality in 2000 virtual cohorts was performed using a Weibull parametric model with combination of survival and cause-specific mortality risk in sIBM patients: 6-minute walking distance (6MWD), BMI, dysphagia, falling, aspiration pneumonia, being wheelchair-bound. Results were compared with the mortality rates of the six published models, adjusted for demographics. RESULTS: The simulation could exactly replicate the observed 12-year mortality rate of 72% from the multi-country study published by Cox et al., when using dysphagia and 6-minute-walking-distance as predictors. For the second prediction of the 6MWD in France by Bataille et al., the observed 2-year mortality rate (38%) was comparable to the % baseline mortality without any predictors. CONCLUSIONS: Our results suggest that long-term survival in sIBM patients can be predicted with age, gender, 6MWD and dysphagia as predictors, though with a possible country effect. Further validation of our
findings is required through natural history studies in silico, especially regarding the impact of the disease on the short-term survival.

PS30 
EVALUATION OF SURVIVAL OUTCOMES OF POST-FRONTLINE ANTI-MYELOMA TREATMENTS IN MULTIPLE MYELOMA PATIENTS BASED ON DATA FROM SEER-MEDICARE DATABASE

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OBJECTIVES: The regimen of lenalidomide with dexamethasone (RD) and bortezomib with dexamethasone (Vd) are cornerstone therapies for treatment of multiple myeloma (MM), both in the frontline and subsequent lines of treatment (LOT). This study aims to characterize patients treated with these regimens for relapsed disease in a non-referral setting, and to evaluate survival outcomes with these treatments.

METHODS: Patients with index MM diagnosis on or after January 1, 2007, and with an anti-MM treatment documented, were identified in the SEER-Medicare database. Business rules were applied to identify their LOTs. Post-frontline treatment cases that contained Rd and Vd were separately considered for analysis. Patient characterization was done of the included LOT cohorts, and survival analysis carried out. Cox regression analysis was carried out to evaluate the impact of various covariates.

RESULTS: Of the 18,778 patients with an appropriate index MM diagnosis date, 2,725 patients had >1 relevant LOT and were included in the analysis, and yielded 19,015 person-months. Compared to both RD and Vd, the corresponding numbers for Vd cases in LOT1-2 were 74.0, 6.3%, 48.9%, and 48.7%. The median overall survival of the 2 cohorts was 32.1 and 20.7 months, median progression-free survival 13.2 and 8.3 months, and their mortality rate 0.0144 and 0.0286 per patient-month of pre-progression follow-up.

CONCLUSIONS: These results have important implications for healthcare resource allocation and policy decisions, and provide valuable insight into the cost impact of various policy levers.

PS31 
BUDGET IMPACT ANALYSIS OF 5% LIDOCAINE MEDICATED PLASTER COMPARED WITH TRIGEMINAL NEURALGIA AND INJECTION OF TRIGGER POINT FOR THE TREATMENT OF MYOFASCIAL PAIN SYNDROME OF THE UPPER TRAPEZIUS UNDER THE PERSPECTIVE OF BRAZILIAN PRIVATE HEALTHCARE SYSTEM

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OBJECTIVES: Studies show that 5% lidocaine medicated plaster (LMP) has similar efficacy in the treatment of myofascial pain syndrome (MPS) of the upper trapezius in comparison with dry needling and injection of trigger point, and is better accepted by patients, besides being a non-invasive therapy. We aimed to simulate the financial impact of the LPM introduction in the treatment of MPS in Brazilian private healthcare system, compared with these two therapeutic options. METHODS: Eligible population was calculated for 3 sizes of Health Maintenance Organizations (HMOs): big (>100,000 lives), medium (20,000-100,000 lives), and small (<20,000 lives). Data from National Regulatory Agency for Private Health Insurance and Flans were used to obtain the mean number of patients for each size of HMO and extrapolated according to growth rates to estimate future years. Prevalence rates of disabling pain, MPS and percentage of MPS with trigger points were applied to estimate the target population. Direct medical costs and resource use of intervention and comparators were estimated annually, using exchange rate of 2016. Time horizon had 5 years and 2 market share scenarios were created, one with complete uptake of 5% LMP at the first year, and another with progressive uptake, starting with 40% at the first year and increasing 15% annually.

RESULTS: Compared with dry needling, complete uptake of 5% LMP in the first year presented cost savings of 224,795 BRL, 23,661 BRL, and 3,715 BRL after 5 years in big, medium and small HMOs, respectively. Compared with injection of trigger point, there were savings of 236,860 BRL, 24,721 BRL, and 3,914 BRL for big, medium and small HMOs, respectively. Scenario of progressive uptake also saved resources for all comparators and HMOs. CONCLUSIONS: The uptake of 5% medicated LMP for MPS treatment in the Brazilian private healthcare system has great cost saving potential.

PS32 
BUDGET IMPACT ANALYSIS OF ELIGLISUSTAT FOR TREATMENT OF GAUCHER DISEASE TYPE 1 IN THE UNITED STATES

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BACKGROUND: Current therapeutic options for Gaucher disease type 1 (G1D) include intravenous enzyme replacement therapy (IVERT) with imiglucerase, velaglucerase or taliglucerase alfa or oral substrate reduction therapy (SRT) with eliglustat or miglustat. Transfer of patients from ERT to SRT may present an opportunity for cost savings.

OBJECTIVES: This study evaluated the budget impact associated with increasing uptake of eliglustat for the treatment of G1D adults with PNP.

METHODS: A budget impact model reflecting the US payer perspective calculated the change in pharmaceutical and administration costs resulting from increasing eliglustat market share from 12% (current) to 44% (hypothetical). Eliglustat market share was drawn equally from existing shares of imiglucerase (40%) and velaglucerase alfa (40%) and assumed to be static over the analysis period. Unit costs were obtained from Redbook (WAC). 2016 ERT WAC costs were adjusted to account for site of care-based markup and proportion of patients enrolling at hospital-based sites in each site of care based on a typical large regional health plan. Administration costs were obtained from analysis of claims (DataMart Multiplan). All costs expressed in 2016 USD.

RESULTS: In a plan with 40% of patients and an increased utilization of eliglustat, shifting market share evenly from all sites of care, resulted in total 3-year savings of $4.5B (13.6%) to the plan. The corresponding per patient per month (PMPM) savings were $0.025. When all patients receiving ERT infusions in the hospital outpatient setting (30%) were shifted to 67.5% (23.0%) and PMPM savings increased to $0.043. Results were sensitive to proportion of patients receiving infusions at each site of care.

CONCLUSIONS: Based on these analyses, increasing the use of eliglustat resulted in meaningful cost savings to a payer’s overall budget. Cost savings are highest among patients switching from ERT administered in a hospital outpatient setting.

PS33 
POTENTIAL SAVINGS FROM BIOSIMILARS IN CANADA

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OBJECTIVES: A number of biologic drugs, representing 12% of Canadian pharmaceutical sales in 2015, recently began to face, or soon will face, competition from lower-cost biosimilars. This study assesses the potential cost savings based on various assumptions of market uptake and pricing.

METHODS: The drugs considered in the study are Avastin, Enbrel, Epoxi, Gronal-F, Herceptin, Humira, Lantus, Neupogen, Remicade, Rituxan, Tysabri, and Xolair. Data from the IMS AG MIDAS Database, was used to forecast the Canadian utilization for each drug for three years following the expected biosimilar entry. A number of sensitivity analyses were conducted to evaluate the sensitivity of different assumptions of pricing and uptake based on Canadian and international observations. The analysis is conducted based on a number of OECD countries. The results are reported for the national market, as well as for public and private drug plans.

RESULTS: At a drug level, the savings from biosimilar entry vary depending on the size of the market as well as assumptions of price level and potential market penetration, both of which depend on the policies governing the reimbursement of biosimilars. The findings suggest that the greatest savings could be realized by modeling similar market conditions to those prevailing in Norway and Finland.

CONCLUSIONS: As biosimilars and originator products are not interchangeable, the market penetration and pricing of biosimilars depend on regulations and reimbursement policies. Understanding the potential savings under different scenarios of uptake and pricing provides valuable insight into the cost impact of various policy levers.

PS34 
BUDGET IMPACT ANALYSIS OF 5% LIDOCAINE MEDICATED PLASTER COMPARED WITH PREGBALIN OR GABAPENTIN MONOTHERAPY FOR THE TREATMENT OF DIABETIC POLYNEUROPATHY UNDER THE PERSPECTIVE OF BRAZILIAN PRIVATE HEALTHCARE SYSTEM

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OBJECTIVES: To estimate the financial impact of introduction of 5% lidocaine medicated plaster (LMP) monotherapy compared with pregabalin or gabapentin monotherapy, in the Brazilian private healthcare system for the treatment of diabetic polyneuropathy (DPN). METHODS: Eligible population was calculated for 3 sizes of Health Maintenance Organizations (HMOs): big (>100,000 lives), medium (20,000-100,000 lives), and small (<20,000 lives). Data from National Regulatory Agency for Private Health Insurance and Flans (ANS) was used to obtain the number of patients and extrapolated according to growth rates. Prevalence rates of diabetes and polyneuropathy and percentages of patients in use of antiepileptic drugs were applied to reach the final target population. Direct medical costs and resource use of intervention and comparators were estimated annually, using exchange rate of 2016. Time horizon had 5 years and 2 market share scenarios were created, one with complete uptake of 5% LMP at the first year, and another with progressive uptake, starting with 40% at the first year and increasing 15% annually until reaching 100%. RESULTS: Compared with pregabalin, complete uptake of the plaster in one year demonstrated cost saving of 64,457 BRL, 6,727 BRL and 1,065 BRL for big, medium and small HMOs, respectively. Compared with gabapentin, cost saving increased to 1,096,971 BRL, 114,736 BRL and 18,159 BRL for big, medium and small HMOs, respectively. Scenario of progressive uptake also showed cost saving results for all comparators and HMO sizes. CONCLUSIONS: The uptake of 5% LMP in Brazilian private healthcare system for DPN treatment can save costs compared with pregabalin and gabapentin. Its use associated with pregabalin also presented this potential for patients non-responders to pregabalin. Savings are attributed to lowered adverse event rates.

PS35 
A BUDGET IMPACT ANALYSIS OF PARENTERAL IRON TREATMENTS FOR IRON DEFICIENCY ANEMIA IN THE UK: REDUCED RESOURCE UTILIZATION WITH IRON ISOMALTOSIDE (MONOFER)

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OBJECTIVES: The reported prevalence of iron deficiency anemia (IDA) varies widely but estimates suggest that 3% of men and 8% of women have IDA in the UK. Parenteral iron is indicated for patients intolerant or unresponsive to oral
PSY36  
FINANCIAL IMPACT OF THE INCORPORATION OF GOLIMUBAM AS AN ALTERNATIVE OF ANTI-TNF AGENT IN MAIN PUBLIC INSTITUTIONS IN MEXICO  
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OBJECTIVES: Biologic agents are mainly used for the treatment of rheumatic diseases; particularly rheumatoid arthritis is considered one of the priority problems of public health in Mexico. This analysis aims to compare Mexican public health system costs with other necrosis factor inhibitors (anti-TNF) in the main public health-care providers for salaried workers and to estimate the budget impact of the incorporation of golimumab as an alternative anti-TNF therapy. METHODS: A descriptive retrospective cohort study was developed based on published data of prescription information for each anti-TNF agent (dosage per patient for rheumatoid arthritis) and on national tenders to obtain the acquisition price for each therapy. The two institutions evaluated were the Mexican Social Security Institute (IMSS) and the Institute of Social Security and Services of State Workers (ISSSTE) covering ~50% and ~11% of Mexican population, respectively. The data obtained about the purchases of anti-TNF agents during the period 2014-2016 was used to calculate the annual number of patients in treatment. From these calculations, an extrapolation was performed to estimate the number of patients in treatment during 2017-2019 periods. Finally, a budget impact model was developed to analyze the impact of the penetration of golimumab in both institutions. Costs are expressed in 2016USD ($1USD=20MXN). RESULTS: In both institutions the anti-TNF with the highest expenditure was adalimumab, followed by etanercept (25mg and 50mg) and infliximab to the last. According to total population covered, average number of patients in anti-TNF agents treatment is 0.4% and 1.1% for IMSS and ISSSTE, respectively. With the incorporation of golimumab in 10% of patients at IMSS the total savings for 2017-2019 was estimated to be ~$23.5 million of dollars. CONCLUSIONS: The incorporation of golimumab at IMSS and ISSSTE formularies resulted in relatively minimal cumulative total net costs to the health plan, less than 10 cents PMPM over a 3 year period.

PSY37  
BUDGET IMPACT OF LORCASERIN FOR THE TREATMENT OF OBESITY IN A MANAGED CARE ORGANIZATION  
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OBJECTIVES: Lorcaserin is a 5-HT2C receptor agonist indicated for chronic weight management in patients with overweight and obesity in addition to diet and exercise. Using an analytic cost model, this study examined the consequences of lorcaserin utilization in a managed care organization from a payer perspective. METHODS: The model generated outputs for a hypothetical one million member health plan based on the results from BLOOD, BLOOD-DM and BLOODOM. Three Phase III clinical trials of lorcaserin 10mg BID. The population consisted of adult patients who were overweight (BMI ≥ 25 kg/m2) with > 1 obesity-related comorbidity. METHODS: A budget impact model was developed to evaluate the cost of using lorcaserin relative to other available weight loss options. The model inputs included the proportion of patients who utilize obesity medications, response to treatment, time on treatment, cost of medication, market share of lorcaserin, and potential cost savings to the health plan for weight loss. Model inputs were based on published data and included total costs and member-month per-month (PMPM) costs over a 3 year timeline. RESULTS: Among adults eligible for treatment with an anti-obesity medication (N= 350,273), the model predicted only 448 would initiate and continue lorcaserin treatment each year. The total 3 year PMPM costs were expected to be $301,632 or 3 cents PMPM. By year 3, PMPM costs would be 6 cents. This resulted in relatively minimal cumulative total net costs to the health plan, less than 10 cents PMPM over a 3 year period.
medication, this variation depends on the combined amounts of factor used in alternative therapies. CONCLUSIONS: The results suggest that, in the use of coagulation factor concentrates for treatment, it is necessary to recognize the effects of the different doses in the different presentiations of each treatment, on the costs assumed in its application. In this sense, and as a final result, Haemate-p® is presented as the thixotrophic technology in the treatment of this pathology.

PSY41 MEASURING THE ECONOMIC IMPACT OF SSB TAXES IN BRAZIL: AN INPUT-OUTPUT ANALYSIS

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OBJECTIVES: This study aims to estimate the effects of the SSB tax with special focus on the intersectoral and sectorial variables. Considering the previous studies and the distributional issues associated with this policy. METHODS: To achieve this goal, we used the Leontief price model derived from the input-output matrix for Brazil, 2009. RESULTS: The results show that the sugary drinks sector would be the most affected by the tax increases. Finally, this policy would have a negative impact on government revenue at R$ 597 million. In this sense, and as a final result, Haemate-p® is presented as the thixotrophic technology in the treatment of this pathology.

PSY42 RELATIONSHIP BETWEEN SITE OF CARE AND INFUSIBLE BIOLOGIC MEDICATION AND ADMINISTRATION COSTS

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OBJECTIVES: To compare medication and administration costs of infused biologics for treatment of chronic inflammatory disease (Rheumatoid Arthritis (RA), Crohn’s Disease (CD), or Ulcerative Colitis (UC) when administered at different sites of care. METHODS: Patients with RA, CD, or UC receiving an indicated infusible biologic (abatacept, infliximab, natalizumab, rituximab, or tocilizumab) were identified in Truven Commercial Claims and Encounters database (1/2009 to 12/2013) and followed for ≥12 months. Biologic medication and administration costs for each infusion were summarized by place of infusion: Hospital inpatient (HI), Hospital Outpatient Department (HOPD), Physician Office (PO) or Home-based infusion (HB). Other (O). Within each disease and site of care, administration and drug costs were compared via Kruskal-Wallis tests. RESULTS: Infusions from 8,307 RA, 3,530 CD and 2,148 UC patients were analyzed. The majority of infusions for RA occurred in PO (84%), followed by HOPD (13%), and HB (2%). The drug costs ($201) were slightly higher than PO ($224) and mean HB administration costs ($2,739) were higher than PO ($2,034). CONCLUSIONS: Drug and administration costs differed by site of care. Total infusion costs were lower and similar in PO and HB although drug costs tended to be higher in HB than PO. While HI and HOPD had highest drug plus administration costs, a lower proportion of infusions were provided in these sites, particularly for RA patients. Additional studies are needed to understand patient outcomes and quality of care metrics associated with different infusion sites of care.

PSY43 IMPROVED POSTOPERATIVE CLINICAL AND DISCHARGE OUTCOMES FOR LIPOSOMAL BUPIVACAINE COMPARED TO BUPIVACAINE

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OBJECTIVES: While more than 300,000 total hip arthroplasties (THA) are performed annually in the United States, there is no gold standard for an effective post-operative analgesic strategy. The objective of this retrospective cohort study was to compare clinical, and discharge outcomes for patients utilizing an extended-release liposomal bupivacaine (LB) to a control group utilizing bupivacaine. METHODS: The LB cohort included 64 consecutive THA patients from one surgeon at a single institution between August 2013 and July 2015 and 66 consecutive THA procedures performed by the same surgeon between June 2011 and July 2013 were selected as the control cohort. Clinical (pain [VAS], distance walked, opioid use, falls) and discharge (length of stay [LOS], readmission rates) outcomes for each cohort were compared on post-operation day (POD) 0, 1 and 2 using univariate and multivariate analyses. RESULTS: The LB cohort showed significantly lower AUC VAS pain scores on POD 0, 1 and 2. Significantly fewer LB patients used rescue opioids on POD1 and POD2. LOS decreased significantly from 2.7 to 2 days and 30% more LB patients were discharged at POD1. After adjusting for covariates, LB patients were more likely to walk farther than controls after surgery. LB cohort had significantly fewer 30-day readmissions than the control cohort. For patients with missing outcome data, adjusted mean length of stay, differences in mean LOS between the LB and control cohorts were lower in the LB patients. Categorically, the LB cohort had lower costs than the control cohort for room, medical and surgical supplies, diagnostic test (including labs and operation), and physical therapy. There were no differences in falls or discharge location. CONCLUSIONS: This retrospective study comparing LB to bupivacaine demonstrated improved periperaoperative pain management, less opioid use, decreased length of stay, lower costs, earlier discharge and increased physical function.

PSY44 A COMPARATIVE STUDY OF ORPHAN DRUG PRICES IN EUROPE

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OBJECTIVES: Orphan drugs have been a highlight of discussions due to its higher price than non-orphans drugs. Moreover, there is currently no European consensus on value assessment which has led to differences in prices and access among countries. This study aimed to assess price differences among countries by comparing the annual treatment cost per patient of similarly available orphan drugs in France, Germany, Italy, Norway, Spain, Sweden, and the UK. METHODS: Orphan drugs were classified into authorization categories: orphan therapy (O), within each health economic study, cost of drugs in the UK) and disease areas. RESULTS: 120 orphan drugs were included in the analysis. Compared to the UK, the average annual costs were more expensive in France (average ratio 1.13), Germany (1.11), Italy (1.08), Spain (1.07), and were cheaper in Sweden (0.99) and Norway (0.88). The average ratios offered a restrictive view as the ratio were greatly heterogeneous and ranged from 0.26 to 1.92. The ratios were related to different areas in the different countries. For example, the UK and France orphan drugs into 4 cost quartiles, the averaged ratios varied minimally in all countries except France which shows that the cost differences were similar for the most expensive and least expensive orphan drugs in the UK. CONCLUSIONS: Individual orphan drug prices can vary widely across European countries, although on average these differences are relatively minor. This study suggests that in Europe, we may not be able predict which country may have higher or lower prices for orphan drugs.

PSY45 HEALTHCARE COST COMPARISON ANALYSIS FOR MORbidLY OBESE PATIENTS UNDERGOING BARIATRIC SURGERY WITH THOSE MANAGED BY CONVENTIONAL TREATMENT IN INDIA

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OBJECTIVES: Bariatric surgery (BS), an effective treatment for morbid obesity, is preferred over lifestyle modifications. However, in absence of health economic evaluations in India, surgeons and patients/payers are uncertain about the long term economic implications of BS. This study aimed to evaluate and compare the total healthcare cost incurred by patients opting for conventional treatment over a 10-year period in India. METHODS: A cost comparison model was developed using a combination of a decision tree and a Markov model. Three types of surgeries common in India – laparoscopic mini gastric bypass, laparoscopic Roux-en-Y gastric bypass and laparoscopic sleeve gastrectomy, were considered in the BS arm. Transition probabilities and BS related outcomes data were sourced from published literature. The analysis considered direct medical costs including the cost of bariatric surgery and associated complications, cost of drugs, physician visits and hospitalization for managing co-morbidities, and cost of obesity management. All costs were discounted at 3%. The results were expressed in terms of difference in total per-patient healthcare costs incurred by patients in the two arms. RESULTS: For a hypothetical population with a mean age of 40 years and a mean BMI of 43 kg/m2, the total per-patient cost for BS arm was Rs. 120.5 compared to Rs. 245.16 over a period of 10 years. The per-patient co-morbidity management cost in BS arm reduced by 70% over 10 years. The current analysis estimated that initial investment in BS will be recouped within ~5.5 years due to cost saving in co-morbidity management. CONCLUSIONS: The current analysis shows that although bariatric surgery requires an initial investment, it will result in lower healthcare expenditure compared to conventional treatment, in a five year time period after surgery.

PSY46 ECONOMIC IMPACT OF TREATING SEVERE HEMOPHILIA A PATIENTS WITH PLASMA-DERIVED FACTOR-VIII/VDW VERSUS RECOMBINANT FACTOR-VIII IN THE UNITED STATES

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OBJECTIVES: The development of antilobodies to factor-VIII (FVIII) therapy (inhibitors) can result in increased complications and economic burden. The current cost-effectiveness analysis of FVIII vs. recombinant factor VIII (rFVIII) found higher inhibitor rates in previously-untrated patients (PUPs) treated with conventional recombinant FVIII (rFVIII) than those treated with plasma-derived FVIII.
with von Willebrand factor (pdFVIII/VWF). The objective of this study was to quantify the economic impact of treating PUPs with pdFVIII/VWF versus FVIII. METHODS: A 3-year time horizon Excel-based cost-analysis was performed from the perspective of a US healthcare payer. In the analysis, 1-year old PUPs initiated prophylactic or on-demand treatment with FVIII or pdFVIII/VWF. Rates of high-hitter inhibitor development were obtained from the SIPPET study (28.4% with FVIII and 18.6% with pdFVIII/VWF). PUPs developing inhibitors received immune tolerance induction (ITI) and bypassing agents. After one year, patients successfully tolerated with ITI returned to FVIII treatment, while patients unsuccessfully tolerated ITI received bypassing agent prophylaxis. Treatment regimens, ITI outcomes, and rates of serious bleeds were based on the literature and expert clinical opinion. All cost inputs in the analysis were identical between the two arms, except for the costs of the two anthemophilic agents which were based on WAC (Red Book). Treatment costs for FVIII and pdFVIII/VWF patients were calculated monthly based on patient weight and total costs and then estimated on a per-patient and US population basis. RESULTS: Total per-patient treatment costs over 3 years were $824,336 for FVIII and $540,939 for pdFVIII/VWF patients, resulting in an average annual savings of $94,465 per patient for pdFVIII/VWF. Based on the current US population, an estimated 247 PUPs would be diagnosed annually in the United States. CONCLUSIONS: Treatment of severe hemophilia A in PUPs with pdFVIII/VWF has the potential to result in significant cost-savings compared to treatment with FVIII.

PSY17 THE APPLICATION OF RECOMBINANT HUMAN THROMBOPOETIN FOR THE EMERGENCY TREATMENT OF PRIMARY IMMUNE THROMBOCYTOPENIA

Li J, Yang F, Xu J, Shanghai, China. OBJECTIVES: Recombinant Human Thrombopoietin (rThPO) was recommended to emergency treatment in primary immune thrombocytopenia (ITP) patients in China. The aim of this study was to potentially reduce the usage of platelet transfusion and intravenous immunoglobulin for emergency treatment of ITP patients. The study purpose is to evaluate the hypothesis in clinical practice. METHODS: An expert questionnaire was designed to collect relevant clinical information of emergency treatment in ITP patients. 53 hematologists answered the questionnaire who were selected from Beijing, Shanghai, Guangzhou, Jinan, Chengdu and Wuhan in China. The treatment cost of with and without rThPO for emergency treatment in ITP patients was compared. RESULTS: The survey results indicate that, the percentage of platelet transfusion is 50% and 85% for with rThPO and without rThPO respectively. The intravenous immunoglobulin in the emergency treatment of ITP patients was 30% and 50% for with rThPO and without rThPO respectively. And the average amount of platelet transfusion and intravenous immunoglobulin of one unit patient (200 ml/unit) and 5 days (400 mg/kg per day) for both groups. The treatment cost of one unit platelet transfusion conducted in other previous study was RMB 5,114. The daily treatment cost of intravenous immunoglobulin was RMB 5,000. Thus, in with rThPO arm, the cost of platelet transfusion and intravenous immunoglobulin was RMB 3,835.5 and RMB 7,500. In without arm, the cost was RMB 6,520.35 and RMB 12,500 respectively. With rThPO price is RMB 3,102, 7 days per an ITP patient emergency treatment. The drug price of rThPO is RMB 7,714. So the total cost of the two arms was RMB 19,049.5 (with rThPO) and RMB 19,020.4 (without rThPO). The gap is only RMB 29.2. CONCLUSIONS: The use of rThPO for emergency treatment in ITP patients could reduce the rate of usage of platelet transfusion and intravenous immunoglobulin without significantly increase medical cost.

PSY47 CLINICAL AND ECONOMIC BURDEN OF ACQUIRED HEMOPHILIA (AH) AMONG HOSPITALIZED PATIENTS IN THE US USING HEALTHCARE COST AND UTILIZATION PROJECT (HCUP)

Shah A, Narayanam S, Market Access Solutions LLC, Ranithan, NJ, USA. OBJECTIVES: Acquired hemophilia (AH) is a severe autoimmune disease characterized by the spontaneous development of autoantibodies against coagulation factor VIII (FVIII). The economic and clinical burden of this rare condition is poorly described. The objective of this study was to determine the clinical and economic burden of hospitalized AH patients in the US using HCUP database. METHODS: A retrospective cohort study using the HCUP Nationwide inpatient sample (NIS) from January 2009 to December 2013 was conducted. HCUP NIS includes discharge data on approximately 20% of all hospitalizations in the US. Hospital admissions for AH were identified using records with a principal diagnosis of AH (ICD-9 286.52). Total inpatient costs (converting charges to cost using cost-to-charge ratio), hospital length of stay, comorbidities, and mortality during the inpatient visit were assessed. RESULTS: A total of 71 inpatient admissions were identified from discharges in 2009, 2012, and 2013 while no discharges for AH were found in the year 2010 and 2011. The mean age of hospitalized patients was 68.7 years (SD±11.2), 52.7% admission percentage for patients with AH during the inpatient stay was assessed. Mean number of chronic conditions was 7.12 (SE±0.3; median:6.8) in this cohort with hypertension being the most frequent (72% of patients followed by deficiency anemia (19%), chronic pulmonary disease (3%), and uncomplicated diabetes (4%). Mean cost per patient admission was $177,668 (SE±33,991; median:$63,666) and varied widely (range: $2,264 to $1,071,415). The mean length of stay was 11.8 days (SE±1.4; median:10). CONCLUSION: Inpatient care associated with AH lead to high economic and clinical burden, especially in the elderly population. Further research is required to understand treatment management and utilization needs in the hospital setting to minimize patient burden and improve outcomes.

PSY49 THE IMPACT OF RESPIRATORY DEPRESSION FOLLOWING PLANNED INPATIENT SURGERY ON HOSPITAL RESOURCE UTILIZATION AND CHARGES ACROSS THE UNITED STATES

Ben-Joseph R, Gordon R, Chincunac F, Zhao S, Ni W, Divino V, DeKoven M, Meier A, Millenium Health, San Diego, CA, USA, 2University of California at San Diego, La Jolla, CA, USA, 3QuinniessInc, Fairfax, VA, USA. OBJECTIVES: Respiratory depression (RD) is a potential adverse event after surgery partly due to the nature of the drugs used to anesthetize, sedate, and immobilize patients. This study aimed to assess the impact of RD on hospital charges and length of stay (LOS) were analyzed. METHODS: A retrospective cohort study using the WatsonMotixs Hospital Charge Data Master database was performed. Patients from over 450 hospitals across the United States were included if they were admitted for an inpatient surgery and were administered an inhaled anesthetic during the period of July 1, 2014 to June 30, 2015. To avoid clinical conditions potentially associated with RD, patients who had a procedure for the nervous, respiratory and cardiovascular systems or had an obstetrical surgery were excluded. Based on procedures and prescribed medications, seven conditions were specified as indicators of RD. To evaluate the impact RD, patients with RD were matched to patients without RD using propensity score matching. Hospital charges and LOS were compared between matched cases and controls. RESULTS: 17,727 patients were included in the study cohort and 715 (4.03%) patients were identified with RD. After matching, 538 patients were included in the case and control group, respectively. Both mean and median hospital charges for cases were significantly higher than controls (Mean: $7,190 vs. $5,985. Median: $4,409, p < 0.001). The RD group was significantly longer for cases compared to controls (3.8 days vs. 3.3 days, p < 0.0001). CONCLUSIONS: In this study, respiratory depression was found to be associated with increased hospital charges and LOS. The results also provide the need for improving the management of respiratory depression in the perioperative setting. Applying a personalized medicine approach utilizing pharmacogenomics may help reduce the occurrence of respiratory depression.

PSY50 EPIDEMIOLOGY AND ECONOMIC BURDEN OF SYSTEMIC SCLEROSIS – A SYSTEMATIC REVIEW

Zheng L, Pope M, Wu L, Texas A&M University, College Station, TX, USA. OBJECTIVES: Systemic sclerosis (SS) is a rare debilitating autoimmune disease of the connective tissue with no cure. This study aimed to assess the recent epidemiologic and economic burden of SS across the world. METHODS: Using a systematic search strategy, PubMed/MEDLINE and Embase were searched to identify relevant studies published from January 2006 to June 2016. Two independent reviewers evaluated studies for inclusion, quality, and extracted data. The review was conducted and reported according to PRISMA statement. RESULTS: 1,449 references were retrieved using initial searching strategy, and 22 epidemiological and 6 economic publications were selected for data extraction following inclusion criteria. The burden of disease prevalence, incidence and economic burden of systemic sclerosis in different countries were evaluated. The review reports slightly higher incidence/prevalence compared to previous studies. The economic burden is high from both societal and healthcare perspectives. Different healthcare stakeholders could benefit from understanding the epidemiological and economic aspects of SS.

PSY51 RESOURCE UTILIZATION, COST, AND UNPLANNED READMISSIONS ASSOCIATED WITH HEPATORENAL SYNDROME FROM THE UNITED STATES (US) HOSPITAL PERSPECTIVE: 2009-2015

Pham AT1, Jamil K1, Huang X1, Lodaya K1, Hayashida DK1, Lovelace B1, 1MACLIN, EKDOT Pharmaceuticals, HampTom, NJ, USA, 2Boston Strategic Partners, Inc, Boston, MA, USA, 3Boston Strategic Partners, Inc, Boston, MA, USA. OBJECTIVES: Hepatorenal Syndrome (HRS) from the development of functional renal failure in patients with advanced chronic liver disease, is associated with high cost of patient care. The objective of this study was to examine total health care resource utilization, cost of care, and outcomes, including mortality and readmission from US hospital perspective. METHODS: A retrospective, longitudinal analysis of the CERNER Health Facts electronic health record (EHR) database was performed. Adult patients diagnosed with HRS based on ICD-9 code (574.2) between 2005 and 2015 were included in our sample. The readmission and serum creatinine were used to assess outcomes. RESULTS: We identified 1,571 male (62%) and 971 female (38%) patients (mean age: 57.9). The median cost for all patients was $29,921. The hospital charges and LOS were significantly higher in males (62%) and females (38%) and 25 years and older than 18 years old. Overall, female patients incurred higher costs than males. The highest incidence of HRS was in 2013 with ~19% of all cases from 2009 to 2015 and the highest average cost per patient was in 2009 with $38,778. HRS mortality rate was 36.8% during initial hospitalization, and median cost of
hospitalization was higher for deceased vs. surviving patients ($24,667 vs. $21,360). HRS readmission rate was 17.6%, with 10.6% planned and 7.3% unplanned readmissions. Unplanned readmissions were associated with higher median costs ($31,946 vs. $17,357).

CONCLUSIONS: From a hospital perspective, results from this analysis of large US hospital EHR database indicate that HRS is a very severe disease, and managed care should be re-evaluated to prevent such patients from ultimately becoming higher risk in resource utilization, cost-of-care, and especially around the unplanned readmissions, which presents a potential opportunity for improvement.

PSYS2 EXAMINING THE HEALTH CARE RESOURCE USE AND ECONOMIC COSTS ASSOCIATED WITH ACUTE MYELOID LEUKEMIA AMONG MEDICARE PATIENTS

OBJECTIVES: To examine health care utilization and costs associated with acute myeloid leukemia (AML) among patients in the Medicare population. METHODS: Medicare patients aged ≥65 years with an AML diagnosis (International Classification of Disease, 9th Revision, Clinical Modification [ICD-9-CM] code: 205.xx) were identified from 01/01/10 to 12/31/14. The first AML treatment date within 30 days after the diagnostic index was the date. Patients with an ICD-9-CM code for relapse (205.02), or claims of chemotherapy after a ≥120-day treatment-free gap, were considered relapse cases. Patients were required to have continuous enrollment 12 months before the initial AML diagnosis. Patients with blood cancer, chemotherapy, radiotherapy, or AML-related surgery prior to the index diagnosis were excluded from the study. Health care costs and utilization of patients with only first-line therapy (Cohort A), and relapse patients with first- and second-line therapies (Cohort B) were examined descriptively. RESULTS: A total of 6,281 and 1,762 patients were included in Cohorts A and B, respectively. During the first-line therapy, the percentage of patients who underwent > 1 inpatient, emergency room, or hospice visits were 89.1%, 35.6%, and 39.7% in Cohort A, respectively (mean follow-up: 247 days). During first-line therapy (mean 396 days), the percentages of patients with ≥ 1 inpatient, ER, and hospice visits were 98.9%, 42.0%, and 2.5% in Cohort B, respectively. Per patient per month (PPPM) costs for inpatient admission ($10,451), outpatient ($6,213), and total costs ($17,622) were high. During second-line therapy (mean 256 days), the percentages of patients ≥ 1 inpatient, ER, and hospice visits were 72.5%, 30.2%, and 40.9% in Cohort B, respectively. Total costs for inpatient (3% discount rate) ($21,982), outpatient ($16,718), and total costs ($29,718) increased compared with the first-line period. CONCLUSIONS: AML patients in the Medicare population incurred significant health care utilization and costs – especially during the relapsed period.

PSYS3 DIRECT AND INDIRECT COSTS OF CYSTIC FIBROSIS PATIENTS AT A UNIVERSITY HOSPITAL IN OMAN

OBJECTIVES: This study aimed to estimate the patterns and cost burden among CF patients by focusing on annual and lifetime direct and indirect costs. METHODS: Data were collected by using a study with a cross-sectional design in 30 patients who visited the CF clinic of the Sultan Qaboos University Hospital (SQUH) in Oman between December 2014 and February 2015. Direct health-care costs reflecting the government’s perspective were determined retrospectively by Hospital Information System (HIS) whilst indirect costs were calculated using Traven Health Market-Scan database from 2008-2014. Newly diagnosed CD and UC patients were identified using ICD-9-CM code (555” for CD and 556” for UC) based on a previously validated algorithm. Patient continuous eligibility at least 12 months after the first AML diagnosis (first diagnosis of CD/UC was required). One-year medical expenditures, including inpatient admissions, outpatient visits, emergency department visits, and outpatient prescription drugs, were summarized and compared with the expenditures among comparison groups, which were established using propensity score matching method adjusting for demographics, health service utilization and comorbidities. All the cost components were inflated to year 2015 value using consumer price index and reported in US dollars. RESULTS: On average, medically insured CD patients were significantly higher for medically insured CD and UC patients compared to matched patient group ($30,392 vs $15,099 for CD patients, $24,981 vs $15,678 for UC patients). From 2009 to 2013, the medical cost from CD has increased by 62.1% from $11,774 to $18,999 and the medical cost from UC has increased by 61.1% from $7,948 to $12,644. CONCLUSIONS: CD and UC are associated with significant economic burden. Medical costs have increased substantially in recent years for newly diagnosed patients with these conditions who are covered by commercial health plans.

PSYS5 COST ASSESSMENT OF GOUT: YOUNG PATIENTS AGAINST ELDERLY

OBJECTIVES: Gout has become significant clinical problem in Russia, requiring costly to treat. Gout has many comorbid diseases: hypertension, chronic renal diseases, coronary heart disease, diabetes mellitus. Which significantly increases the cost of treatment. When building a cost model based on the standards, which lists the medical intervention with the frequency of their use, these disease with high comorbidity is necessary to use the correction factor (reducing margins) for. The aim of the study was the prognostic assessment of patients with the cost of doing with gout during the year, taking into account polymorbidity and RM. METHODS: We included 200 patients with gout, composed comorbid profile and matrix for all combinations of diseases, frequency calculations. Calculated the direct costs of treatment of gout and related diseases for each existing combination of comorbid pathology taking into account hospitalization rate for “young” and “old” populations and the RM (the value determined by the number of diseases, recorded in the preparation of models). RESULTS: In group A (age 57 ± 9, 11.3 N=159) was observed 2 comorbid disease to a patient, in the group B (age 57 ± 11.4, 4 N=40) - 1.2 hospitalizations per year, versus 0.7p<0.001). Direct projected costs of treating comorbid diseases 5 in patient in the course of the year in the summation indices standards amounted to 21,638$, and in view of the RM-12,987$. Average direct costs for the year gout treatment in 1 patient out of a population of “young” amounted to 1315$ and 701$ in view of comorbid diseases and the RM, in the group, respectively 2038$ and 1492$. CONCLUSIONS: The main factor helps to make more accurate forecast of the cost of comorbid chronic diseases, the frequency of which increases significantly in older patients.
Patients with hemophilia from 1.890.000 abroad were estimated from the individual risk of health and economic burden of hemophilia. The median cost per year per patient with a disease in remission was €4,742.0 (95%CI:1,357.6–8,126.5), and €4,059.8 (95% CI:2,545.1–5,574.6), respectively, for patients with active disease. The difference between group data was assessed with Mann-Whitney U-test. RESULTS: 110 patients participated in the study, including 72 working persons. Mean cost of absenteeism and presenteeism was €240.2 (range: 0-7,698.45) and €4,059.8 (95%CI:2,545.1-5,574.6), respectively, per year per patient with a disease in remission. The mean yearly cost of productivity loss due to informal care was estimated to be €240.2 (range: 0-7,698.45). The corresponding values for patients with active disease were: €8,108.3 (95%CI:3,936.6-12,270.9), €4,742.0 (95% CI:1,357.6-8,126.5), and €4,056.6 (95% CI:1,972-4,495.8). The between-group difference in total indirect costs, cost of absenteeism and cost of informal care was statistically significant. The average weighted monthly costs of therapy with particular drugs categories (e.g. mainalide or biologic drugs) differed significantly between active disease or remission patients. The difference in utility values between patients with a disease in remission (0.894, SD0.097) and patients with an active disease were: 0.880, SD0.062 was statistically significant. CONCLUSIONS: Our results indicate a high dependency on direct and indirect costs as well as quality of life on the severity of UC in Poland.


Georgia University Medical College, Krakow, Poland, Jagiellonian University Medical College, Krakow, Poland

OBJECTIVES: The major objective of this study was to assess a disease activity and quality of life reported by patients with ulcerative colitis (UC) as well as to evaluate direct and indirect costs of UC in Polish settings. METHODS: A questionnaire, cross-sectional study was conducted in UC patients assessed in therapy of the period of study. Clinical Activity Index (CAI) was used to assess disease activity, and the WFAI questionnaire to assess productivity loss. The quality of life was presented as unadjusted calculated using the EQ-5D-3L questionnaire. Indirect costs included absenteeism, presenteeism and informal care were assessed with the Human Capital Approach and expressed in euros (€). The productivity loss among informal caregivers was valued with the average wage in Poland. Correlations were present in Kruskal’s coefficient of rank. The between-group difference was assessed with Mann-Whitney U-test. RESULTS: 110 patients participated in the study, including 72 working persons. Mean cost of absenteeism and presenteeism was €240.2 (range: 0.0-7,698.45) and €4,059.8 (95%CI:2,545.1-5,574.6), respectively, per year per patient with a disease in remission. The mean yearly cost of productivity loss due to informal care was estimated to be €240.2 (range: 0.0-7,698.45). The corresponding values for patients with active disease were: €8,108.3 (95%CI:3,936.6-12,270.9), €4,742.0 (95% CI:1,357.6-8,126.5), and €4,056.6 (95% CI:1,972-4,495.8). The between-group difference in total indirect costs, cost of absenteeism and cost of informal care was statistically significant. The average weighted monthly costs of therapy with particular drugs categories (e.g. mainalide or biologic drugs) differed significantly between active disease or remission patients. The difference in utility values between patients with a disease in remission (0.894, SD0.097) and patients with an active disease were: 0.880, SD0.062 was statistically significant. CONCLUSIONS: Our results indicate a high dependency on direct and indirect costs as well as quality of life on the severity of UC in Poland.


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utilization and costs were estimated based on studies conducted in China and opinions from local experts. Analysis results were presented with incremental cost-effectiveness ratio (ICER) and a threshold of 3 times local GDP per capita was applied. To test the robustness of base-case results, one-way and probabilistic sensitivity analyses were performed. Besides, scenario analyses were also undertaken to assess the probability of treatment for infants weighing 100 kg, still with the advantage of favorable dosing (four administrations per year).

PSY65

COST EFFECTIVENESS ANALYSIS OF MORPHINE MONOTHERAPY VERSUS FENTANYL MONOTHERAPY IN THE MANAGEMENT OF NEONATES UNDERGOING MECHANICAL VENTILATION IN THE INTENSIVE CARE SETTING IN QATAR

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OBJECTIVES: This study was to evaluate the clinical and economic impact of morphine versus fentanyl monotherapy in mechanically ventilated neonates with respiratory distress syndrome in the Qatar neonatal NICU. METHODS: A retrospective cohort analysis of 126 critically ill neonates on mechanical ventilation (MV) at the NICU of Hamad Medical Corporation (HMC), the main healthcare provider in Qatar. Costs were calculated on the medical records in within the duration from 2014 to 2016. Out of 126, 63 patients received morphine (100-200mcg/kg, followed by 15-30mcg/kg/hour continuous infusion) and 63 received fentanyl (0.5-3mcg/kg, followed by 1-5mcg/kg/hour continuous infusion). A decision analytic model followed the possible consequences of both sedatives. The primary clinical endpoint was the successful drug weaning from MV. Secondary endpoints included the costs of treatment, complications, changes in primary therapy prices. RESULTS: Incidence of complications was lower in the morphine group compared to fentanyl (21.9% versus 35.6%). The primary cost-effective evaluation of morphine versus fentanyl in NICU in Qatar, was conducted based on the medical records in within the duration from 2014 to 2016. The base-case analysis favored standard prophylaxis as it is associated with lower costs (1,278,101 CNY) and higher QALYs (6.24 QALYs) per patient in lifetime. According to the one-way sensitivity analysis, this result was sensitive to the dosage of infusion in both strategies, the frequency of infusion in standard prophylaxis, and the frequency of bleeding. Probabilistic sensitivity analysis results demonstrated that over 80% simulations were lower than the cost-effectiveness threshold. Low-cost anti-emetics was also compared- the dominant and comparable with on-demand treatment. Without consideration of treatment for inhibitor failures, the ICER was estimated at 87,794 CNY per QALY gained, implying a cost-effective option for patients with severe hemophilia A in China. CONCLUSIONS: In the local context of China, standard prophylaxis for hemophilia A patients is a dominant strategy compared with standard on-demand treatment.

PSY66

COST PER RESPONDER ANALYSIS OF USTEKINUMAB VERSUS SECUKINUMAB FOR THE TREATMENT OF MODERATE TO SEVERE PSORIASIS UNDER THE BRAZILIAN PRIVATE HEALTHCARE SYSTEM PERSPECTIVE

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OBJECTIVES: Recently, the treatment paradigm of plaque psoriasis (PsO) has evolved within the context of biological therapies, mainly novel interleukin inhibitors. This study aims to estimate the cost per responder of ustekinumab (UST) compared to secukinumab (SEC) in patients with moderate to severe PsO from the Brazilian private healthcare system perspective. METHODS: Treatment costs and cost per PASI response were calculated and compared between UST and SEC in year 1 and year 2 of treatment onwards. Annualized discount costs included in the model was 3% per year. Treatment costs were lower for UST when compared to SEC in both year 1 and year 2 of treatment onwards, resulting in savings of BRL 54,208 after 2 years of treatment. UST also presented lower cost per PASI 90 response compared to SEC in both year 1 (BRL 76,662 versus BRL 104,159) and year 2 of treatment onwards (BRL 65,955 versus 81,113). Univariate sensitivity analysis showed that, for patients weighting > 100 kg or requiring UST dose escalation, SEC presented lower cost per PASI 90 response compared to UST. CONCLUSIONS: From the Brazilian private healthcare system perspective, UST was estimated to present lower treatment cost and lower cost per PASI 90 response compared to SEC for the majority of patients (< 100 kg), still with the advantage of favorable dosing (four administrations per year).

PSY67

PHARMACOECONOMICS ANALYSIS OF MORPHINE MONOTHERAPY VERSUS MORPHINE PLUS MIDAZOLAM COMBINATION FOR CRITICALLY ILL NEONATES UNDERGOING MECHANICAL VENTILATION AT THE INTENSIVE CARE SETTING IN QATAR

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OBJECTIVES: The current study was to conduct a clinical and pharmacoeconomic evaluation of morphine monotherapy versus morphine plus midazolam combination for critically ill neonates undergoing mechanical ventilation at the NICU of the main healthcare provider in Qatar, was carried out from the hospital perspective. Sample size calculations were to achieve 80% power and 0.05 significance. Patients received either morphine (100-200mcg/kg, followed by 15-30mcg/kg/hour continuous infusion) or morphine plus midazolam (0.01-0.2mg/kg/hour continuous infusion). A decision analytic model that follows the possible therapy consequences was developed. As the primary clinical endpoint, sedation success was defined as per the Premature Infant Pain Profile scoring scale. Univariate Monte Carlo simulation analyses were performed to confirm robustness. RESULTS: The base case probabilistic...
analysis demonstrated that morphine monotherapy dominated the combination of morphine and midazolam, with a net cost saving of QAR 13,067 per patient and a 65.65% higher clinical effectiveness compared to the morphine plus midazolam combination alone without an analgesic reduced the duration of mechanical ventilation and NICU stays to 9.5 and 7.0 days, respectively, compared to 25.1 and 34.4 days with the morphine plus midazolam combination. Add to this that neonates receiving monotherapy regimen had less administrations of higher doses and alternative sedatives (9.1% and 9.1%, versus 34.37% and 23.80%, respectively). CONCLUSIONS: With significantly higher clinical effectiveness and lesser cost, morphine monotherapy is superior to the morphine plus midazolam combination in the critically ill neonates who require MV. This regimen was better tolerated; allowing for more optimal pain management and improved weaning process from MV.**

**PSY68**

**COST-EFFECTIVENESS ANALYSIS OF 5% LIDOCAINE MEDICATED PLASTER MONOTHERAPY VERSUS PREGABALIN OR GABAPENTIN IN THE TREATMENT OF POST HERPETIC NEURALGIA AND DIABETIC POLYNEUROPATHY UNDER THE PERSPECTIVE OF BRAZILIAN PUBLIC HEALTHCARE SYSTEM**

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**OBJECTIVES:** To evaluate the cost-effectiveness of the use of 5% lidocaine medicated plaster (LMP) monotherapy, compared with pregabalin and gabapentin, in the treatment of postherpetic neuralgia (PHN) and diabetic polyneuropathy (DPN) in the Brazilian public healthcare system. **METHODS:** A systematic review was performed to compare the use of LMP with placebo or active comparators on neuromuscular pain condition. Based on the results, disease and efficacy data were selected. PHN and DPN were the most studied neuropathic pain conditions and therefore selected. Since both diseases were evaluated together, the same structure could be formed for both analyses, with minor adaptations. Two comparative arms were selected: pregabalin, the main comparator in clinical trials, and gabapentin, the most used drug in clinical practice. A Markov model was built based on published cost-effectiveness studies, and consisted of 6 states covering treatment, adverse events and death. In a 12-month horizon it was 6 months of life and with monthly cycles of transitions probabilities were extracted from clinical trials, head-to-head for pregabalin and placebo controlled for gabapentin. Benefits were measured in quality-adjusted life years (QALY), to account the improvement in adverse events. Resource use was retrieved from literature and direct medical costs were estimated based on public sources. A one-way sensitivity analysis was performed to evaluate model's robustness. Values were expressed in 2016 BRL. **RESULTS:** Incremental cost-effectiveness ratio (ICER) of LPM versus pregabalin and gabapentin were 19,256.33 BRL/QALY and 19,102.47 BRL/QALY for PHN, and 19,244.16 BRL/QALY and 23,080.75 BRL/QALY for DPN. All results from the sensitivity analysis were below the threshold recommended by WHO of 1 GDP per capita (27,280.00 BRL), and the most sensitive parameter was the mean number of plasters used. **CONCLUSIONS:** LMP monotherapy was considered highly cost-effective for the treatment of PHN and DPN compared with pregabalin or gabapentin in the Brazilian public healthcare system.

**PSY69**

**IFABOND (VITALITEC) SURGICAL GLUE IN LAPAROSCOPIC SLEEVE GASTRECTOMY: AN INITIAL EXPERIENCE AND COST EFFECTIVENESS ANALYSIS**

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**OBJECTIVES:** Laparoscopic sleeve gastrectomy (LSG) is one of the most common bariatric procedures. Gastric leaks and bleeding are the most frequent complications, associated with a high clinical and economic burden. The best method of staple line management and improved weaning process from MV. **METHODS:** The data on SEC efficacy have been derived from two randomized multicenter clinical trials: MEASURE-1 and MEASURE-2. Long-term data on therapeutic efficacy have been modelled using a model of Improvement in Lung Health Solutions. The data on therapeutic efficacy are directly transferred in the local environment from the clinical trials and the applied model. The data on costs of the alternatives are based on the reference prices of ETA, INF, ADA, GOL, CER and SEC published in the Positive Drug List. Other direct or indirect health costs, are not included in the analysis. They are considered comparable in the various therapeutic alternatives in the Bulgarian healthcare setting. **RESULTS:** The analysis of adapted data on SEC cost-effectiveness analysis indicates that SEC dominates CER, ETA, ADA, GOL and if we consider a cost-effectiveness threshold three times GDP per capita in Bulgaria (WTPth 36 221 BGN, 2015), is a cost-effectiveness therapy in comparison to INF (ICER 27 552 BGN/QALY). **CONCLUSIONS:** The pharmacotherapeutic guidelines based on both clinical data on efficacy and safety, and economic data on comparative cost-effectiveness of potential biological therapeutic alternatives for the treatment of AS in Bulgaria shows that SEC dominates CER, ETA, ADA, GOL and if we consider a cost-effectiveness threshold three times GDP per capita in Bulgaria (WTPth 36 221 BGN, 2015), is a cost-effectiveness therapy in comparison to INF (ICER 27 552 BGN/QALY). **OBJECTIVES:** To systematically review the methodological approaches in published cost-effectiveness models of bariatric surgery. **METHODS:** A systematic literature search from different databases with an end date of September 4, 2016 was done. The search was limited to English studies, cost-effectiveness models comparing bariatric surgeries with non-surgical interventions and those reporting quality adjusted life years. The quality of reporting the models was performed by using CHEERS’s statement. **RESULTS:** The initial search for title and abstract screening resulted in 691 articles. 18 economic evaluation studies were included in the final review. The reporting quality scores of most articles were rated as acceptable, between 61% and 100%. Of the included 18 studies, 8 only were done in the US. Most were studies (88%) were looking at bariatric surgery for adult for 6-7 years old. Half of the studies evaluated bariatric surgery versus no treatment and the other half compared bariatric surgery to medical management or conventional therapy. Sixty one percent of studies defined their health states by the presence or absence of different obesity-related comorbidities. Only 42% of studies took the societal prospective. Productivity was not captured in the societal prospective but travel time was accounted for. The time horizon varied, but 61% of studies used a lifetime horizon. Thirty nine percent of studies identified the extent of weight loss as the most sensitive and influential parameter. Seventeen percent of studies did not conduct any model validation. **CONCLUSIONS:** Cost effectiveness models of bariatric surgery had different modeling approaches and quality. Future cost-effectiveness models need to use a pre-specified and consistent economic population because few cost-effectiveness studies have addressed this population in which the use of bariatric surgery is rising. Also, future models should include baseline obesity and overweight patients, since these studies have claimed that bariatric surgery is of benefit to lower BMI patients also.
ECONOMIC EVALUATION OF THE USE OF IBUPROFEN AS AN NSAID WITH ANALGESIC ACTION FOR THE TREATMENT OF PATIENTS WITH ACUTE PAIN

Figueroa A2, Gutierrez M2, Ortiz M2

OBJECTIVES: To perform a complete economic evaluation of ibuprofen as an NSAID with analgesic action for the treatment of patients with acute pain, compared to the therapeutic alternatives considered in the Basic Medication Formulary of IMSS (CBMSS for its acronym in Spanish). METHODS: A systematic review of the use of ibuprofen as a non-steroidal anti-inflammatory with analgesic action for the treatment of acute pain was carried out. A meta-analysis was necessary to verify the therapeutic similarity of ibuprofen vs available CBMSS costs for comparisons. Given the therapeutic similarity, a cost minimization was the economic analysis performed, in addition to a budget impact analysis (BIA). RESULTS: The cost of treatment with ibuprofen represents one of the lowest per QALY (Quality-Adjusted Life Years) in comparison to the therapeutic alternatives available in the CBMSS such as paracetamol, acetaminophen, ibuprofen, and metamizole.

COST EFFECTIVENESS OF BARIATRIC SURGERY FOR MORBID OBESITY IN USA

Alomallai A1, Equgale T1, Rittenhouse B2, Bannam S2, Seoane-Vazquez E1, Sannimel M1

OBJECTIVES: To determine the cost-effectiveness of adjustable gastric banding (AGB), laparoscopic adjustable gastric banding (LAGB), and laparoscopic sleeve gastrectomy (LSG) – as treatment for morbid obesity in USA. METHODS: A microsimulation model was developed as a decision-analytic tool to evaluate the cost-effectiveness of morbid obesity treatments using Monte Carlo Markov chains of cardiometabolic comorbidities status, health consequences and costs of bariatric surgery for morbid obesity. Incremental cost-effectiveness ratios (ICERs) in terms of cost per quality-adjusted life-year (QALY) were estimated for each of the bariatric procedures. Sensitivity analyses were used to explore the robustness of results to a range of parameter values. RESULTS: All types of bariatric surgeries showed statistically significant improvement in health compared to no surgery, with an average saving of $73,301.74 and a saving of 0.00015583% of the total budget. CONCLUSIONS: Based on the results found in the present study, it is possible to conclude that the use of ibuprofen 400mg, is a cost-saving alternative in comparison to the therapeutic alternatives available in the CBMSS.

COST EFFECTIVENESS OF BARIATRIC SURGERY FOR MORBID OBESITY

Figueroa A, Alomallai A, Gutierrez M, Ortiz M

OBJECTIVES: To determine the cost-effectiveness of aprotinin and tranexamic acid for the prevention of blood loss during coronary artery bypass grafting. METHODS: A cost-effectiveness analysis was performed using a decision-analytic model. RESULTS: Compared to aprotinin, tranexamic acid was associated with lower costs and more quality-adjusted life-years (QALYs). CONCLUSIONS: Tranexamic acid is a cost-effective alternative to aprotinin for the prevention of blood loss during coronary artery bypass grafting.

COST EFFECTIVENESS OF BARIATRIC SURGERY FOR MORBID OBESITY

Figueroa A, Alomallai A, Gutierrez M, Ortiz M

OBJECTIVES: To determine the cost-effectiveness of laparoscopic adjustable gastric banding (LAGB), laparoscopic sleeve gastrectomy (LSG), and laparoscopic Roux-en-Y gastric bypass (RYGB) for the treatment of morbid obesity in USA. METHODS: A cost-effectiveness analysis was performed using a decision-analytic model. RESULTS: All types of bariatric surgeries showed statistically significant improvement in health compared to no surgery, with an average saving of $73,301.74 and a saving of 0.00015583% of the total budget. CONCLUSIONS: Based on the results found in the present study, it is possible to conclude that the use of ibuprofen 400mg, is a cost-saving alternative in comparison to the therapeutic alternatives available in the CBMSS such as paracetamol, acetaminophen, ibuprofen, and metamizole.

COST EFFECTIVENESS OF BARIATRIC SURGERY FOR MORBID OBESITY

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COST EFFECTIVENESS OF BARIATRIC SURGERY FOR MORBID OBESITY

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and the 4-year rate was 22.1% (95% CI:15.2-29.0). The mean total health care cost per patient per year was significantly higher among PBC patients than non-PBC patients (P<0.0001) with longer lengths of stay (11.5 vs 6.3 days, p<0.0001), the greatest predictors of inpatient admission included respiratory failure (OR=17.6, p<0.0001), infection (OR=8.6, p<0.0001), malnutrition (OR=7.1, p<0.0001), and compassionate discharge (OR=5.9, p<0.0001). CONCLUSIONS: HHG are both characterized by decreased production in antibodies, many differences exist in the characteristics and comorbidities between these patients. Furthermore, hospital resource utilization varies across these cohorts.

PSY97
HOSPITAL RESOURCE UTILIZATION IN HEREDITARY AND NON-HEREDITARY HYPOGAMMAGLOBULINEMIA PATIENTS
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OBJECTIVES: Hypogammaglobulinemia (HG) is an immune disorder characterized by a lack in production of antibodies. Due to immune deficiencies, patients with HG often have recurrent infections. The purpose of this analysis is to examine hospital resource utilization in patients diagnosed with HG. METHODS: A retrospective analysis was conducted on a cross-section of HG discharges in the MedAssets health system data for October 2015 through September 2016 discharges. Between group differences were tested using Chi-Square for categorical variables and ANOVA for continuous variables. Multivariable logistic regression was used to determine independent predictors of hospitalization. RESULTS: The sample population included 8670 patients treated in 283 U.S. hospitals. Only 3.1% were diagnosed with hereditary HG (HHG). Not surprisingly the HHG cohort was primarily male (72.1%) however the non-hereditary HG (NHGG) cohort had more females (62.9%). HHG patients were significantly younger (37.2 vs 59.7, p<0.0001) and had significantly lower Charlson Comorbidity Index scores (1.1 vs 3.0, p<0.0001). The most common comorbidities for HHG included chronic pulmonary disease (COPD), 37.3%, chronic renal failure (29.1%), and anemia (25.5%) were most prevalent in NHGG. Infections were more common in the NHGG cohort (12.2% vs 6.9%, p<0.0001). NHG patients had slightly more visits overall (4.0 vs 3.4, p=.0308). Inpatient utilization was higher for NHG (9.8% vs 5.0%, p<0.0001) with longer lengths of stay (11.5 vs 6.3 days, p<0.0001). The predictors of inpatient admission included respiratory failure (OR=17.6, p<0.0001), infection (OR=8.6, p<0.0001), malnutrition (OR=7.1, p<0.0001), and compassionate discharge (OR=5.9, p<0.0001). CONCLUSIONS: HHG and NHG are both characterized by decreased production in antibodies, many differences exist in the characteristics and comorbidities between these patients. Furthermore, hospital resource utilization varies across these cohorts.

PSY80
A COMPARISON OF GDP-ADJUSTED ORPHAN DRUG PRICES IN 12 EUROPEAN COUNTRIES
Young KE, Kousi I, Toumi M
1CREA- Coutuel, Paris, France, 2CREA-Coutuel, Tunis, Tunisia, 3Aix-Marseille University, Marseille, France
OBJECTIVES: The study compared the price differences of orphan drugs among countries by comparing the annual treatment cost per patient adjusted by nominal GDP per capita, GDP in PPP per capita, % GDP contributed by the government, % GDP per capita, percentage of governmental budget spent on healthcare, % GDP per capita spent on pharmaceuticals, and average annual salary of similarly available orphan drugs in low and high GDP countries in Europe: France, Germany, Italy, Norway, Spain, Sweden, UK, Greece, Poland, Bulgaria, Romania, Hungary. METHODS: Orphan drugs granted market authorisation up to June 13, 2016 were extracted from the European Medicines Agency (EMA) website. Annual treatment costs per drug were calculated using exchange factory prices from IHS POLI and country price databases. GDP-related variables were extracted from the OECD website. The annual treatment costs were divided by each GDP measure for the cost of each drug. An international rare disease registry to inform development of a cost-effectiveness model for treatment of transthyretin familial amyloid polyneuropathy (TTR-FAP) in Brazil. METHODS: A retrospective analysis of data from the ongoing, international Transthyretin Amyloidosis Outcomes Survey (THAOS), a rare disease registry for transthyretin amyloidosis, was conducted (cut-off date January 14, 2016). Descriptive analyses were performed on subject data collected during clinical evaluations using a variety of standard assessments, including a neurological examination that allows derivation of a Neurological Impairment Score–Lower Extremity (NIS-LE), ambulatory status (for lower limbs), and patient-reported health status (EQ-5D-3L). RESULTS: An overall total of 1,205 symptomatic subjects were included, most with the Val30Met mutation (N=970). Data were available for 93 Brazilian subjects, the majority of whom had the Val30Met mutation (N=88). Derived NIS-LL scores increased (worsened) with longer disease duration. For the transitions between the three Cootinho-based disease stages, cut-offs for the derived NIS-LL scores were established using the 25th and 75th percentiles of the distribution (46 and 63, respectively). The percentage of Brazilian subjects with the Val30Met mutation were primarily in stage 1 (N=55, 71%) with fewer subjects in stages 2 (N=15, 19%) and 3 (N=8, 10%). EQ-5D-3L health state utilities calculated with Brazilian tariffs showed similar decrements with advancing stage in the Val30Met mutation group (mean SD; stage 1: 0.70 (0.19), stage 2: 0.44 (0.18), and stage 3: 0.10 (0.20) and other mutations group [stage 1: 0.68 (0.21), stage 2: 0.40 (0.16), and stage 3: 0.05 (0.11)]. CONCLUSIONS: Brazilian TTR-FAP and TTR-TTR patients are similar in terms of their disease stage and exhibit lower quality of life as the disease worsens. Global disease registries such as THAOS play an important role in characterizing health status in rare diseases like TTR-FAP.

PSY83
EXPLORATION OF NURSES KNOWLEDGE REGARDING PAIN MANAGEMENT IN POST-OPERATIVE PATIENTS IN QUETTA PAKISTAN
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1Department of Surgery, Bolan General Hospital, Quetta, Pakistan, 2Department of Pharmacy Practice, University of Balochistan, Quetta, Pakistan
OBJECTIVES: The study aimed to explore Nurses knowledge regarding pain management in post-operative patients in Quetta, Pakistan. METHODS: A cross-sectional descriptive study was conducted in post-operative patients of various hospitals of Quetta. Data obtained from 194 STEM1 patients’ during August to October 2016 by using self-designed proforma which consist of vital signs, prescribed drugs, positive and negative outcomes. Statistical analysis was done by using SPSS version 20. Descriptive and inferential statistics used where applicable. RESULTS: Study concluded that most of the responses regarding pain management were correct. 86.67% staff nurse having 1-10 years of experience in nursing hospitals. Majority of nurses 70.95% incorrectly recorded giving of narcotics on a continuous timetable is favored over a pro schedule for regular pain. 89.05% showed incorrect response that constant calculation of pain and medication efficiency is a must for good management of the pain. 86.67% showed incorrect response that patient can manage pain without respiratory depression or sedation. 88.57% nurses stated wrong response regarding she should contact the physician, if a patient still feels pain despite giving medication. CONCLUSIONS: Study concluded that most of the responses regarding pain management was incorrect by nurses, hence, it will be helpful to assess the quality of improvement steps such as training programs on nurses’ knowledge, attitudes, and subsequent practices in pain management which ultimately results in better patient outcomes regarding pain management.
ESTIMATING HEALTH STATE UTILITIES FOR PATIENTS WITH ACUTE MYELOID LEUKEMIA

Mamolo C1, Cappelleri JC2, Cuervo J3, Lang K4, Mehta P5, Mogkongkhol K4, Manolo C5

OBJECTIVES: To develop clinically validated health states (HS) for acute myeloid leukemia (AML) and to assign utility values based on preferences of the general UK population. A discrete choice experiment (DCE) survey was conducted to elicit HS utility values and comprised two stages: (i) AML HS were defined based on evidence from a literature review of AML clinical and healthcare-related quality-of-life studies (published January 2000-June 2016). A panel of UK hematologists with AML expertise validated the content relevance of AML HS. (ii) Validated HS were used in the DCE elicitation survey with a representative UK population sample using the time trade-off (TTO) method (the primary outcome) and also the visual analogue scale (VAS) as a secondary outcome to elicit preference values. RESULTS: Eight HS were developed and clinically validated: treatment with chemotherapy, consolidation therapy, transplant, graft-vs-host disease (GVHD), relapse, refractory, and functionally cured. In total, 125 participants (mean age, 49.6 years; range, 18-87 years; 52% women, 40% physicians not satisfied with current treatment) provided TTO and VAS preference data. Mean (95% CI) VAS preference values for the same rank order, ranging from 0.15 (0.13-0.17) for refractory to 0.71 (0.68-0.73) for functionally cured. CONCLUSIONS: To our knowledge, this is the first study to report the utility values of AML HS from the UK societal perspective. Although utility values were quite low, subjects were able to distinguish differences in severity among AML HS. Preference values were consistent with clinical perception of HS severity. The DCE was reliable (intraclass correlation coefficient = 0.8). Future research can implement this instrument to evaluate the patient experience of seeking pharmacological obesity treatment through telemedicine or usual care.

PSY84

DETERMINANTS OF PATIENT AND PHYSICIAN TREATMENT SATISFACTION IN MODERATE TO SEVERE PSORIASIS: A MULTINATIONAL ASSESSMENT

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OBJECTIVES: To explore disease severity and Dermatology Life Quality Index (DLQI) score as determinants of patient and physician treatment satisfaction, comparing patients across treatment groups in the US and European Union Five (EU5) countries. METHODS: This is a retrospective study of eligible adult patients with psoriasis and their consulting Dermatologists from the 2015 Adelphi Psoriasis Disease Program (DSP). Patients self-reported responses for the DLQI, a validated questionnaire of 10 items with a composite score of 0-30, used to measure quality-of-life (QoL). Higher scores indicate more severe QoL impairment. Physicians and patients self-reported treatment satisfaction, and physicians reported satisfaction with current treatment. RESULTS: Study groups included considered patients receiving no therapy, topical phototherapy, conventional systemic agents, and biologic therapies. Statistical analyses controlling for demographic covariates and patient clinical characteristics showed statistically significant associations of higher DLQI score with lower treatment satisfaction. CONCLUSIONS: DLQI score may have potential as a reliable and practical measure to assess treatment satisfaction among psoriasis patients.

PSY85

PATIENTS’ PREFERENCES - A DISCRETE CHOICE EXPERIMENT

Pickard A1, Hyhnyi L2, Ivanova H1, Toter V1, Graham S3, McIlhagger AC5, Roy A5

1Dul Medical Affairs, Duluth, MN, USA, 2Duluth Medical Affairs, Bollington, UK

OBJECTIVES: To assess the experience of receiving obesity medication through telemedicine and usual care, seeking pharmacological obesity treatment through telemedicine or usual care.

PSY86

ASSESSING THE EXPERIENCE OF RECEIVING OBESITY MEDICATION THROUGH TELEMEDICINE: DEVELOPMENT OF A PATIENT REPORTED SURVEY

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OBJECTIVES: This study allows for a two-way, real time interactive communication between the patient and the physician at a distant site in order to diagnose conditions and prescribe treatments. Technology advancements have made it more common, particularly when addressing healthcare access issues associated with isolated populations. This study sought to develop a questionnaire to assess the overall patient experience and perceived quality of care of those seeking pharmacological obesity treatment via telemedicine visits. A multi-phased study was conducted in the United States, which included concept evaluation, item generation, and cognitive interview. Adhering to ISPOR Good Research Practices, desk literature was reviewed and physicians (N=3) were interviewed to develop a draft survey to assess the patient experience of seeking pharmacological obesity treatment. Patients who were evaluated and diagnosed with obesity and recently received a prescription weight loss medication via enrollment in a savings card program were invited to participate in two rounds of cognitive interviews (N=10). RESULTS: Desk research and physician interviews suggested concepts relating to convenience of meeting with a physician, the environment of the (physician-patient) interaction, interpersonal manner of the physician, quality of the interaction, value of the interaction, and overall satisfaction. These concepts were confirmed during the cognitive interviews with no new concepts uncovered. Respondents improved wording of items by emphasizing the importance of the physician asking "appropriate" and "non-judgmental" questions and knowing "how to consult on obesity issues" with patients, rather than just being medically knowledgeable about obesity. Patients also emphasized the importance of capturing the entire procedure in case of objections to the prescription itself, rather than just the physician-patient interaction. CONCLUSIONS: This study provided sufficient content validity for the newly developed patient experience questionnaire. Future research can implement this instrument to evaluate the patient experience of seeking pharmacological obesity treatment through telemedicine or usual care.

PSY87

ADEQUACY OF CANCER PAIN MANAGEMENT AND PAIN INTERFERENCE WITH DAILY FUNCTIONING AMONG PATIENTS VISITING ONCOLOGY WARD OF AN ETHIOPIAN UNIVERSITY

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OBJECTIVES: We aimed to assess adequacy of cancer pain treatment, its subsequent interference with functioning and the associated factors in the oncology ward of Gondar University Hospital(GUH). METHODS: This is a cross-sectional study conducted from February 15 to May 2015, in the oncology ward of GUH. A questionnaire based interview using Brief Pain Inventory (BPI) chart review were used as data collection procedures. RESULTS: Of 83 patients, 76 (91.6%) cancer patients experienced pain with varying degree of severity. Fifty four (65%) patients were receiving adequate cancer pain management. Eighteen (22%) of 76 cancer patients with pain, 68(89.2%) experienced pain interference with their daily activities. Educational level, metastasis status, number and type of analgesics used for adequacy of cancer pain management, where as stage of metastasis, history of treatment modality, history of pain and pain management adequacy for pain interference on patient’s daily functioning were identified as statistically significant predicting factors. CONCLUSIONS: It is vital to anticipate and recognize the pain of the cancer patients as routine clinical practice to optimize the analytic therapy through identifying and intervening barriers of adequacy of pain management, thereby improving patient health outcome and quality of life.

PSY88

VALUE OF TRANSFUSION INDEPENDENCE IN SEVERE APLASTIC ANEMIA FROM PATIENTS’ PERSPECTIVES - A DISCRETE CHOICE EXPERIMENT

Pickard A1, Hyhnyi L2, Ivanova H1, Toter V1, Graham S3, McIlhagger AC5, Roy A5

1Dul Medical Affairs, Duluth, MN, USA, 2Duluth Medical Affairs, Bollington, UK

OBJECTIVES: To assess the experience of receiving obesity medication through telemedicine and usual care, seeking pharmacological obesity treatment through telemedicine or usual care.

PSY89

PATIENT AND PHYSICIAN PREFERENCES IN SELECTING A BIOLOGIC FOR MODERATE-TO-SEVERE CROHN’S DISEASE

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OBJECTIVES: To understand the relative importance Crohn’s Disease (CD) patients and gastroenterologists place on treatment-related attributes when selecting a biologic for moderate-to-severe CD patients and 200 gastroenterologists. Preferences were assessed via a discrete choice experiment (DCE) where respondents made twelve treatment preference choices with three hypothetical
Fatigue in systemic lupus: The role of disease activity and its mediators

Yuan D1, Yang GL2, Li Q2

OBJECTIVES: Systemic lupus erythematosus (SLE) is a chronic autoimmune disease that causes multiple organ system involvement. Though treatment continues to advance, fatigue remains one of the highest-rated, unaddressed patient complaints. Understanding the mechanisms of fatigue can help guide appropriate interventions to improve overall outcomes. The aim was to evaluate if insomnia, depression, pain, and physical functioning mediated the relationship between disease activity and resulting fatigue in individuals with SLE.

RESULTS: Mean(SD) age was 40(14.10) years; 52% reported being female. African American, 23% Caucasian, 13% Hispanic, and 5% Asian. A multiple mediation analysis was conducted using the INDIRECT macro for SPSS which limits parameter bias when assessing for several mediators at once (Preacher & Hayes, 2008). Results: Mean(SD) age was 40(14.10) years; 52% reported being female. African American, 23% Caucasian, 13% Hispanic, and 5% Asian. A multiple mediation analysis was conducted using the INDIRECT macro for SPSS which limits parameter bias when assessing for several mediators at once (Preacher & Hayes, 2008).

CONCLUSIONS: Fatigue is a major issue among individuals with SLE. Depression mediated the effects of disease activity on fatigue. Interventions aiming at depression in addition to controlling disease activity may be useful to improve fatigue and overall outcomes in individuals SLE.

PSY92

Patient-reported outcome (PRO) instrument development for congenital thrombotic thrombocytopenic purpura (cTTP, Upshaw-Schulman syndrome, USS), hereditary thrombotic thrombocytopenic purpura (hTTP, PSY92)

Oladapo A1, Ito D1, Hibbard C2, Bean SE1, Krupnick BN2, Ewenstein BM3

OBJECTIVES: This PRO tool to assess patient burden and treatment outcomes, as existing tools do not adequately capture the range of hTTP cognitive, fatigue, and psychosocial symptoms and impacts of hTTP. METHODS: A conceptual model of hTTP symptoms and impacts was developed through an iterative process of interviews with patients, caregivers, and professionals for treating Duchenne muscular dystrophy (DMD).RESULTS: We had 161 respondents (RR=0.83, 95% CI(.97,.63)) for moderate CD (RI: 0.75 moderate, 0.50 severe CD).

Conclusions: Patients and gastroenterologists prefer similar attributes when making treatment decisions that lead to a variety of negative health outcomes resulting from inflammation in various organ systems. Though treatment continues to advance, fatigue remains one of the highest-rated, unaddressed patient complaints. Understanding the mechanisms of fatigue can help guide appropriate interventions to improve overall outcomes. The aim was to evaluate if insomnia, depression, pain, and physical functioning mediated the relationship between disease activity and resulting fatigue in individuals with SLE. METHODS: 110 ethnically diverse, primarily female participants (90%) with SLE, receiving care at university medical centers, completed assessments of disease activity, psychosocial factors, and quality of life outcomes (FACT-GT, Inomnia Severity Index, Pain Inventory, FACT-Anemia, FACIT-Fatigue, and SF-36). Multiple mediation analysis was conducted using the INDIRECT macro for SPSS which limits parameter bias when assessing for several mediators at once (Preacher & Hayes, 2008). Results: Mean(SD) age was 40(14.10) years; 52% reported being female. African American, 23% Caucasian, 13% Hispanic, and 5% Asian. A multiple mediation analysis was conducted to assess the effects of disease activity on fatigue through the effects of depression, pain, insomnia, and physical functioning. Disease activity (SLEDAI) and FACIT-Fatigue classification criteria were used for SLE. Multiple mediation analysis was conducted utilizing the INDIRECT macro for SPSS which limits parameter bias when assessing for several mediators at once (Preacher & Hayes, 2008).

In conclusion, fatigue is a major issue among individuals with SLE. Depression mediated the effects of disease activity on fatigue. Interventions aiming at depression in addition to controlling disease activity may be useful to improve fatigue and overall outcomes in individuals SLE.
A qualitative analysis of disease burden in patients with acute intermittent porphyria and recurrent attacks

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OBJECTIVES: Acute intermittent porphyria (AIP) is a metabolic disease characterized by acute attacks that result in nervous system dysfunction and can lead to hospitalizations and death. The objective of this qualitative research was to elicit concordant patient experience and coping strategies of acute attacks, patients who experience recurrent attacks (defined as ≥ 4 attacks per year).

METHODS: Patients were enrolled after meeting eligibility criteria and given informed consent. Patients completed a telephone interview in which they responded to open-ended questions about AIP, the symptoms experienced, and the impact of these symptoms and of treatment on their lives. Interviews were anonymized, transcribed and qualitatively coded. The inductive coding approach targeted textual data for patterns, themes, impact, and disease trajectory. The analysis was performed using the qualitative research software (atlas.ti version 8).

RESULTS: The 19 interviewed patients were 40 years old, 15/19 were female and 11/19 used hematin prophylactically. Patients reported 0-20 attacks (mean: 9.5) in the prior 12 months. Based on patient responses, AIP attacks were defined as the rapid onset of unmanageable symptoms that prevent the performance of daily activities and may lead to hospitalization. Patients reported a total of 113 symptoms; 78 occurred during an attack and 35 between attacks (chronically). Pain was the most frequently reported symptom during attacks (n=19), followed by nausea (n=16), and vomiting (n=15). The majority of patients (n=15) reported chronic symptoms outside attacks, most commonly pain (n=15). All patients reported that their symptoms impacted their lives, with the greatest negative impact on sleep, work/education, personal finances, mobility and socialization.

CONCLUSIONS: Data from these qualitative interviews highlight the high burden of disease in patients living with AIP that experience recurrent attacks. Importantly, AIP is not just an intermittent disease as its manifestations do not subside but has chronic manifestations (most commonly pain) that, along with attacks, negatively impact multiple domains of patients’ lives.

Burden of disease in Rett syndrome: A qualitative analysis and development of a conceptual model

Williams K1, Kleeey T1, Malmenas M2, Phelps H1, Jordan J1, Arand R1, Kaminisky S1, Bartolotta T2, Curtis L1, Kaufmann W8, Mariotti O9, Neul J10, Nues P11, Percy AK12, Simon A1, Denoncourt RN1, Howe DL4, Hungate J4, Marquis P2, Bartolotta T6, Curfs L7, Kaufmann W8, Mariotti O9, Neul J10, Nues P11, Percy AK12, Denoncourt RN1, Howe DL4, Hungate J4, Marquis P2

OBJECTIVES: Rett syndrome is a rare neurodevelopmental disorder, requiring lifelong care. Beyond its clinical symptoms, it poses a significant physical, psychological, social and financial burden on individuals and their families, which can have a detrimental impact on quality of life. However, relatively few studies have examined the extent of this burden. This study is designed to qualitatively describe the burden of disease in individuals with Rett syndrome and their caregivers.

METHODS: A targeted literature search was conducted to identify qualitative research among the general public and within individuals and/or caregivers. Studies were reviewed to identify reported clinical symptoms and impacts, contributing to overall burden of disease. This information was supplemented by findings from ongoing qualitative interviews with caregivers (N=15) and healthcare professionals (N=5). Due to the nature of the disease, caregivers are uniquely placed to provide an understanding of the burden of disease on individuals with Rett syndrome, and on themselves. Healthcare professionals were not interviewed as their perspective will be captured through a thematic analysis. The results of the literature review and interviews will be summarized in a conceptual model of the burden of Rett syndrome.

RESULTS: Five qualitative papers were identified from the search results. Most studies focused on a specific impact of Rett syndrome (e.g. hand movements), with only two studies assessing the broader burden of disease. Both were limited to either patient or caregiver burden; neither examined the broader burden on both groups including the caregiver. Concept elicitation interviews results are expected in spring 2017.

CONCLUSIONS: This will be the first study to provide an overview of the factors influencing burden of disease in both individuals with Rett syndrome and their caregivers. The conceptual model will provide a useful tool to inform the development of future questionnaires, including a large-scale international burden of disease survey.

Exploring the sign and symptom experience of BTHS syndrome in adult and adolescent populations

Stokes J1, Audi A1, Mazza F1, Elliott M2, Dillard S1, Collins S1, Love E1, Shields AL1

OBJECTIVES: Patient reported outcomes (PROs) are often primary endpoints in clinical trials, serving to determine treatment safety and/or efficacy. In clinical trials for pain treatments, it is important to accurately determine pain severity to assess treatment efficacy. If data are unreliable, due to variability resulting from subject interpretation errors, this will be unreliable and may lead to incorrect conclusions.

METHODS: A retrospective survey was conducted among patients who had open, laparoscopic vs. robotic-assisted inguinal hernia repairs (O-IHR) vs. L-IHR vs. R-IHR in the past 12 months. Patients were recruited from a national marketing research panel and 10 surgical practices across the United States. A questionnaire, including a 0 to 10 pain scale, was used to assess pain level perception, interruption of daily activities, and time to return to normal activity. T-tests and Z-tests were performed between R-IHR and L-IHR and vs. O-IHR, respectively.

RESULTS: of the study included 214 O-IHRs, 214 L-IHRs, and 98 R-IHRs. Of them, 35.4% had a previous IHR, and 39.2% took pain medication before surgery. R-IHRs had significantly lower perceived pain level (4.0 ± 2.9 vs. 6.5 ± 2.7 score), less perceived disruption of daily activities (6.2 ± 3.0 vs. 7.6 ± 2.0 score), less time between surgery and stopping prescription pain medication (8.9 ± 11.3 vs. 14.2 ± 18.8 days) than O-IHRs. Similar patterns were observed among patients who previously participated in previous IHRs and among those using pre-operative pain medications. A significantly higher proportion of R-IHR patients reported having only one follow-up visit than O-IHR patients (54% vs. 34%). Compared to L-IHR patients, R-IHR patients had significantly more people (66.7%) chose the wrong answer ( χ² = 25.0, p < 0.001); 37.3% of those who previously participated in clinical trials for pain treatments, it is important to accurately determine pain severity to assess treatment efficacy. If data are unreliable, due to variability resulting from subject interpretation errors, this will be unreliable and may lead to incorrect conclusions.

CONCLUSIONS: Robotic-assisted IHR is associated with lower post-operative pain perception, less disruption of daily activities, and shorter duration of pain medications compared to open or laparoscopic. Further prospective studies are needed to determine the long term patient benefits.

Exploring the sign and symptom experience of BTHS syndrome in adult and adolescent populations

Stokes J1, Audi A1, Mazza F1, Elliott M2, Dillard S1, Collins S1, Love E1, Shields AL1

OBJECTIVES: To determine if patients understand a sample instruction from a PRO on understanding of how to report pain severity over a period of time

Yamamoto KT, Durand EM, Cary ST, Tuller JM, Dallaballa SM

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CONCLUSIONS: Robotic-assisted IHR is associated with lower post-operative pain perception, less disruption of daily activities, and shorter duration of pain medications compared to open or laparoscopic. Further prospective studies are needed to determine the long term patient benefits.
adult populations. RESULTS: A total of 57 BTHS sign/symptom concepts were reported across samples (N=33) with saturation analyses confirming adequacy of sample size for exploration. Most frequently reported were fatigue/tiredness (n=10, 16.7%), cardiomyopathy (n=14, 22.2%), muscle weakness (n=14, 22.2%), eating small quantities (n=11, 16.7%), and physical developmental delay (n=10, 15.6%). Fatigue/tiredness (n=9, 13.9%); headache (n=8, 12.5%); eating small quantities (n=7, 10.6%); muscle weakness (n=3, 4.7%); and cold extremities (n=3, 4.7%) were reported as the most bothersome symptoms. Adolescents most frequently reported muscle weakness (n=10, 88.9%) and fatigue/tiredness (n=8, 44.4%) as important to improve with treatment. Adults (n=15) most frequently reported fatigue/tiredness (n=15, 100.0%), cardiomyopathy (n=13, 86.7%), muscle weakness (n=12, 80.0%), neuropenia (n=12, 80.0%), and infection (n=9, 60.0%). Fatigue/tiredness (n=7, 46.7%), muscle weakness (n=6, 40.0%), and neuropenia (n=3, 20.0%) were rated as the most bothersome symptoms. Adults most frequently reported fatigue/tiredness (n=13, 86.7%) and muscle weakness (n=9, 60.0%) as important treatment targets.

CONCLUSIONS: Though there were some differences, results suggest symptomatic similarities in the experience of BTHS as an adolescent and an adult. Moreover, that both patient populations would find treatment meaningful if it targeted and reduced fatigue/tiredness and muscle weakness.

PSY100

MODELING JOINT STATUS AND OTHER FACTORS ASSOCIATED WITH PERCEPTION OF PAIN SEVERITY/INTERFERENCE AND FUNCTIONAL IMPAIRMENT IN US ADULTS WITH HEMOPHILIA: ANALYSIS OF THE PAIN, FUNCTIONAL IMPAIRMENT, AND QUALITY OF LIFE [P-FIQ] STUDY

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OBJECTIVES: To assess factors associated with pain and functional capabilities independence of hemophilia-related orthopedic surgeries. METHODS: US adults with hemophilia were completed patient-reported outcome instruments to assess pain (Brief Pain Inventory, BPI), functional impairment (Hemophilia Activities List, HAL), and quality of life (FACT-L). Participants optionally completed joint evaluation (Joint Health Score, JHS). The association of BPI scores and HAL with JHS and other covariates was examined using simple regression models and by a multiple regression model where JHS index, age, hemophilia severity, and treatment were included with other covariates. Finally, the relationship between BPI/HAL scores < 0.5 using forward selection. RESULTS: Of 381 adults enrolled, 240 had complete JHS scores (median age 32, 64% severe hemophilia, 9% hemophilia with inhibitors). In simple regression, higher EQ-5D-5L pain/discomfort score had strong association with worse BPI outcomes, but this association did not remain when adjusted for other covariates. For BPI pain-severity (R-squared = 0.422) and BPI pain-interference (R-squared = 0.368), the most consistent significant predictors of worse outcomes after adjusting for HAL were non-employed status, and general health perception. For JHS the most significant predictors of worse outcomes after adjusting for JHS were older age, non-employed status, more severe hemophilia (with inhibitor status), and BMI < 25. The JHS and EQ-5D-5L were associated with both pain and functional abilities; pain severity was also associated with functional abilities. The predictive power of the studied covariates was higher for functional outcomes than pain, possibly due to the closer correlation of objective joint status with reported disability, and increased day-to-day variability of pain.

PSY101

EXPLORING AND DOCUMENTING THE SIGNS, SYMPTOMS, AND IMPACTS OF PRIMARY MITOCHONDRIAL DISEASE

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OBJECTIVES: Primary mitochondrial disease (PMD) is characterized by a variety of signs/symptoms that can negatively impact patients. METHODS: Concept elicitation interviews were conducted with PMD patients (N=20) to identify and better understand the signs/symptoms and impacts that characterize the disease experience. In open-ended, one-on-one interviews with trained facilitators, patients discussed their disease and rated the bother of their signs/symptoms. Transcribed interviews were coded and analyzed and results were summarized in a PMD conceptual model. RESULTS: Saturation analysis of the 47 PMD signs/symptom concepts elicited from patients confirmed the adequacy of the sample size. Mean age of participants was 42.7 years (SD=13.3), 11 were male (55%), and a range of PMD phenotypes were represented. The most frequently reported signs/symptoms were fatigue/tiredness (n=15, 75.0%), impaired vision (n=12, 60.0%), memory problems (n=12, 60.0%), independent of joint status, employment, pain, and depression were associated with both pain and functional abilities; pain severity was also associated with functional abilities. The predictive power of the studied covariates was higher for functional outcomes than pain, possibly due to the closer correlation of objective joint status with reported disability, and increased day-to-day variability of pain.

PSY102

ACUTE PAIN AND RELATED OUTCOMES IN SURGICAL PATIENTS: PROSPECTIVE ANALYSIS OF A LARGE US ELECTRONIC HEALTH RECORD DATABASE

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OBJECTIVES: Acute pain remains lacking in the postoperative setting. The objective of the study was to examine progression in postsurgical pain and association of pain with hospital length of stay (LOS), in a large sample of US surgical patients. METHODS: This study examined prospectively collected data from a US electronic health record database (Cerner HealthFaCts®). Adult patients who underwent a wide range of surgical procedures (identified via ICD-9 coding) between January 2000 and March 2015 were included in the analysis. Patients were required to have at least one pain score (using a 0-10 numeric rating scale) prior to and following surgery. Baseline pain was assessed as the maximum pain score within 7 days prior to surgery and was used to stratify patients into mild, moderate, or severe pain categories. The primary outcome was defined as the maximum pain score on each day. RESULTS: The study identified 110,145 surgical patients. Patients with severe baseline pain experienced a decrease in pain following surgery from a mean(SD) of 8.9(1.1) pre-surgery to 6.2 (3.3) on the day after. Patients with moderate baseline pain experienced minimal changes in pain, from a mean of 5.0(0.8) to 4.4(2.3) of the first day after surgery, and patients with no/mild pain experienced an increase following surgery from a mean pain of 0.7(2.0) to 3.0(3.3). There was an association between the baseline pain category and LOS such that patients with severe pain had, on average, the longest LOS (8.2 days), followed by patients with moderate pain (7.2 days), and no or mild pain (6.8 days). CONCLUSIONS: This analysis is suggestive of a needed improvement in management of mild-to-moderate postsurgical pain and of a positive association between pre-surgical pain severity and LOS. These findings provide initial insights into potentially relevant risk factors in a broad surgical population.

PSY103

USING EXISTING DATA TO IDENTIFY CANDIDATE ITEMS TO MEASURE HEALTH-RELATED QUALITY OF LIFE IN INDIVIDUALS WITH LOW BACK PAIN

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INTRODUCTION: In low back pain (LBP), the use of health-related quality of life (HRQOL) measures is limited to generic measures; there is no availability of LBP- specific HRQOL measures. METHODS: This study is a secondary analysis of an existing dataset that consisted of 64 items relating to patients’ symptoms, functional status, and general health perception. Nine important HRQOL domains were identified in previous work using individual interviews with patients, and by National Institute of Health (NIH). The 64 items were classified into different HRQOL domains by 12 participants using the Delphi method. RESULTS: Item response theory (IRT) was then used to estimate the properties of items for each identified domain in order to establish adequate test characteristics, and to identify important items that are critical for individuals with LBP, which may reduce the accuracy of patients’ reports. OBJECTIVES: To 1) identify items best reflecting the domains of HRQOL important to individuals with LBP, and 2) provide evidence for the discriminative capacity of the resulting LBP-HRQOL tool. METHODS: The LBP-HRQOL assessment tool consisted of nine items with three response levels per item. The coefficient of variation was consistently decreased between response options and the linear trend test was significant for all selected items. This indicates that the response option for each item had a discriminative capacity for patients’ general health perception. The LBP-HRQOL assessment tool showed a good convergent validity at both item level and total score. CONCLUSIONS: This study identified the items best reflecting the domains of HRQOL in LBP, forming a LBP-HRQOL assessment tool. The selected items need to be reviewed for clarity by patients and clinicians.

PSY104

HEALTH STATE UTILITY AND QUALITY OF LIFE IN FIRST REMISSION FROM DIFFUSE LARGE B-CELL LYMPHOMA (DLBCL)

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OBJECTIVES: DLBCL is the most common form of Non-Hodgkin Lymphoma. Most DLBCL is successfully treated with immunomodulation therapy resulting in long term remission. Although there is some evidence on the impact of therapy on quality of life (QoL), data are lacking on the long term impact of previous diagnoses and treatments on QoL. The aim of this study was to examine the impact on health state utility value and QoL in DLBCL patients in remission who are no longer receiving treatment. METHODS: UK patients in first remission (>12 months) from DLBCL were recruited into a population based study and published UK population QoL values. RESULTS: 91 patients (69% female) were recruited into the study with a mean age of 50 years (range 21-77). The mean utility for the patient population was 0.78 (range 0.1-1.00). Patients most frequently reported problems in the EQ-5D Pain and Discomfort dimension (N=31, 31.37; maximum possible score 168). The items of the FACT-Lymphoma-specific domain with the worst scores related to tiredness, worry and emotional distress and pain. CONCLUSIONS: Our study describes the real world utility values reported by DLBCL patients in first remission. People in this study report decrements in QoL. They,
although deemed to be in clinical remission, are affected by tiredness, worry and pain. Although people with DBCL have a high chance of a full cure after treatment, this is not guaranteed. Pain, fatigue and discomfort are not uncommon among survivors. Further analyses will be conducted to understand characteristics impacting responses and utility values in relation to age adjusted norms.

PSY106
LONGITUDINAL ASSOCIATIONS BETWEEN HEALTH-RELATED QUALITY OF LIFE AND HEALTHCARE UTILIZATION IN AL AMYLOIDOSIS
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OBJECTIVES: Light chain (AL) amyloidosis is a rare, complex disease associated with significant organ dysfunction, disability, and death. AL amyloidosis patients interact with the health care system in myriad ways, however, few studies have quantified healthcare utilization associated with this condition. METHODS: A non-consecutive, longitudinal online study was conducted among patients with AL amyloidosis who were recruited with assistance from patient advocacy groups. Initial (n=341) and 6-month follow-up (n=226) surveys assessed demographics, disease and treatment characteristics, and healthcare-related quality of life (HRQoL) measured by the SF-36v2/HQ. Health Survey physical and mental component summary scores (PCS and MCS). HCU (eg, outpatient doctors’ visits, emergency room [ER] visits, hospitalizations, and insurance coverage) was measured during the 6-month follow-up. The prevalence of HCU, including its bivariate associations with patient characteristics, was evaluated. Multivariable logistic regression models were used to test for associations between patient characteristics, HRQoL, and ER visit or hospitalization in the past 6 months. RESULTS: Overall, visits with specialists and other health care providers during the previous 6 months were nearly ubiquitous (92.0% and 94.6%, respectively). Collectively, 56.0% of patients reported an ER visit, 18.4% were hospitalized, and 12.4% were admitted. There were significant associations between PCS and ER visits (P<0.05) and between both PCS and MCS and hospitalizations (P<0.05 for all) based on multivariable analyses. CONCLUSIONS: There is a lack of real-world evidence regarding HCU among patients with AL amyloidosis. This research identified longitudinal associations between HRQoL and HCU, indicating there is potential for using HRQoL surveys as screening tools to predict future HCU for AL amyloidosis patients. The development of prediction models for HCU in AL amyloidosis should consider incorporating HRQoL as well as disease staging and treatment type.

PSY107
STUDY OF QUALITY OF LIFE WITH THE HELP OF IT-TECHNOLOGIES IN PATIENTS WITH HEMOPHILIA
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OBJECTIVES: Since 2007, patients with hemophilia enable treatment of blood coagulation factors in the amount of SIU per capita, in Europe the figure is about 4, 2 to 5 in different countries. In 2005-2006 we have examined the patients with hemophilia in Russia, Ukraine and Kazakhstan. Availability of Internet allows you to implement this task with the help of software. In 2015, it was developed a program MedICase to assess the QoL of remote villages residents with a smartphone. In 2018 we have developed a questionnaire, including an assessment of the quality of life for the EQ-SD with a VAS was posted on the website of the Russian Society of hemophiliacs (http://hemophelia2016.tilda.ws) RESULTS: The web-survey completed by 197 of patients receiving treatment with clotting factor concentrate. Patients were divided according to the government program (N=6793): 88% with “A hemophilia and 12%”B”. The average age - 30 years. In large cities live 67%, in small cities 17%, 16% in villages. QoL assessment on the EQ-SD questionnaire revealed that there are no problems with movement in space in 50% of people, small problems -49% extreme problems at 1%. Self-service no problems -79% of patients with minor problems -17% extreme problems at 4%. Daily Activity: there are no problems in 51% of patients with minor problems -45% extreme problems at 16%. Pain and discomfort: there are no problems in 25%, small problems -63% extreme problems 12%. Anxiety and depression: there are no problems in 46%, small problems -43% extreme problems -11%. Respondents rated their quality of life (VAS) at 65 ± 40. In 2008-2011, we have quality of life (QoL) tested with the presence of antibodies to coagulation factors - 52. CONCLUSIONS: The use of IT-technologies allows patients surveys via the Internet, including - with hemophilia, to assess the QoL with the EQ-5D questionnaire.

SYSTEMIC DISORDERS/CONDITIONS – Health Care Use & Policy Studies

PSY110
ALIGNMENT BETWEEN PATIENT-PRIORITIZED SYMPTOMS AND ENDPOINTS IN MANAGEMENT OF CLINICAL TRIALS: A DESCRIPTIVE SURVEY ON THE THINKING OF PATIENTS WITH CHRONIC NON-CANCER PAIN
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OBJECTIVES: Recently, the US Food and Drug Administration (FDA) has hosted Patient-Focused Drug Development (PFDD) meetings with the objective of identifying symptoms/impacts on daily living most important to patients and their experiences with current treatments. Voice-of-the-patient (VoP) data were collected at each meeting. This pilot study examined whether symptoms prioritized by patients during the sickle cell disease (SCD) meeting (February 2014) were assessed as endpoints and treatment outcomes (TXUs) of interest during the meeting. METHODS: Symptoms identified by patients as “most important” were extracted from the SCD VoP report. Product labels and clinical trial.gov were used to identify endpoints reported by industry for SCD. RESULTS: At the February 2014 meeting, patients prioritized fatigue (73%), difficulty sleeping (70%), fatigue (71%), and pain (70%) as the most important issues for patients with SCD. The most common endpoints reported by industry for SCD were fatigue (62%), treatment of acute pain crises (29%), and treatment of chronic pain (24%). In total, 83% of the most important patient symptoms were included as endpoints in at least one developed clinical trial. Differences between patient prioritized symptoms and reported endpoints were evident in eight of the 12 SCD meetings. CONCLUSIONS: There is a disconnect between what patients consider important and what is assessed as an endpoint in clinical trials. This finding suggests that there is a need for alignment between patient priorities and regulatory expectations.

PSY115
APPLICATION OF MULTIPLE CRITERIA DECISION ANALYSIS IN PROPHYLACTIC THERAPY ON HAEMOPHILIA A IN CHINA
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OBJECTIVES: Multiple criteria decision analysis (MCDA) is a method used to evaluate health care policies taking into account multiple dimensions. To align patient priorities with regulatory expectations, we aimed to apply MCDA to assess the value of prophylactic therapy on haemophilia A in China. METHODS: Using a recent published report (Xu et al., 2019) on prophylactic therapy on haemophilia A in China, we applied MCDA to evaluate the value of prophylactic therapy on haemophilia A in China. RESULTS: Using MCDA approach to evaluate the main attributes impact on the clinical efficacy and analyzes the strengths and weakness between FVIII treatment on-demand and prophylaxis in order to make consensus building in Chinese clinical key opinion leaders. METHODS: Ten attributes are selected to compare the clinical efficacy,
health utility, economic burden and treatment compliance. The weight value was investigated from 31 top hematologists. The total scores and relative ratio in each attribute are calculated by using Microsoft Office Excel software. The number of scores in each attribute is at the range from 1 to 10. RESULTS: The important attributes are reducing the number of bleedings, disability rate, and days of absenteeism from work/school. In order to explore the type of oral anticoagulant, the logistic regression model was applied. The independent variables include age, sex, body weight, and treatment compliance. The tested oral anticoagulants include dabigatran, warfarin, apixaban, and rivaroxaban. The results showed warfarin has a significantly better efficacy and safety profile compared to the other oral anticoagulants. OBJECTIVES: To investigate and compare across-trial patient estimations of the level of clinical evidence of the oral anticoagulants. METHODS: The data from the published clinical trials were extracted. The observed clinical outcomes were event rates, OR, and HR. The continuous variables, such as age, sex, weight, and body mass index, were also included in the logistic regression model. RESULTS: The results showed that warfarin has a significantly better efficacy and safety profile compared to the other oral anticoagulants. The clinical evidence was summarized into key themes regarding the treatment of oral anticoagulants. RESUMING themes included both positive and negative views of the clinical evidence of anticoagulants. Physicians’ expressed concern regarding the required dual antiplatelet therapy. The treatment is an important issue in the safety of the oral anticoagulants. The results showed that the benefit of the oral anticoagulants outweighs the risk of bleeding. Resuming themes included the need for more clinical evidence of the oral anticoagulants. Physicians’ expressed concern regarding the required dual antiplatelet therapy. The treatment is an important issue in the safety of the oral anticoagulants. The results showed that the benefit of the oral anticoagulants outweighs the risk of bleeding. Resuming themes included the need for more clinical evidence of the oral anticoagulants.
 STATES
Rescheduling resulted in increased use of APAP/codeine and tramadol. HCP use was utilization increased by 0.06 daily MMEs per 100 population per day.

and 8 (13%) were not covered by any, totaling 26 (41%) products unanimously non-opioids as opioids. Eighteen (29%) products were covered by all three payers
number of opioids as non-opioids, while CVS Caremark covered twice as many
the state.

use and chronic use only showed modest variability across geographic regions in chronic use were found, which did not differ by Medicaid or QHP enrollment. Opioid

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To determine the extent of coverage for opioids and other pharma-
OBJECTIVES:

To assess price trends of hemophilia A and B drugs in the United States

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To assess price trends of hemophilia A and B drugs in the United States

Within the state.

1MCPHS University, Boston, MA, USA, 2Massachusetts College of Pharmacy and Health Sciences, Boston, MA, USA

To evaluate real-world patient characteristics and treatment regimens

To compare drug utilization estimates by different measurement units

Each of these three new drugs alone, increased in price by an average of 54%. On average,

Hemophilia B Plasma drugs entered the market in 1992 within an AWP per unit of

B recombinant drugs also increased over time at an average of 28%.

Hemophilia A recombinant drugs, the initial flat price trends upon market entry

were observed with an AWP per unit range from $0.75 to $0.92. For hemophilia A

recombinant drugs, the initial flat price trends upon market entry

which, 813 (52%) had, on average, around 3 years of prior treatment with EtnBA.

72% of the patients on EtnBS (62% using pens and 38% pre-

In addition, the proportion of those who switched back to EtnBA and the mean time to switch were evaluated.

for Medi-Cal non-opioids (31%) and CVS opioids (50%) than for

real-world data on the penetration of EtnBS within the EtnBA market by evaluating switching dynamics between the two drugs in real-world clinical practice.

To conduct a cross-sectional study using IMS Health National Sales Perspectives database (2014) to evaluate the utilization of IV iron products using three measurement units: 1) Eaches – number of vials sold, 2) Extended Units – amount of volume sold in milliliters, 3) Kilograms – amount of active ingredient sold in kilograms. The use of each IV iron product was calculated as a proportion of the number of Eaches/Extended Units/Kilograms of all IV iron products as the denominator. RESULTS: The utilization patterns varied by measurement units. Irispective of the measure used, iron sucrose and ferric gluconate were the first and second most sold products, and ferric carboxymaltose was the least sold product. The ranks of the proportion of sales of ferumoxytol and iron dextran differed by measurement unit. The ranking of the sales for iron dextran and ferumoxytol remained the same (third and fourth respectively) for the Eaches and Kilogram units. However, the estimated proportion of sales of iron dextran in Extended Units (4.06%) ranked lower than the estimate for ferumoxytol in Extended Units (5.29%). The estimated proportion of sales of ferumoxytol in Eaches (1.25%) was only one fourth of the estimate in Extended Units (5.29%) and one sixth of the estimate in Kilograms (7.58%). Similarly, the estimated proportion of sales of ferric carboxymaltose in Eaches (0.31%) was approximately one fourth of the estimate in Extended Units (1.26%) and one tenth of the estimate in Kilograms (3.03%). CONCLUSIONS: Estimates of drug utilization using different measurement units can vary greatly and can depend largely on the measurement unit selection, as well as the characteristics of the product in consideration.

To evaluate real-world patient characteristics and treatment regimens in patients with hemophilia A using recently approved FVIII therapies in the US, based on specialty pharmacy dispensing records. METHODS: A retrospective analysis

To determine the extent of coverage for opioids and other pharmacological and nonpharmacological treatments for low back pain among these payers. Coverage restrictions may diminish the use of alternatives to opioids in settings where such alternatives have a favorable risk-benefit balance.

To be published in Pain Medicine in the near future. The results of this study are premature and require further confirmation. The objective of this study was to assess the immediate change in opioid utilization at the time of rescheduling, focusing on the substitution of HCPs with acetaminophen/codeine (APAP/codeine, C-II) and tramadol (C-IV), using prescription monitoring program (PMP) data.

RESULTS:

PRELIMINARY REAL WORLD DATA ON SWITCHING BETWEEN ETANERCEPT AND ITS RECENTLY MARKETED BIOSIMILAR CORPORA'T

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RESULTS:

METHODS:

The objective of this study was to assess the immediate change in opioid utilization at the time of rescheduling, focusing on the substitution of HCPs with acetaminophen/codeine (APAP/codeine, C-II) and tramadol (C-IV), using prescription monitoring program (PMP) data. METHODS:

 Lucchese L1, Miglio C2

A retrospective analysis

The prices of hemophilia drugs at market entry increased over time. Prices of B recombinant drugs also increased over time at an average of 28%.

Hemophilia A and B drugs were obtained from the Food and Drug Administration web page from January 1, 1983 to October 9, 2016. Pricing data from January 1, 1992 to October 31, 2016, for the compiled drugs, were extracted from RedBook (Grover, Health Analytics). Prices were adjusted for inflation. RESULTS: A total of 9 manufacturers are responsible for the commercialization of 21 proprietary drugs; 15 drugs

The rising price trend in hemophilia A and B drugs increased faster than in other therapeutic areas. This study focused on the substitution of HCPs with acetaminophen/codeine (APAP/codeine, C-II) and tramadol (C-IV). Each prescription was converted to daily morphine milligram equivalents (MMEs) per 100 population for analysis.

RESULTS: The total number of prescription opioids dispensed was 30,745,113. Most were for HCPs (67.4%), followed by all other C-II opioids (12.1%), APAP/codeine (3.1%), and tramadol (10.4%). At the time of rescheduling, the mean utilization of opioids (in daily MMEs per 100 population) decreased from 67.4 to 45.2 (-32.9%) for HCPs, increased from 1.4 to 5.0 (271.5%) for APAP/codeine, and increased from 3.1 to 11.0 (292%) for tramadol. After rescheduling, the rate of change of APAP/codeine utilization increased by 0.06 daily MMEs per 100 population per day. CONCLUSIONS: Rescheduling resulted in increased use of APAP/codeine and tramadol. HCP use was restricted, as intended. The unintended consequences of increased heroin usage and potential negative impacts to patients’ quality of life should also inform future policy.
was performed using a database composed of aggregate, de-identified US Specialty Pharmacy Provider (SPP) records from July 2014 through November 2016. Patients eligible for inclusion received ≥1 hospital admission and ≥1 rFVIII factor prescription. Recently approved factor therapies were defined as therapies approved in 2014 or later, which includes ELOCTATE, ADVYNOATE, ALFSTYLA, NUWIQ, KOVALTRY, and NOVOF游. ELOCTATE and ADYNOVATE because of the low number of patients on other therapies.

RESULTS: A total of 1,025 patients with hemophilia A of unknown severity were included in the analysis. Thirty-three percent of patients were ≥18 years old, 41% were 18-39, and 16% were ≥40; average weights were 39kg, 84kg, and 84kg, respectively. Most patients were treated with a prophylaxis regimen (88%) with the remaining being treated on-demand (2%). ELOCTATE (71% of patients) was the most frequently dispensed therapy followed by ADVYNOATE (17%), NOVOF游 (8%), KOVALTRY (2%), NUWIQ (2%), ALFSTYLA (0%). The most commonly prescribed prophylactic infusion frequency was twice weekly, representing 48% of patient records. ELOCTATE and ADYNOVATE achieved extended prophylactic infusion frequencies.

CONCLUSIONS: Recently approved rFVIII therapies have been prescribed for a large number of patients with hemophilia A in the United States. ELOCTATE is the most frequently utilized of these rFVIII therapies based on SPP dispensing records. Patients prescribed ELOCTATE and ADYNOVATE achieved extended prophylactic infusion frequencies. Those on ELOCTATE therapy were more likely to be prescribed an infusion frequency longer than twice weekly.

PSY122
LOCAL ANESTHETIC ACTIVITIES OF NEW PIPERIDINE DERIVATIVES ON THE INFLATION ANESTHESIA MODEL

OBJECTIVES: Identify local anesthetic activity of new derivatives of piperidine (LS - local anesthetic substances) - LAS-202, LAS-203 and LAS-204 - for inflation anesthesi model. The studies of inflation anesthesia were conducted on guinea pigs by methods of Byrhyll and Wade in 0.25% solutions, acute toxicity was investigated on white mice. Experimentally determined the strength of action and duration of anesthesia. RESULTS: Most local anesthetic activity noted in LAS-202, which power of action was equal to trimecaine, significantly exceeded lidocaine by 1.4 times, and novocaine by 1.3 times. The duration of complete anesthesia of LAS-202 is equal to trimecaine, and exceeds lidocaine and novocaine. Total duration of the local anesthetic activity of LAS-202 is significantly higher than of the tested drugs by 1.3 times, 1.7 times that of lidocaine, and 1.83 times that of novocaine. The index of anesthesia of LAS-203 and LAS-204 approaches the corresponding parameter of trimecaine. The complete skin insensitivity of guinea pigs in the administration of compounds is few shorter than that for trimecaine, equal to lidocaine, and longer than novocaine. The total duration of the LAS-203 is 1.06 times more than lidocaine, but LAS-204 more by 1.2 times. LAS-203 and LAS-204 exceeded the corresponding index of lidocaine by 1.3 times and 1.5 times, respectively, but exceeded novocaine by 1.4 times and 1.6 times, respectively. The LD50 of tested compounds are in the range of 425 mg / kg - 472.3 mg / kg. CONCLUSIONS: Of greatest interest is the compound LAS-202, which in force and duration of complete anesthesia is equal to trimecaine and exceeds lidocaine and novocaine. In general duration of action, it is superior to all the reference drugs and belongs to the low-toxic group of drugs. Therefore, LAS-202 is recommended for further studies.

PSY123
PAIN MEDICATION (OPIOID AND NON-OPIOID) USE AMONG TEXAS MEDICAID ENROLLES WITH SICKLE CELL DISEASE
Kang HA1, Barner JC2. 1The University of Texas at Austin, Austin, TX, USA, 2The University of Texas at Austin, College of Pharmacy, Austin, TX, USA.

OBJECTIVES: To describe pain medication use among Texas Medicaid enrollees with sickle cell disease (SCD) and to determine the factors predicting opioid use. METHODS: This was a retrospective study using Texas Medicaid claims data from 9/1/13-8/31/15. Medication use of patients who were ≥18 years old at least 1 hydroxyurea prescription, and had at least 1 inpatient or 2 outpatient SCD diagnoses during the study period were analyzed between 6 months before and 1 year after the first prescription of hydroxyurea. Descriptive statistics and logistic/poison regressions were conducted to determine the prevalence of pain medication use and to identify predictors of opioid use, respectively. RESULTS: A total of 1,025 patients (18.1 ± 2.6 years) met the inclusion criteria. Of these, 935 patients (91.8%) had pain medications during the study period. A total of 883 patients (86.4%) received opioid prescription(s). The median opioid prescription was 1 person was 13.0 ± 14.0. Among opioid medications, 23.1% were among the strongest opioids such as morphine, hydromorphone and fentanyl and 78.7% were less strong opioids such as oxycodone, hydrocodone and tramadol. NSAIDs were the most frequently prescribed non-opioid medication for pain management of SCD patients (92.4%). Poisson regression showed that the number of hydroxyurea prescriptions, female, older patients, and African American were significant positive predictors of the number of pain medication prescriptions. Logistic regression showed that adult patients (>18 years) were 6.691 times more likely to have at least one opioid prescription than pediatric patients (<18 years) while controlling for patient characteristics (p = 0.001, OR = 6.691; 95% CI: 6.28-71.56). CONCLUSIONS: Appropriate use of pain medications is important for the management of the acute painful crisis that is a major contributor to the costs for the patients with SCD. Pediatric pain management should be addressed to assess if they receive appropriate care for their pain crises.

PSY124
ACUTE PAIN OUTCOMES FOLLOWING ORTHOPEDIC AND ABDOMINAL SURGERY
Fayed FW, Khangalov VS, Nahil LN, Talakzi AK, D'Souza FT. Boston Scientific Partners, Inc., Boston, MA, USA.

OBJECTIVES: US national survey data indicates that acute post-surgical pain is inadequately relieved in patients and multiple studies report a high prevalence of medication overuse. This was a cross-sectional study to examine how well post-operative pain was managed in orthopedic and abdominal surgery patients, including hospital length-of-stay (LOS), medications, and pain scores, focusing orthopedic and abdominal surgery using retrospective data for a large cohort of adult patients. METHODS: Using an electronic health record database with information from 614 hospitals across the US (Cerner Health Facts), we evaluated trends in pain measurement, treatment, and outcomes associated with acute post-surgical pain management (n=1,181,795 admissions from 2009-2015). The analysis included orthopedic (ICD9 810-819) and abdominal surgery (ICD9 codes of 42.X-71.X) patients. Patients included in the analysis had at least one recorded pain record (0 to 10 scale) before and after surgery. Pain score, pharmacy, hospital LOS, and type of medications received were examined. RESULTS: 78% of patients undergoing abdominal/pelvic surgery were treated with non-one type of pain medication administered for pain and 79% of orthopedic surgery patients were treated with polytherapy (vs. monotherapy). 53% of abdominal surgery patients received multimodal therapy compared to 31% of orthopedic surgery patients. Following surgery, 58% of patients undergoing abdominopelvic surgery were treated with polytherapy (more than one type of pain medication administered) for pain and 79% of orthopedic surgery patients were treated with polytherapy (vs. monotherapy). 31% of abdominal surgery patients received multimodal therapy compared to 31% of orthopedic surgery patients. CONCLUSIONS: Post-operative length-of-stay is similar between the two surgery groups (4.6 and 4.7 days for abdominal and orthopedic surgery, respectively).
for switching from their previous biologic, 35% switched due to secondary lack of efficacy, in 35% the condition worsened, 24% switched due to poor pain control, and in 25%, remission was not achieved. The proportion of patients in remission categorized as “very satisfied” with their present regimen was significantly higher (p < 0.0001) for biologic patients. CONCLUSIONS: Biologics are reserved for the most unresponsive patients identified by recent and the intensity of current illness prior to initiation of current regimen. Despite this, biologic patients are associated with the highest levels of physician reported satisfaction. While there is minimal switching of biologics, when this does occur, it is usually due to lack of efficacy, lack of pain relief, and effort to accomplish remission.

OBJECTIVES: To describe the patterns of therapy switch and discontinuation in patients receiving pregabalin for neuropathic pain (NeP), and to examine pregabalin dose titration and adherence duration. METHODS: MarketScan database (2009-2014) was used to extract a cohort of incident adult pregabalin users with NeP who had at least 12 months of follow-up data. Patients who had documented pregabalin therapy for ≥ 90 days at the time of the index period were considered to have discontinued therapy, while those with no prescription fill for pregabalin but had other NeP prescription fill were considered to have switched therapy. Therapy was measured by medication possession ratio (MPR) and persistence (measured as the duration of continuous treatment) were compared between the cohorts with dose titration (dose augmentation within 45 days of the index date) and without dose titration. Logistic regressions and Cox proportional hazards models were used to identify factors associated with adherence (MPR ≥ 0.8) and persistence (time to switch).

RESULTS: Among the 5,186 patients in the analysis, approximately 75% discontinued pregabalin or switched to other NeP medication. Median time to discontinuation or switch was 12 months. Approximately 35% of pregabalin users discontinued pregabalin to generic gabapentin and 17% switched to other NeP medication. About half (51%) of the patients discontinued pregabalin and did not switch to other NeP medications. Approximately 18% of patients had dose titration. Patients who had dose titration were more likely to have a greater reduction in daily dose compared to those who did not have dose titration. Median daily dose reduction was significantly greater in the dose titration group than the no dose titration group (1.587, p < 0.0001) vs. male as reference group, comorbid conditions including diabetes (OR = 1.190 (95% confidence interval: 1.090-1.298, p < 0.0001)) and cardiovascular disease (OR = 1.417 (1.231-1.632, p < 0.0001)) respectively, treated patients with NeP had MDR-59.9 as the reference group. Other factors associated with an increased odds of undergoing RYGB included female (OR = 1.188, p = 0.0025) vs. male as reference group, comorbid conditions including diabetes (OR = 1.587, p < 0.0001), hypertension (OR = 1.133, p < 0.0022), and depression (OR = 1.159, p = 0.0175). Factors associated with a decreased odds of undergoing RYGB were older age (65-74 OR = 0.741 (p = 0.038), age 75 and above [OR = 0.426, p = 0.0366]) vs. < 40 as the reference group, and antidepressant medication (OR = 0.779, p = 0.0366), and rheumatoid arthritis (OR = 0.708, p = 0.0175). CONCLUSIONS: This study suggests that BMI level, age, gender, and the presence of selected comorbidities are important factors in whether patients undergo RYGB or SG.

OBJECTIVES: To assess real-world adherence and persistence to iron chelation therapy in patients switching from deferoxamine disperse tablets to deferoxamine film-coated tablets.

RESULTS: A retrospective pre-post cohort study was conducted in patients switching from DFX-DT to DFX-FCT using pharmacy/medical claims (06/2014 - 05/2016) from the Symphony Health Integrated Dataverse (IDV). Eligible patients were ≥ 12 years of age with a diagnosis of sickle cell disease (SCD), thalassemia, or myelodysplastic syndrome (MDS). ≥ 2 DFX-DT claims (1st claim is index date), and ≥ 2 DFX-DT claims pre-index. Medication possession ratio (MPR) (percentage of time with access to medication) was computed for DFX-DT during the DFX-DT period (1st DFX-DT claim to index date) and for DFX-FCT during the DFX-FCT period (index date to date of medication discontinuation). Proportion of days covered (PDC) and persistence (without a gap in treatment) were calculated.

CONCLUSIONS: MDR-59.9 guidelines may not be sufficient to change prescribing behavior. Recent efforts by Medicaid agencies, such as implementing passive alert systems or requiring prior authorization before dispensing high dose opioids may be more effective in reducing high dose prescribing than guideline adoption and warrant further evaluation.
an IR to their treatment within a year. Patients with an IR had increased resource use associated with treatment most cost-effective versus R-CHOP with or without lenalidomide. CONCLUSIONS: There is limited evidence published on the overall disease or economic burden of DLBCL/FL, with most literature focused on hospitalization from adverse events. More comprehensive research is needed to assess the impact of DLBCL/FL on patients and healthcare systems.

PSY135
ACQUISITION AND ADMINISTRATION COSTS OF BORTEZOMIB AND CARFILZOMIB TREATMENT FOR MULTIPLE MYELOMA IN FINLAND

Vihervaara Ve, M, Mäkinen PT, Sois E, Martikainen P, Forvén S

Takeda Oy, Helsinki, Finland, ESsOY Oy, Kuopio, Finland

OBJECTIVES: Information regarding intravenous and subcutaneous administration costs of multiple myeloma (MM) medications in Finland is scattered. Nevertheless, the need of acquisition and administration costs for health economic evaluations (HED) of MM treatments is evident as these costs can be high. Furthermore, the first oral proteasome inhibitor (FI) treatment for MM, ixazomib, is available, potentially allowing comparisons in the treatment acquisition and administration costs. We estimated the treatment acquisition and drug administration costs of infusion or subcutaneous FI treatments (carfilzomib, bortezomib) for MM in Finland.

METHODS: Price tariffs of Finnish hospital districts are used as the basis of invoicing sent to health care service payer. Those prices were collected and analyzed to find costs for the relevant MM treatments. Furthermore, detailed inquiries were sent to all Finnish hospital districts to ensure the face validity of prices included. Two costing perspectives were applied: A] acquisition of treatment (unit administered to the patient, i.e. both administration and drug cost included) and B] drug administration alone (administration included, drug costs excluded). RESULTS: 19 (95%) of the Finnish hospital districts responded to the request sent. The data collection. Relevant cost information was found from 15 (75%) districts (99% of the districts willing to participate). The mean acquisition cost was €1,923 (95%CI €1,540 – €2,305) for [FI] drug acquisition. The mean administration cost was €210 (95%CI €189 – €231) per administration (14% of the administration costs). CONCLUSIONS: The acquisition and administration of MM drugs given as infusions or subcutaneously in health care facilities cause significant and potentially avoidable costs. Due to the good coverage of procured recent estimates, the present study provides useful economic information for the future HEDs. Finally, novel oral medications including the first oral FI have significant potential in reducing the acquisition and administration costs.

PSY137
ORPHAN DRUGS TO TREAT RARE DISEASES: THE ITALIAN WAY FOR AN EARLY ACCESS

Prada M, Sansone C, Bisagni D, Mantovani M

Italian, Rome, Italy

OBJECTIVES: Italy has two powerful tools granting early access for patients affected by rare diseases: the Italian off-label/compassionate use procedure, regulated by Law

an IR to their treatment within a year. Patients with an IR had increased resource use associated with treatment most cost-effective versus R-CHOP with or without lenalidomide. CONCLUSIONS: There is limited evidence published on the overall disease or economic burden of DLBCL/FL, with most literature focused on hospitalization from adverse events. More comprehensive research is needed to assess the impact of DLBCL/FL on patients and healthcare systems.

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648/96, and the Law 326/2003 for the reimbursement of orphan and life-saving drugs waiting for the market access. The study assessed the timely needed to gain the reimbursement status for orphan drugs, eventually passing over the EU CHMP in order to achieve this goal, it is important to know not only procedure costs, but also patient complications and resources consumption costs in a certain period of time. Our main goal was to estimate the costs and resources utilization of bariatric surgery in the perioperative time and two years after the procedure in the Brazilian private health care system reality. METHODS: A longitudinal analysis was performed (2013-2015), using hospitalization records and outpatient information from private payers (Orion). RESULTS: Records from 300 hundred patients were analyzed. Patients had 36 years old on average and 80% were female. The average length of stay was 2.25 days. 2.3% of the patients were readmitted in less than 30 days. 15% of the patients visited ER (1.5 visits on average) in the first 30 days post-surgery. 21% of patients experienced infections requiring GIU. The inpatient stay cost plus two years follow up was USD 10,000 distributed: USD 7,541 (75%) in the first 30 days post-surgery, USD 2,459 (25%) in the following two years after surgery. Variations in costs were USD 100 to USD 10,000. CONCLUSIONS: Payment models are moving towards a continuum of care payment where payers are looking for Bundle Payments. Costs variability in two years post-surgery after a bariatric procedure is huge, but on average consumes 25% of the total healthcare expenditures in two years post-surgery. To redefine the care flow for intervention on which to include in a bundle payment to keep both financially sustainable. Studies considering more patients are needed to give a broader perspective.

OBJECTIVES: About 20% of the United States (US) population is affected by non-cancer pain conditions (NCPCs). While prescription opioids are used commonly for NCPCs, there is controversy on the use of these medications. The present study aimed to: (1) characterize opioid use in US adults with NCPCs (back/neck pain, arthritis, headache/migraine and musculoskeletal pain/neuropathy) and 2) estimate direct healthcare expenditures and associated quality-adjusted life years (QALYs). The study was a retrospective cross-sectional study used data from the 2014 Medical Expenditure Panel Survey (MEPS). The study sample consisted of adults with one or more recorded inpatient or outpatient NCPCs (N = 7,497). Chi square tests were used to examine unadjusted subgroup differences and a multivariable logistic regression model was used to assess the association of opioid use and the type of NCPCs. To compare average healthcare expenditures between opioid users and non-users, we matched the two groups using propensity score matching. The main components of public policies and financing strategies adopted by OECD countries to improve access to DRD.

RESULTS: We carried out a scoping review through its five first stages. Search strategy included different sources, as electronic databases (Medline, Embase, Cochrane, CINAHL, LILACS, ECONLIT, Web of Science), key journals (Orphanet Journal of Rare Diseases, and Value in Health), grey literature from different institutions (we consult ISPOR Health Authority by Country inventory to identify their web sites in each OECD countries), and reference lists. The search algorithm was built using the work of the ISPOR Rare Diseases Group of Interest on terms and definitions.

Categorization and result analysis were performed using the analytical-descriptive method, considering 3 conceptual frameworks: public policy definition (Subirats, 2008), financing function (Kutzin, 2000), and fourth hurdle systems (Hutton, 2006). RESULTS: 85 articles were included in this review, most of them referred to R&D activities in the form of incentives to preclinical and clinical research. More than 50% of the articles detailed variations in coverage decision making process, specifically quality of evidence needed to prove incremental benefits DRD. The European Union and the United States have the highest number of documents describing the processes. The public authorities of DRD in few of the countries that actually have adopted policies to improve patients access to DRD (United States, Italy and France). Even in this group there’s still work to do to influence the whole pharmaceutical system, therefore improve access.
1.8-4.1), and 2+ annual hospitalizations (OR 2.5, 95% CI 1.6-4.3) were also associated with high-dose opioid use. **CONCLUSIONS:** The high-dose opioid users among adult SCD patients represent a subpopulation of patients who seek and require healthcare optimizations. Optimization of care for this subset of patients with SCD may have the potential to reduce healthcare costs.

**PSY143**

**RARE OR NEXT COMPETITIVE LANDSCAPE**

Perera L, Faulkner EC

**OBJECTIVES:** More than 500 orphan products are in the pipeline. These include precision therapies, novel therapies and gene therapies representing the hope of first-time treatments and potential cures. We sought to understand approval success rates and failure reasons that may lead to opportunities for HTOR evidence. **METHODS:** We conducted a targeted review of peer reviewed and grey literature to identify studies to evaluate trends in orphan drug designations, FDA approvals and Complete Response Letters (CRL). **RESULTS:** Since inception of the Orphan Drug Act of 1983, FDA approved 500 products to treat rare conditions. Over 200 orphan drugs were approved in the past decade. In 2015, 50% of new molecular entities (NME) were for rare diseases. This same year, Office of Orphan Product Development received 440 orphan status applications, granted 355, designated 20% as breakthrough status, granted 34% fast track status, and issued 312 clinical hold letters. **CONCLUSIONS:** New and improved documentation of unmet medical need in conditions such as, idiopathic Pulmonary Fibrosis, Huntington’s disease, and Fabry disease. CRLs denote product approval and designate failures. In the latter, clear descriptions of evidence required to adequately demonstrate patient benefit is provided. Our study identified the following evidence shortcomings: need for additional efficacy/safety data requiring new phase 3 trials, lack of outcome reliability, lack of evidence demonstrating patient benefits, inability to achieve consensus regarding clinical benefit, and severe disease requiring longer outcomes. Products utilizing biomarkers and surrogate endpoints not well characterized or linked to clinical response also failed. **CONCLUSIONS:** Outcomes Researchers are well poised to develop much needed RWE that considers the heterogeneity in rare conditions to demonstrate patient benefit. Analyzing PROs by individual domains may provide a clearer picture of initial and durable patient response. Modeling and simulation may accommodate for limited patient populations and augment evidence.

**PSY144**

**ESTIMATING THE BURDEN OF DISEASE OF OBESITY AND ITS MAIN CONSEQUENCES IN COLOMBIA**


1Pontificia Universidad Javeriana, Bogota, Colombia, 2NeuroEconomist, Bogota, Colombia, Johnson & Johnson Medical, Bogota, Colombia

**OBJECTIVES:** High body mass index (BMI) has been associated with 5.47% of global Disability Adjusted Life Years (DALY). High income countries tend to concentrate this burden (11.35% of total DALYs in USA) but even middle income countries like Colombia have above average overweight-associated DALYs. Obesity represents the highest end of the spectrum of this disorder. Burden of disease methodology allows the estimation of the impact of diseases on a population using a single and comparable measure DALY. The purpose of this study was to evaluate the burden of obesity in Colombia. **METHODS:** Burden of disease was evaluated according to the WHO guidelines. A literature review was conducted in electronic databases (SCIELO, BVS, LILACS, MEDLINE) to search data on incidence, prevalence, complications and/or DALYs. Official sources (MIN, DANE) and international databases (IHME, GBD) were reviewed for epidemiological information regarding obesity and its main consequences. DALYs estimation used the methodology proposed in GBD 2010. **RESULTS:** Main diseases associated with obesity were metabolic syndrome (2.1% of DALYs), cardiovascular disease (1.9%), hypertension and dyslipidemia, cardiovascular disease, sleep apneas, osteoarthritis, cancer and depression. We estimated the relative risk (RR) of developing these conditions by each BMI 1-unit increment. For example, 30-44 years-old population’s RR was 1.36 for DM2, 1.04 for osteoarthritis, 1.10 for endometrial cancer, and 0.89 for cardiovascular diseases (reducing 1 BMI unit). Comorbidities that generate more DALYs were: hypertension, back pain, DM2 and cardiovascular disease. Total burden in DALYS was 1,772,522; 36.4 DALYs per 1000 population (30.4 for males and 42.2 for females). **CONCLUSIONS:** Study shows the high burden of obesity in Colombia. Many non-pharmacological, pharmacological or surgical alternatives, ranging from public health policies to bariatric surgery, are available for obesity treatment. Cultural and system-level barriers, however, may limit interventions.

**PSY145**

**EXAMINING UNCERTAINTY AROUND THE AMERICAN COLLEGE OF MEDICAL GENETICS (ACMG) RECOMMENDATIONS FOR NEWBORN SCREENING:**

Alishak M, Kittenhouse B

**OBJECTIVES:** In 2006 the ACMG made recommendations for NBS based on an entry point to an algorithm (EA) it designed, determined by scoring a survey about attributes of various conditions. The EA determined a set of follow up questions that led to specific NBS programs. This study examined one of these conditions, BIOPT BS - and assessed if the influence of uncertainty related to the missing survey responses and/or sampling variation for this condition might change scoring sufficiently to modify the EA and the recommendation. **METHODS:** This research explored the uncertainty relating to the missing data by using a boundary estimate (Manski, 1989), sampling variation uncertainty by bootstrapping, and their joint influence. We examined two questions of BIOPT BS (score, 1174) that ACMG reported data for. Total scores > 1200 indicate a new EPA and potentially different NBS recommendations. **RESULTS:** The EA did not change when estimating Manski bounds for SIMPLICITY = 1 (5-1/6) and SIMPLICITY = 0 (4-1/6). When bootstrapping the original data, and around the upper boundary SIMPLICITY estimate, the bootstrapped means implied that the EPA changed not at all or in only a very small percentage of cases (0). **CONCLUSIONS:** The score change from examining the uncertainty relating to missing data and sampling variation for the two questions ACMG reported for BIOPT BS condition is not sufficient to alter the EPA and potentially alter the recommendation. Further exploration of missing data for other questions is needed to fully assess the robustness of the ACMG recommendation.

**PSY146**

**EFFECTIVENESS OF A SCHOOL-BASED PROGRAM IN PREVENTION OF OBESITY AMONG PRESCHOOL CHILDREN IN EGYPT**

Mohamed SF, Elkalyoby MT, Hassan FA

**OBJECTIVES:** To assess the effectiveness of a school-based program in improving knowledge and practices of kindergarten children towards healthy diet and physical activity. **METHODS:** A quasi-experimental Comparison-group Pre-Post program evaluation study was conducted at kindergartens at Port-Foudi city, in North-East Egypt. At baseline, a total of 1215 preschool children (634 intervention and 581 control) were surveyed for dietary and physical activity knowledge using picture scale activity. Additional measures of measurements were performed to assess body mass index percentiles (age-and-sex-specific). Besides, parents had filled in a self-administered questionnaire about family demographics as well as preschoolers’ dietary and physical activity practices. A 4-month educational program, based on the social cognitive theory of Bandura, was implemented and included 16 class-room activities as well as family involvement activities. At 4-month follow-up, children’s dietary and physical activity knowledge and practices were evaluated and compared to baseline evaluation. **RESULTS:** The mean age of children in this study was 5.2±0.6 years. On the age- and-sex-specific BMI percentiles, 12.5% were overweight, while 15.9% were obese. The mean change in overall knowledge level was significantly higher in the intervention than in the control groups (19.4% vs 12.0%). Prizes level in the intervention had significantly increased at 4-month follow-up assessment, while insignificant change was reported for control group (7.3% vs 0.1%). BMI percentiles had changed significantly among overweight and obese children in both groups. Overweight children had 0.47 less percentiles in the intervention group compared to 0.33 in the control group, however, obese children had much decrease in BMI percentiles (0.51 vs 0.49, respectively). **CONCLUSIONS:** This 4-month school-based program had effectively improved children’s knowledge and practices towards healthy diet and physical activity. This program could be integrated in regular kindergarten’s curricula as a contribution to the prevention of obesity among preschool children.

**PSY147**

**VALUE ASSESSMENT CRITERIA FOR ORPHAN DRUGS ACROSS EIGHT EUROPEAN COUNTRIES: HTA AND BEYOND**

Tzouma V, Mills M, Kanavos P

**METHODS:** School of Economics and Political Science, London, UK

**OBJECTIVES:** We explore the criteria informing coverage decisions of orphan drugs across different diagnostic conditions to understand if different HTA processes result in preferential assessments, conflicting recommendations, and inequitable access to innovative treatment for rare diseases. **METHODS:** Countries included were England, France, Germany, Italy, Poland, Scotland, Spain, and Sweden. Through a selection of orphan drug approvals between 2006 and 2012, twenty orphan (including ultra-rare orphan) indication pairs were identified and assessed. HTA methods were split equally between oncology and non-oncology indications. Indicated clinical and economic evidence was identified, collected and analyzed systematically and on a case-by-case basis, following a validated methodological framework. Coverage and funding options based on HTA recommendations as well as on criteria or policies other than HTA were also considered. **RESULTS:** There is huge heterogeneity in coverage recommendations depending on setting. In general, there seems to be a higher willingness to pay for orphan drugs, either through a higher ICER threshold, or only when costs are not exceeding the budget. Additional criteria related to the rarity of diseases or special considerations, particularly centered on unmet need and severity, seem to play an important and increasing role beyond strict cost-effectiveness criteria. Decisions about purchasing may be influenced by factors beyond HTA (e.g. early access schemes), which may be relevant to orphan drugs. Little uniformity exists in the time taken to assess a drug following marketing autorization, leading to inequitable access. HTA-related methods can improve the extensive and ever increasing use of HTA for orphan drugs, the variations in HTA recommendations outcomes across jurisdictions and the ‘often’ very significant time lapes between the date of marketing autorization, the final HTA recommendation and the eventual funding decision, imply variations in access and highlight the importance of establishing specific policies for orphan drugs to ensure fair assessment and equitable access to treatment for rare diseases.

**PSY148**

**DRUG PROFILE REVIEW OF THE FDA U.S. ORPHAN DRUG ACT APPROVALS**

Jun K, Madhavan P, Richardson SK, Kuehn M

**OBJECTIVES:** As of mid-2016, the 1983 U.S. Orphan Drug Act (ODA) has facilitated the approval of more than 400 innovative medicines for the treatment of small patient
groups with high unmet need. This pathway has been suggested as being a new industry product strategy to capitalize on regulatory and pricing benefits. In order to understand the level of innovation and therapeutic value present in orphan drug FDA approvals, a comprehensive review of novel orphan designated therapies in the past decade was conducted. METHODS: A review of all orphan-designated products approved between the periods 2010-2016 in the FDA’s Orphan Drug Database. Product designation database identified 294 orphan designation approvals. A comprehensive data compilation of NDA and BLA approvals granted by CDER and CBER for the same period was then conducted, yielding 1,118 and 174 marketing approvals, respectively. Following (6%), clearance, 136 orphan designations were associated with CDER (112/1,118, or 10%) and CBER (24/174, or 14%) NME approvals. RESULTS: While the majority of approvals were associated with high therapeutic utility, 18 approvals (3%) for arguable lesser-need indications occurred in 18, including 9.6% (9/95) of orphan designations, 11% (6/53) of orphan designations were associated with CDR (112/1,118, or 10%) and CBER (24/174, or 14%) NME approvals. CONCLUSIONS: While the majority of approvals were associated with high therapeutic utility, 18 approvals (3%) for arguable lesser-need indications occurred in 18, including 9.6% (9/95) of orphan designations, 11% (6/53) of orphan designations were associated with CDR (112/1,118, or 10%) and CBER (24/174, or 14%) NME approvals.

**PSY149**

**ASSESSMENT OF DISEASE STATE KNOWLEDGE AND AWARENESS AMONG THE GUARDIANS OF THALASSEMAIA PATIENTS ATTENDING DIFFERENT HEALTH FACILITIES IN QUETTA, PAKISTAN**

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1University of Balochistan, Quetta, Pakistan, 2Islamia University, Bahawalpur, Pakistan  
OBJECTIVES: The current study was aimed to assess knowledge and awareness about thalassemia among the guardians of thalassemia patients of Quetta, Pakistan. METHODS: The cross-sectional descriptive study was undertaken by using structured questionnaire in different Thalassemia Centers of Hospitals of Quetta, Pakistan from March to July 2016. Convenient sampling was adopted for data collection. A total of 327 participants were interviewed, of which 153 were patients of thalassemia major were included for study while patients taking oral iron overload treatment were excluded. Descriptive and inferential statistics (Mann Whitney U test and Kruskal Wallis tests, p = 0.05) were used to assess the significance among study variables. Analysis were performed using IBM SPSS v.20. RESULTS: The result showed that mean age of the respondents were 35 ± 15.45 years and 154 (60.6%) were males. Majority of the respondents (n=97, 38.2%) had primary level of education and belonged to urban area (n=174, 78.55%). The results also showed that 236, 242, 96% of respondents had adequate knowledge regarding thalassemia. Health care providers were reported as major source of thalassemia information by more than 75% of the study participants. Comparison of mean score showed that education level, occupation, area of residence had significant (p<0.05) associated with the knowledge scores. CONCLUSIONS: The study concluded that the guardians of the thalassemia patients had better understanding regarding their child diseases and this could be beneficial in better care of child.

**RESEARCH POSTER PRESENTATIONS – SESSION IV**

**HEALTH CARE TREATMENT STUDIES**

**MEDICAL DEVICES/DIAGNOSTICS – Clinical Outcomes Studies**

**PMD1**

**ADVERSE EVENTS AND DEVICE MALFUNCTIONS ASSOCIATED WITH INTRAVENOUS PATIENT-CONTROLLED ANALGESIA: A RETROSPECTIVE ANALYSIS OF 2011-2016 MAUDE DATABASE**

Lawal O, Mohanty M, Lanier R, Katz N  
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OBJECTIVES: To determine the magnitude and characteristics of adverse events and device malfunctions associated with intravenous (IV) patient-controlled analgesia (PCA) occurring in inpatient hospital settings. METHODS: IV PCA device-related events, occurring in inpatient settings were extracted from reports submitted to the FDA Manufacturer and User Facility Device Experience (MAUDE) database during January 1st, 2011 through September 12th, 2016. Descriptive analyses and qualitative review of text narratives were performed to characterize IV PCA errors. RESULTS: A total of 1430 IV PCA device-related events were included in this analysis. Approximately, 11% (n=156) of the events were associated with unfavorable outcomes, such as medication errors, worsening of pain (n=62), death (n=20), therapy interruption (n=13), and hospitalization (n=13). Device failure issues were the leading cause of errors accounting for 93% of the 1446 events; other causes included operator errors (3.6%), patient errors (1%), drug, and device malfunctions (0.6%). Common factors contributing to device-related events included leak in systems (27%), defective equipment (22%), failure to deliver drug (14%), distal occlusion (10%), overdose (6%), under-dose (3.5%), faulty alarm system (9%) and pump programming errors (2%). RESULTS: There were 56 reports for intravenous infusion related adverse events; 11 of which were associated with unfavorable outcomes. In this group, patients were observed in 5.5% (n=17) of the reports; of which respiratory depression (n=4) and sedation (n=17) were the two most common ADRs reported. To prevent further occurrences of harm, IV PCA devices were recalled and replaced in a majority (58%) of the 1446 events, and emergent clinical interventions (such as administration of narcotic antagonist, intubation, transfer to intensive care unit) were necessary in 2.7% of these events. CONCLUSIONS: Despite the benefits of IV PCA, a substantial number of device malfunctions, IV adverse events associated with IV PCA devices were identified. Additional safety measures including training and novel PCA systems that could potentially circumvent some of these harmful events while still retaining the advantages associated with PCA in pain management are needed.

**PMD2**

**A SYSTEMATIC LITERATURE REVIEW ON THE USE OF LOCKING COMPRESSION PLATE (LCP™) TECHNOLOGY FOR PROXIMAL AND DISTAL HUMERUS FRACTURE TREATMENT**

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OBJECTIVES: Proximal & distal humerus fractures are common injuries in elderly population and usually associated with osteoporosis. Fracture reduction through surgical approach implies the use of plates & screws, such as commercially-available LCP™ (Locking Compression Plate) system, its branded Philips™ plate for proximal humerus fractures and DCP™ (Dynamic Compression Plate) technology. Comparative clinical evidence on their utilization could support technology choice. This study’s objective was to perform a systematic literature review to assess clinical outcomes derived from the use of LCP™, Philips™ & DCP™ technology for the treatment of proximal and distal humerus fractures. METHODS: A systematic search of PubMed, Cochrane Library and Medigraphic for published literature on the use of the former technologies was conducted; considered key words included “locking compression plate”, “proximal/distal humerus fracture”, “philips plate”, “meta-analysis”, “clinical trial” and “systematic review”. Inclusion criteria included RCTs, case reports, revisions/meta-analysis, as well as studies in English or Spanish and publications in indexed journals; exclusion criteria included animal studies, case reports, and other treatment alternatives for proximal and distal humerus fractures. RESULTS: 1,064 studies were initially identified; duplicated articles and exclusion/exclusion criteria yielded 62 articles meeting the inclusion criteria. The use of LCP™ and DCP™ systems, 55 studies describing LCP™ outcomes and 1 case report on DCP™ use. Further analysis revealed no comparative evidence nor publications on DCP™ use on proximal or distal humerus fractures. Comparative studies focused on other non-LSK fractures, specifically in elderly patients, compared LCP™ with other technologies in terms of functionality, fixation & bone bonding time, complications and operating time between technologies. Positive outcomes favoring LCP™ in terms of pseudoarthrosis, 1-month consolidation and greater bone fixation rigidity were found. CONCLUSIONS: LCP™ technology seems a safe and effective treatment for proximal and distal humerus fractures, while DCP™ has no published evidence on such injuries.

**PMD3**

**HEALTH OUTCOMES FOLLOWING UPPER GASTROINTESTINAL ENDOSCOPY PROCEDURES: AN UPDATED SYSTEMATIC LITERATURE REVIEW**

Kline SE, Nguyen M  
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OBJECTIVES: Upper gastrointestinal (GI) endoscopy procedures are considered fairly routine in the United States and are one of the most common interventional procedures performed globally. Patient safety during these procedures is paramount. However, there are multiple methods available for anesthesia, sedation and airway management affecting morbidity and mortality. The purpose of this review is to systematically evaluate endobronchial intubation (ETT) and laryngeal mask airway (LMA) management options for patients undergoing upper GI endoscopy. METHODS: A Boolean search strategy was employed to identify manuscripts from the peer-reviewed literature published between 1996-2016 that reported results from upper GI endoscopy procedures and patient health outcomes. The search criteria included RCTs, case reports, revisions/meta-analysis, as well as studies in English or Spanish and publications in indexed journals; exclusion criteria included RCTs, case reports, and other treatment alternatives for upper GI endoscopy and “false failures” or “adverse events” were used to identify the scientific research papers that examined different upper GI endoscopy methods as well as clinical, humanistic and economic outcomes. RESULTS: A total of 247 abstracts were reviewed for content validity and the ability to compare health outcomes, 247 abstracts were reviewed for content validity and the ability to compare health outcomes. Morbidity and mortality rates can be greatly improved with successful airway management. Further head to head comparative clinical research is needed to identify the best methodologies for airway management during these common procedures.

**PMD4**

**DIFFERENTIATING VALUE OF SHEAR WAVE ELASTOGRAPHY IN BREAST ULTRASOUND: A SYSTEMATIC REVIEW AND META-ANALYSIS**

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OBJECTIVES: To conduct a systematic review and meta-analysis to evaluate the effectiveness of Shear Wave Elastography (SWE) combined with Ultrasound (US), for the differential diagnosis of breast lesions. METHODS: The literature searchers were conducted using KoreaMed, Ovid-MEDLINE, Ovid-EMBASE, and Cochrane Library on December 28, 2015. The studies that were excluded: animal experiments, preclinical experiments, abstracts, reviews, articles not published in Korean or in English, grey literature, case studies, and not breast tumors. Two authors independently selected articles and evaluated the articles quality using Scottish
Intercollegiate Guidelines Network (SIGN). The assessment was based on the following factors: biopsy reduction rate (change in the level of Breast Imaging Reporting and Data System [BI-RADS], and diagnostic performance. RESULTS: A total of 23 articles were included in the final assessment. The diagnostic cut-off value of the SWE varied: Emax (16 articles, cut-off 30–108.5 kPa), Emax (1 article, cut-off 4 kPa) and stiffness index (3 articles, cut-off 1–2). The diagnostic performance of the SWE + US vs. US were: pooled sensitivity was 0.94 (95% confidence interval [CI] 0.93–0.95, 12–79.0%) vs. 0.94 (95% CI 0.92–0.95, 12–83.3%), pooled specificity was 0.75 (95% CI 0.73–0.77, 11–70.6%) vs. 0.75 (95% CI 0.73–0.77, 11–86.5%). CONCLUSIONS: SWE is an effective test for discriminating benign and malignant tumors in patients suspected of breast cancer, which prevents unnecessary biopsy when used alongside the breast US.

PMDS

DEMOGRAPHIC TRENDS IN ADHD DIAGNOSIS IN U.S. CHILDREN USING NHANES DATA BETWEEN 2004 AND 2012

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OBJECTIVES: To characterize changes in the demographic distribution of attention-deficit hyperactivity disorder (ADHD) diagnosis from 2004 to 2012 in the United States. METHODS: ADHD diagnosis data was extracted from the National Health and Nutrition Examination Survey (NHANES) Summary Health Statistics for U.S. Children, a source of nationally representative data on children in the United States. The ADHD cases were identified based on ICD9-CM diagnosis codes. Chi square tests were used to investigate differences in ADHD diagnosis rates by demographic characteristics (age, race, and gender) within each year and simple linear regression was applied to determine the extent of change over time. All statistical tests performed using SAS, version 9.3. RESULTS: The results showed a significant increase in the prevalence of ADHD diagnosis among female (123/4,198 in 2004 vs. 208/3,811 in 2012, p < 0.001) and African American (64/1,223 in 2004 vs. 86/1,040 in 2012, p < 0.001) children between 2004 and 2012. CONCLUSIONS: ADHD diagnosis among youth showed a significant increase in the U.S. between 2004 and 2012 and the major changes in prevalence were observed among demographic subgroups. These findings indicate a need for future research in reasons for such group differences as well as treatment differences.

PMDS

ROLE OF SERUM CYSTATIN C AND CREATININE IN IDENTIFYING STAGING OF ELDERLY CHRONIC KIDNEY DISEASE PATIENTS

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OBJECTIVES: To identify and compare the chronic kidney disease (CKD) staging by cystatin C and creatinine based estimated glomerular filtration rate (eGFR) equations among elderly CKD patients in later stages of CKD. METHODS: A total of 300 elderly CKD patients aged 65 years and older were included in the study from the University Sains Malaysia (USM), Kelantan Malaysia. Demographic data and past medical history were recorded. Serum creatinine was assayed using the colorimetric assay (Jaffe Method) and cystatin C was assayed using the latex agglutination (Evaquick CytC assay) to estimate the cystatin C based eGFR and MDRD formulas were used to estimate the creatinine based eGFR. RESULTS: The cystatin C based eGFR equation was more accurate in identifying the correct stage of elderly CKD patients as it is not affected by BMI level as compared to creatinine.

PMDS

COMPARATIVE EFFECTIVENESS OF MRI VersUS MAMMOGRAPHY FOR POST-TREATMENT SURVEILLANCE IN PATIENTS UNDERGOING BREAST-CONSERVING THERAPY FOR BREAST CANCER

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OBJECTIVES: Magnetic resonance imaging (MRI) is a sensitive method of breast imaging. The goal was to compare the effectiveness of MRI versus mammography for post-treatment surveillance in patients undergoing breast-conserving therapy for breast cancer. METHODS: This cohort study used the Texas Cancer Registry linked Medicare claims data from 2004-2012. The study cohort included older women (age ≥65 years) diagnosed with ducal carcinoma not otherwise specified or SEER Historic stage 0, 1 and 2 breast adenocarcinoma who underwent breast-conserving surgery and radiation therapy. The primary independent variable was use of MRI +/- mammography vs. mammography alone after definitive therapy. Outcomes included time to local recurrence, number of total biopsies, and number of negative biopsies defined as biopsy not followed by breast cancer diagnosis and treatment. Independent variables included patient demographics, comorbidities and clinical characteristics such as patient age and tumor stage. RESULTS: The hazards regression models were constructed to evaluate the comparative effectiveness of MRI versus mammography on time to detection of recurrence. Unadjusted and adjusted zero-inflated Poisson regressions were constructed to compare the incidence of total and negative biopsies with MRI vs. mammography. RESULTS: Of 7,693 patients, 6,360 (82.7%) used mammography only, 483 (6.3%) used MRI and mammography and 856 (11.1%) had no post-treatment surveillance breast imaging. The use of MRI increased over time from 0.5% in 2004 to 17.7% in 2012 (p < 0.001). In adjusted analysis, MRI was associated with higher detection of recurrence (HR 1.56, 95% CI, 1.15-2.13), but also associated with higher number of total biopsies (p=0.050[0.08]) and negative biopsies (p=0.01[0.09]). CONCLUSIONS: MRI use for post-treatment surveillance increased in Texas in the last decade. The use of MRI resulted in greater detection of MRI recurrence. Use of MRI was associated with an increased number of total and the positive biopsies. Follow-up was not long enough to evaluate if the early detection improved survival.

PMDS

COMPARISON OF DELIRIUM DETECTION RATES IN DEMENTIA AND NON-DEMENTIA ELDERLY POPULATION BY FAMILY CAREGIVERS USING FAMILY CONFUSION ASSESSMENT METHODS (FAM-CAM) IN THE EMERGENCY DEPARTMENT – AN OBSERVATIONAL STUDY

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OBJECTIVES: The Family Confusion Assessment Method (FAM-CAM) has been validated in outpatient populations but has not been tested in populations with dementia or in hospitalized patients. This study compared delirium detection rates using the Family Confusion Assessment Methods (FAM-CAM) in caregivers of dementia and non-dementia elderly patients.
patients versus those of non-dementia patients against a gold standard interview rating. Confusion Assessment Methods (CAM). METHODS: This observational study enrolled 198 elderly patients or family members who had undergone cervical vertebrae surgery (CVS) in China, 3Normin Health Consulting Ltd, Mississauga, ON, Canada

OBJECTIVES: To assess real-world clinical benefits associated with flowable gelatin hemostatic matrix (SURGIFLOTM) for hemostasis in a pilot cohort of Chinese patients who underwent cervical vertebrae surgery. RESULTS: A total of 10 patients were created by randomly selecting 10% of patients who received CVS for cervical spondylosis in 2014 and 2015 in a tier III hospital in Beijing, China. The medical records related to CVS for the included patients were reviewed to extract patient baseline characteristics, surgery procedures, utilization of SURGIFLOTM, and selected outcome measures during and after the operation. Multiple regression analyses with adjustment assessed the impact of the utilization of SURGIFLOTM as an hemostatic agent on measured outcomes during and after CVS. RESULTS: The created pilot cohort included 70 patients (24 with utilizing SURGIFLOTM and 46 without utilizing SURGIFLOTM). The utilization of SURGIFLOTM was associated with a significantly higher proportion of shorter hospital insurance claim (64.5% vs. 43.5%, p = 0.044) and higher proportion of cerebral infarction history (20.8% vs. 0%, p = 0.004) at baseline. Significant association was only observed between the utilization of SURGIFLOTM and body temperature normalization three days after surgery [odds ratio (OR) 0.01, p = 0.025]. Additionally, the utilization of SURGIFLOTM was strongly associated with lower bleeding volume during operation, shorter hospital stay length after operation, and less utilization of drainage catheter after operation. However, the sample size of this pilot cohort was not large enough to draw statistical inferences for these observed associations. CONCLUSIONS: Utilizing SURGIFLOTM for hemostasis in CVS led to significantly more patients with normalized body temperature three days after surgery. The potential clinical benefits with the utilization of SURGIFLOTM for CVS warrant confirmation by future studies with sufficient power.

PMD12
CANCER-ASSOCIATED CLINICAL BENEFITS ASSOCIATED WITH FLOWABLE GELATIN HEMOSTATIC MATRIX FOR UMBILICAL SURGERY IN CHINESE PATIENTS

Gabriel A1, Sigalove S2, Storm-Dickerson T3, Sigalove N4, Grif

OBJECTIVES: To assess clinical benefits associated with flowable gelatin hemostatic matrix (SURGIFLOTM) for hemostasis in a pilot cohort of Chinese patients who underwent umbilical surgery. METHODS: A total of 10 patients were created by randomly selecting 10% of patients who received CVS for umbilical surgery in 2014 and 2015 in a tier III hospital in Beijing, China. The utilization of SURGIFLOTM was associated with a significantly lower proportion of bleeding volume during operation (71.5% vs. 91% p = 0.0176). There were no significant differences in infection rates (0% v. 10.5%), dehiscence (0% v. 11.6%), necrosis (10.8% v. 169.5%) when comparing the CNPT and SOC groups respectively. All patients in the CNPT group had 2 drains compared to 1 drain in the SOC group (p < 0.0001). The CNPT group had significantly lower mean drain days per-drain (6.1 vs. 9, p < 0.0001) and total drain days (12.2 vs. 18.1, p < 0.0001) compared to SOC group. CONCLUSIONS: Our study demonstrated significantly lower complication rates and drain durations among the CNPT group. These results may translate to improved patient outcomes and efficient use of resources in a hospital setting. Further studies are needed to corroborate the findings in our study.

PMD13
MEASURING ADALIMUMAB DRUG LEVELS BY ELISA TO DETECT TREATMENT RESPONSE IN RHEUMATOID ARTHRITIS: A SYSTEMATIC REVIEW AND BIVARIATE META-ANALYSIS

Gavan S, Payne K, Barton A

OBJECTIVES: In patients with rheumatoid arthritis (RA) receiving the anti-TNF therapy adalimumab, circulating drug levels are associated with treatment response. Commercial tests (using a method called ELISA) can monitor anti-TNF drug levels in routine practice but the accuracy of this approach is uncertain. This study aimed to synthesise all published evidence on the accuracy of adalimumab drug level measurement by ELISA to detect treatment response in RA. METHODS: A systematic search of all published receptor operating characteristic (ROC) curve analyses that measured adalimumab drug levels by ELISA tests to detect treatment response in RA. Medline and Embase were searched electronically (from inception to August 2016). Two researchers identified studies using pre-defined criteria. Test outcomes were classified as positive if drug levels exceeded the study-specific cut-point. Data on study design characteristics, sample characteristics, and test outcomes from 2x2 tables (true-positive, false-negative, false-negative, false-positive) were extracted. QUADAS-2 was used to assess study quality. A hierarchical bivariate meta-analysis synthesised findings to account for between-study heterogeneity and correlation between sensitivity and specificity. RESULTS: 4,069 abstracts were identified in four studies meeting inclusion criteria. In all studies, patients received 40mg adalimumab every two weeks. Studies varied in their design and sample characteristics. Studies had low risk of bias and low concern of applicability to the research objective. The hierarchical bivariate meta-analysis estimated an average test sensitivity of 0.9% (95% CI: 0.85–0.98) and specificity of 0.68 (95% CI: 0.28–0.92). CONCLUSIONS: Measuring high adalimumab drug levels by ELISA testing appeared to be predictive of treatment response in RA. Low drug levels were less predictive of good treatment response. In practice, drug level measurement may be used in conjunction with anti-drug antibody testing to improve accuracy. The relative cost-effectiveness of using ELISA tests, and the implications of imperfect test accuracy, should be evaluated before being recommended in routine practice.

PMD14
COMPARISON OF ECONOMIC AND CLINICAL OUTCOMES BETWEEN STRATAFLEX™ KNOTLESS TISSUE CONTROL DEVICES AND CONVENTIONAL SUTURES IN PATIENTS UNDERGOING KNEE REPLACEMENT FOR OSTEOARTHRITIS

Johnston SS1, Sutton N2

OBJECTIVES: To compare economic and clinical outcomes between patients undergoing knee replacement for osteoarthritis with use of STRATAFLEX™ Knotless Tissue Control Devices (SFX KTCD) vs. conventional sutures alone. METHODS: Retrospective, observational study using the Premier Hospital Database. Patients (ages 65+ years) selected for study had an elective hospital admission with discharge occurring between 1/2010-9/2015, carrying primary ICD-9-CM procedure codes for knee replacement and osteoarthritis (first qualifying admission). Patients with any billing record for use of SFX KTCD during the index admission were classified into the ‘SFX KTCD group’; those with billing records only for conventional sutures were classified into the ‘conventional group’. Primary outcomes were index admission’s length of stay (LOS), total hospital costs, and discharge status (skilled nursing facility [SNF]/other vs. home/ home health care); exploratory outcomes included surgical site infection (SSI) and operating room time (ORT) during index admission. The SFX KTCD and conventional groups were propensity score matched (1:1.nearest neighbor/caliper=0.10) on patient, hospital, and provider characteristics. Generalized estimating equations accounting for hospital-level clustering after matching were used to compare outcomes between study groups. RESULTS: Each group comprised 7,068 patients (14,528 total patients, mean age=66.5y, 56% females=61.8%). The groups were generally well-balanced on matching covariates: mean standardized difference calculated across 52 covariates=0.02. Compared to the conventional group, the SFX KTCD group had statistically significantly shorter ORT (2.9d vs. 3.4d, p=0.0059), lower probability of discharge to SNF/other vs. home/home healthcare (25.7% vs. 28.7%, p=0.0162), and shorter ORT (183min vs. 190min, p=0.0235). Total hospital costs and SSI rates were lower for the SFX KTCD vs. conventional group, however, these differences were not statistically significant. CONCLUSIONS: Among patients undergoing knee replacement for osteoarthritis in real world clinical practice, use of SFX KTCD vs. conventional sutures alone was associated with shorter LOS, shorter ORT, and less resource intensive discharge status.

PMD15
PHYSICIAN INSIGHT OF HEALTH ECONOMIC BENEFIT OF RHYTHMIA™ THREE – DIMENSIONAL MAPPING SYSTEM FOR RADIOFREQUENCY ABLATION PROCEDURES

Yang J1, Geng Q2, Zhang M2, Xu J3, Xuan J4

OBJECTIVES: To explore and evaluate the clinical/economic benefits associated with Rhythmia, a three-dimensional mapping system for radiofrequency ablation
procedures. METHODS: Rhythmia Mapping System was approved by China CFDA in 2015. Its clinical benefits include less mapping time, high precision and high degree of automation, however, no study has been conducted to explore and evaluate potential health economic benefits. In this study, a KOL survey was conducted to explore such benefits. A questionnaire was designed to collect data associated with potential benefits of patients with complex arrhythmia compared with other mapping systems, Rhythmia system can reduce the median operation time by 30 minutes. The Atrial Fibrillation (AF) recurrence rate of Rhythmia system versus other systems were 5% and 20%, and recurrence frequency were 1.5 and 2 respectively. With current cost of rhythmia ablation (170,000 CNY) and other systems (120,000-200,000 CNY), the potential savings of 55 million CNY. Assuming the utilization of Rhythmia system versus other systems were 1:4, the potential clinical benefits would be 0.69 and achieved median gain of 10.9 years.

CONCLUSIONS: Rhythmia three-dimensional Mapping System can improve the mapping accuracy and the efficacy of patients with complex arrhythmia. Substantial cost could be saved due to the application of Rhythmia system.

PMD16 REAL-WORLD CLINICAL BENEFITS ASSOCIATED WITH THE UTILIZATION OF FLOWABLE GELATIN HEMOSTATIC MATRIX FOR CERVICAL VERTEBRAE SURGERY IN CHINESE PATIENTS

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OBJECTIVES: To assess real-world clinical benefits associated with flowable gelatin hemostatic matrix (SURGIFLOTM) for hemostasis in a pilot cohort of Chinese patients who underwent cervical vertebrae surgery (CVS).

METHODS: A pilot cohort was created by 5% of patients who received CVS for cervical spondylosis in 2014 and 2015 in a tier III hospital in Beijing, China. The medical records related to CVS for the included patients were reviewed to extract patient baseline characteristics, surgery procedures, utilization of SURGIFLOTM, and selected outcomes and after the operation. Multiple regression analyses with adjustment assessed the impact of the utilization of SURGIFLOTM as hemostatic agent on measured outcomes during and after and CVS.

RESULTS: The created pilot cohort included 70 patients (24 with utilizing SURGIFLOTM and 46 without utilizing SURGIFLOTM). The utilization of SURGIFLOTM was associated with significantly higher proportion of urban worker insurance plan (75.0% vs. 43.5%, p=0.022) and higher proportion of cerebral infarction history (20.8% vs. 0%, p=0.044) at baseline. Significant association was only observed between the utilization of SURGIFLOTM and body temperature normalization three days after surgery [odds ratio (OR) 0.01, p=0.025]. Additionally, the utilization of SURGIFLOTM was strongly associated with lower bleeding volume during operation, shorter hospital stay length after operation, and less utilization of drainage catheter after operation. However, the sample size of this pilot cohort was not large enough to detect the statistical significance for these observed associations.

CONCLUSIONS: Utilizing SURGIFLOTM for hemostasis in CVS led to significantly more patients with normalized body temperature three days after surgery. The potential clinical benefits associated with the utilization of SURGIFLOTM for CVS warrant confirmation by future studies with sufficient power.

PMD17 ASSOCIATION BETWEEN RECOMBINANT HUMAN BONE MORPHOGENETIC PROTEINS AND POST-OPERATIVE OPIOID USE IN LUMBAR FUSION PROCEDURE PATIENTS: A PROPENSITY-SCORE MATCHED ANALYSIS

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OBJECTIVES: To investigate the association between Recombinant human Bone Morphogenetic Protein-2 (rhBMP-2) use during lumbar fusion procedures and the demand for opioid analgesics in the first post-surgical year.

METHODS: We conducted retrospective study using the Multi-Payer claims Database (MPCD) 2007-2016 for all patients aged > 20, who received lumbar fusions indicated lumbar fusion procedure and had at least one opioid prescription filled in the three months prior to surgery, were identified. Propensity score matching (1:1) of rhBMP-exposed and unexposed patients was used to mitigate the selection bias. Outcomes of interest were opioid independence (defined as no opioid use) and a decrease in opioid doses as measured in morphine equivalents assessed at 3-6 and 9-12 months post-procedure. Logistic regression and Analysis of Covariance model were used to examine the association between rhBMP-2 use and post-operative opioid use patterns.

RESULTS: A total of 318 patients were included in the propensity score matched cohort; most were female (61%) and under 65 years old (68%). Few patients achieved opioid independence at either the 3-6 (n=71, 22.3%) or 9-12 months (n=115, 36.2%) post-surgical windows. During the 3-6 months window, patients who received rhBMPs reduced their opioid use rates (Estimated Mean Difference: -28.4 vs. -19.5, p value=0.69) and achieved opioid independence (21.4% vs. 23.3%, OR=0.92, 95% CI, 0.54-1.56, p=0.74) at rates that were statistically comparable to their matched comparators. Similar patterns were observed during the 9-12 months window. CONCLUSIONS: We found no evidence to suggest that rhBMP use during spinal fusion procedures is associated with either the discontinuation or decrease of opioid analgesic therapy. Given the significant morbidity associated with prolonged opioid therapy, the high prevalence of continued opioid use after surgery warrants further study.

PMD18 SOCIOECONOMIC INEQUALITIES IN QUALITY-OF-CARE AND OUTCOMES AMONG PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION IN HONG KONG

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OBJECTIVES: Socioeconomic status has been associated with adverse cardiovascular events. We aim to describe the association between patient characteristics and outcomes of patients undergoing percutaneous coronary intervention (PCI) in Hong Kong.

METHODS: We retrospectively analyzed 3300 patients undergoing PCI between Sep 2009 and Dec 2015 at a tertiary academic institution. Low socioeconomic status (LSES) was defined by recipient of the Comprehensive Social Security Assistance (CSSA) Scheme which provides a safety net for those who cannot support themselves financially based on total household income and asset tests. Baseline characteristics and 12 month clinical outcomes including death, myocardial infarction (MI), target vessel revascularization (TVR) and composite major adverse cardiac events (MACE, composite of death, MI and TVR) were compared between LSES and non-LSES patients. Independent predictors of 12 month MACE were identified using multivariate analysis. RESULTS: Of 3300 patients, 19.2% (n=635) were of LSES with mean age of 64±10.9 years and 75.6% male. LSES patients had higher rates of co-morbidities including smoking, renal failure, history of MI, CHF, previous PCI and LSES patients (all p<0.01). LSES patients had higher rates of death (5.1% vs. 3.2%, MI (2.2% vs. 0.6%), TVR (2.2% vs. 1.1%) and MACE (9.8% vs. 4.8%, all p<0.01) at 12 months. LSES was an independent predictor of 12-month MACE (Odds Ratio [OR] 1.45, 95% confidence interval [CI] 1.09-1.92, p<0.05). The use of drug-eluting stents (DES) was the only independent predictor of freedom-from-MACE at 12 month (OR 0.48, 95%CI 0.35-0.66, p<0.01). However, DES is only used in 20.6% of LSES patients compared with 80.7% of non-LSES patients (p<0.01).

CONCLUSIONS: Among patients undergoing PCI, a low socioeconomic status is associated with a higher prevalence of cardiovascular risk factors and adverse outcomes but less effective therapy such as bare-metal stents.

PMD19 A GLOBAL EPIDEMIOLOGICAL FORECAST OF HOSPITAL-TREATED INFECTION EVENTS AND INFECTION TYPES

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OBJECTIVES: To estimate the global burden of Hospital-Treated Infection Events (HTIs) and HTI subtypes in 2016, and forecast the number of HTI events through 2026 using country-specific hospital discharge databases and literature review

METHODS: Hospital-treated infections are classified into community-acquired, healthcare-associated, and hospital-acquired infections. Six types of infections: urinary tract infections, respiratory, surgical site, bloodstream, intra- abdominal, and skin structure infections affect millions of patients every year placing a huge burden on low- and middle-income countries. We forecasted the number of HTI events for each infection type by analyzing large hospital discharge databases and reviewing country-specific literature. We forecast changes in the number of events through 2026 across different regions due to demographic trends.

RESULTS: We estimate that pneumonias are the predominant infection types among European countries at 13 per 1,000 individuals, while urinary tract infections are predominant in the Americas at 16 per 1,000 individuals, a rate 3.6 times higher than urinary tract infections among European countries. Bloodstream event rates across Middle East and African countries are about 2.8 times higher than European countries, reflecting poor infection control measures. We predict a 34.8% increase in surgical-site infection events in Middle Eastern and African countries over the forecast period.

CONCLUSIONS: We observed heterogeneity in the rates of hospital-treated infection types among regions of the world. We predict increases in hospital-treated infection events across different regions due to demographic trends.

PMD20 FRAMINGHAM RISK SCORE PREDICTING MAJOR ADVERSE CARDIAC EVENTS IN POST CORONARY ANGIoplastY PATIENTS: A RIDDLE, MYSTERY AND ENIGMA

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OBJECTIVES: Framingham risk score (FRS) predicts the incidence of coronary atherosclerotic disease (CAD) but the same prediction in cardiovascular (CV) events after coronary angioplasty (CABG) is questionable. We aimed to examine the association between the Framingham risk score (FRS) and major adverse cardiac events (MACE) in this prospective study 1001 patients who underwent percutaneous transluminal coronary angioplasty (PTCA) from 1/6/2015 to 30/6/2016 were recruited and followed up for a period of 6 months. The clinical, anthropometric and other biochemical CVF risk factors of the study participants were obtained. The univariate and multivariate Cox proportional hazard regression analyses were performed to evaluate the relation between the cardiovascular risk factors and major adverse cardiac events (MACE) at one month. RESULTS: At 6 Months, FRS was observed in 83 (8.3%) subjects who underwent PTCA, The area under the curve (Hazard Ratio/HR) for FRS and NT Pro
BNP in predicting MACE was found to be 0.81 (95% CI: 0.73-0.88) and 0.89 (95% CI 0.82-0.96) respectively in type 2 diabetic patients, after adjustment for potential confounders. Baseline BNP > 200 was highly significant associated with MACE (adjusted hazard ratio (HR): 3.03; 95% CI 0.116.54; *p=0.005). In nondiabetic patients, NT ProBNP (> 500) was significantly associated with MACE (adjusted HR: 2.08; 95% CI 1.95-2.24; *p < 0.001) and NT ProBNP > 500 predicted MACE in diabetic subjects. CONCLUSIONS: FRS and NT ProBNP > 500 predicted MACE in diabetic subjects, but FRS underpredicts MACE in Non-diabetic, where other risk factors anticipated it, this applies that FRS beyond threshold appears to predict MACE in diabetic subjects.

### MEDICAL DEVICES/DIAGNOSTICS – Cost Studies

**PMD21**

**BUDGET IMPACT ANALYSIS OF THE CELL CYCLE PROGRESSION TEST IN LOW AND INTERMEDIATE RISK, LOCALIZED PROSTATE CANCER**

Ci C, Schaink AK, Xie X, Holobowich C, Sitnik N, Dhalia I, Ng V

**Objectives:**

1. To develop an economic impact of BRCA1 and BRCA2 genetic tests in women with advanced stage ovarian cancer in the Colombian context.

2. To estimate the budget impact of incorporating Remote Monitoring (Home Monitoring) of CRT/ICD therapy in SUS diagnosed with heart failure (HCMC 2017-350). Retrospective data from the previous five years were used to understand the impact on SUS costs related to heart failure. Data were collected from medical records and databases of patients admitted to the Hospitalito de la Salud of the Ministry of Health.

**Methods:**

1. A Markov model was developed to estimate the cost per patient of heart failure, considering the following stages: initial hospitalization, follow-up in the SUS, and the use of technology, such as home monitoring.

2. A Markov model was developed to estimate the cost per patient of heart failure, considering the following stages: initial hospitalization, follow-up in the SUS, and the use of technology, such as home monitoring.

**Results:**

- The model showed a savings of $3,760 per patient.
- Sensitivity analyses demonstrated that the model was robust to changes in input parameters, with SBC-CE reducing costs by 2.6% and SBC-CE reducing costs by 2.6%.

**Conclusions:**

- The model results were robust to changes in input parameters, with SBC-CE reducing costs by 2.6% and SBC-CE reducing costs by 2.6%.

**PMD22**

**ECONOMIC IMPACT ANALYSIS OF BRCA1 AND BRCA2 GENETIC TESTS IN WOMEN WITH ADVANCED STAGE OVARIAN CANCER IN THE COLOMBIAN CONTEXT**

Romero Prada ME1, Roa Cardenas NC1, Vasquez Melo EC2, Acosta JA3

**Objectives:**

1. To develop an economic impact of BRCA1 and BRCA2 genetic tests in women with advanced stage ovarian cancer in the Colombian context.

2. To estimate the budget impact of incorporating Remote Monitoring (Home Monitoring) of CRT/ICD therapy in SUS diagnosed with heart failure (HCMC 2017-350). Retrospective data from the previous five years were used to understand the impact on SUS costs related to heart failure. Data were collected from medical records and databases of patients admitted to the Hospitalito de la Salud of the Ministry of Health.

**Methods:**

1. A Markov model was developed to estimate the cost per patient of heart failure, considering the following stages: initial hospitalization, follow-up in the SUS, and the use of technology, such as home monitoring.

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**Results:**

- The model showed a savings of $3,760 per patient.
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**Conclusions:**

- The model results were robust to changes in input parameters, with SBC-CE reducing costs by 2.6% and SBC-CE reducing costs by 2.6%.
RESULTS: The total cost of treatment of a patient with major depression using the pharmacogenetic test and the standard care is USD $3,224.75 and USD $2,990.89, respectively. The difference of USD $233.86 is mainly associated with the cost of implementing the genetic test, according to the genetic profile versus the standard care, evaluating the stabilizing or non-stabilization of the symptoms in response to the treatment, based on the probabilities taken from the scientific evidence, and from real data took from a Colombian over a 12 month period. RESULTS: The cost of treatment of a patient with major depression using the pharmacogenetic test and the standard care is $3,224.75 and $2,990.89, respectively. The difference of $233.86 is mainly associated with the cost of implementing the genetic test, according to the genetic profile versus the standard care, evaluating the stabilizing or non-stabilization of the symptoms in response to the treatment, based on the probabilities taken from the scientific evidence, and from real data took from a Colombian over a 12 month period. The costs of drugs have a reduction of 47% and a saving in the cost of hospitalizations of USD $1,793.14 in patients who undergo the genetic test compared to those following the standard care. In addition, the use of pharmacogenetics generates a saving of USD $793.14 in patients who would have had TDR surgery if not available, then the budget impact is predicted to fall to USD $18.39 million, leading to a cost saving of USD $170,000 with coverage of TDR. In a separate threshold analysis, TDR is predicted to remain budget neutral as long as 57% or more of TDR-treated patients who had surgery would have had a TDR surgery in the absence of TDR coverage. CONCLUSIONS: Based on the available evidence, TDR is expected to be less costly than surgical fusion and result in minimal to no budget impact when covered as well-specified patient populations. CONCLUSIONS: Based on the available evidence, TDR is expected to be less costly than surgical fusion and result in minimal to no budget impact when covered as well-specified patient populations.

PMD26 ECONOMIC IMPACT OF THE USE OF THE PHARMACOGENOMIC TEST OBTAINED FROM A SALIVARY SAMPLE IN COLOMBIAN PATIENTS WITH MAJOR DEPRESSION

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OBJECTIVES: To determine the economic impact of the use of the pharmacogenetic test in a saliva sample, compared with standard care, in patients diagnosed with major depression in the Colombian context. METHODS: The model is a decision tree to simulate the natural history of the disease in two study arms, the use of a pharmacogenetic test in the treatment of depressive symptoms in comparison with the standard care, evaluating the stabilization or non-stabilization of the symptoms in response to the treatment, based on the probabilities taken from the scientific evidence, and from real data of a Colombian over a 12 month period. RESULTS: The total cost of treatment of a patient with major depression using the pharmacogenetic test and the standard care is USD $3,224.75 and USD $2,990.89, respectively. The difference of USD $233.86 is mainly associated with the cost of implementing the genetic test, according to the genetic profile versus the standard care, evaluating the stabilizing or non-stabilization of the symptoms in response to the treatment, based on the probabilities taken from the scientific evidence, and from real data took from a Colombian over a 12 month period. The costs of drugs have a reduction of 47% and a saving in the cost of hospitalizations of USD $1,793.14 in patients who undergo the genetic test compared to those following the standard care. In addition, the use of pharmacogenetics generates a saving of USD $793.14 in patients who would have had TDR surgery if not available, then the budget impact is predicted to fall to USD $18.39 million, leading to a cost saving of USD $170,000 with coverage of TDR. In a separate threshold analysis, TDR is predicted to remain budget neutral as long as 57% or more of TDR-treated patients who had surgery would have had a TDR surgery in the absence of TDR coverage. CONCLUSIONS: Based on the available evidence, TDR is expected to be less costly than surgical fusion and result in minimal to no budget impact when covered as well-specified patient populations.

PMD27 ECONOMIC ANALYSIS OF QUANTALO COMPARED WITH DOPPLER ABI, FOR DETECTION OF PERIPHERAL ARTERY DISEASE: A U.S. HOSPITAL PERSPECTIVE

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OBJECTIVES: The prevalence of peripheral artery disease (PAD) is high, however, physicians are often unaware and inaccurate diagnoses can be low. An office-based, automated, and quick measurement system, Quanta, has been shown to help detect PAD in patients where it was previously unrecognized. An economic analysis was conducted to compare the Quanta PAD test with Doppler ankle-brachial index (ABI) test, obtained from the U.S. provider perspective in patients with suspected PAD. METHODS: The analysis was based on 96 (Doppler) and 128 (Quanta) patients tested per month for PAD at a single healthcare facility. Testing time per patient was assumed to be 20 minutes with Doppler and 5 minutes with Quanta. Per-patient, multi-center study results reported Device sensitivity/specificity values of 54.7%/94.3% and 89.5%/99.0% for Doppler and Quanta respectively. Cost parameters included device rental (Quanta $1,500 for 2 years), maintenance of the device, and cost of test per visit, as a proportion of time saved. The average reimbursement, was predicted to be $3.78 with Quanta and $4.40 with Doppler. Cost saving results remained robust across various sensitivity analyses. CONCLUSIONS: The Quanta PAD test was predicted to provide cost savings on a per test basis for U.S. providers primarily due to time saved on test administration, while potentially increasing the detection of PAD patients. Future study should involve further real-world analysis of potential cost-efficiencies with this product.
TREATMENT OF PATIENTS WITH DIABETIC FOOT ULCERS IN ONTARIO, CANADA

COST-EFFECTIVENESS OF FIBERGLASS TOTAL CONTACT CASTING, PMD35

the economic evaluation of both CDx and targeted therapies. Costs of a targeted therapy.

Costs of a targeted therapy. The majority of studies concluded that studies speci.

health system from 1 year to lifetime, and markov model or decision-tree was commonly used with strategies. Cost-effectiveness analysis was conducted with a time horizon ranging vs. without CDx to guide the targeted therapy, and 16 compared different CDx other studies reported only economic outcomes. 29 of the 36 studies compared with 40 studies on CDx HE modeling were selected for review. The number of HE studies on diagnostics for targeted cancer therapy.

METHODS: A literature search was conducted: (1) Diagnostic cost-minimization (C-M) decision model comparing (a) exclusion of diagnostic pathways to allow ascertainment of medical cost savings following an introduction of a heart failure prevention program are estimated to be GBP 3,320 per patient. Cost savings in outpatient and inpatient settings were GBP 1,673 and 467 respectively. Sensitivity analyses indicated that efficacy and price of a prevention program had the strongest magnitude of impact on model base case results. CONCLUSIONS: Estimated that diagnostic heart failure prevention program is a cost-saving intervention. A budget impact model app may effectively inform decision making and regional budget planning as it provides technical ability to modify model inputs during presentation to healthcare payers. An economic model powered with web capabilities and dedicated data visualization libraries provide effective means to convey detailed economic data to healthcare payers and providers.

PMD34 LITERATURE REVIEW: HEALTH ECONOMIC MODELING OF COMPANION DIAGNOSTICS FOR TARGETED CANCER THERAPY

Wang Y, Stevens A

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OBJECTIVES: To assess the evidence on the cost-effectiveness of companion diagnostics (CDx) used in the treatment of fibroadenomas. Fibroadenomas of the breast.

surgical excision and percutaneous excision via Vacuum Assisted Biopsy (VAB). While open surgical excision is effective, it can be very costly due to operating room charges. Additionally, it can also lead to negative outcomes such as bruising, swelling, scarring and infection. VAB is shown to be superior and cost-effective in removing Fibroadenomas. It offers significant advantages to the patient including minimal morbidity, scarless, reduced re-biopsy rates and cost. METHODS: A retrospective analysis of both Surgical Excision and VAB procedures from the Premier Hospital Database was conducted. The economic outcomes of patients whose discharge data included CPT codes for VAB procedures 19083 and surgical excision procedures 19101, 19120, 19125 were evaluated in the outpatient setting. Adult patients presenting with a procedure code of 19043-12/9/12 were included for the analysis of VAB procedures. 29 procedures were included for the analysis of Surgical Excision procedures. The analysis produced cohorts of 24,479 for Surgical Excision and $2,555 for the IBS-D diagnostic panel strategy. The BIA estimated the annual potential diagnostic cost savings for a 10,000 employee organization would be $92,498 or $0.77 per member per month (PMPM). For the same organization the estimated number of work days gained from reduced absenteeism and presenteeism from true positive and successfully fibrosarcomatous targeted IBS-D patients was 270 days. This translated into an annual net saving of $34,941.88.

CONCLUSIONS: The economic evaluation, using the three integrated models, indicate that introducing a novel IBS diagnostic blood panel could lead to cost savings for self-insured corporations in the USA. Incorporating pre-operative IBS diagnosis into corporate benefit or wellness programs could be an efficient strategy.

PMD36 THE ECONOMIC IMPACT FOR SELF-INSURED EMPLOYERS IN THE USA FROM EARLY DIAGNOSIS OF DIARRHEA DOMINATED OR MIXED IRRITABLE BOWEL SYNDROME (IBS-D/M) USING A NOVEL IBS DIAGNOSTIC BLOOD PANEL

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OBJECTIVES: The average time from diagnosis to treatment of IBS-D/M is 6.1 years. During the pre-treatment symptomatic period patients’ work ability is reduced through increased absenteeism and presenteeism. This analysis assesses the economic impact of using a novel IBS diagnostic blood panel for the early assessment of two biomarkers associated with IBS-D as early diagnosis of IBS-D/M for self-insured employers in the USA. METHODS: Three integrated models were constructed: (1) Diagnostic cost-minimization (C-M) decision model comparing (a) exclusion of diagnostic pathways to allow ascertainment of medical cost savings following an introduction of a heart failure prevention program are estimated to be GBP 3,320 per patient. Cost savings in outpatient and inpatient settings were GBP 1,673 and 467 respectively. Sensitivity analyses indicated that efficacy and price of a prevention program had the strongest magnitude of impact on model base case results. CONCLUSIONS: Estimated that diagnostic heart failure prevention program is a cost-saving intervention. A budget impact model app may effectively inform decision making and regional budget planning as it provides technical ability to modify model inputs during presentation to healthcare payers. An economic model powered with web capabilities and dedicated data visualization libraries provide effective means to convey detailed economic data to healthcare payers and providers.

PMD35 COST-EFFECTIVENESS OF FIBERGLASS TOTAL CONTACT CASTING, IRREMOVABLE CAST WALKERS AND REMOVABLE CAST WALKERS IN THE TREATMENT OF DIABETIC FOOT ULCERS WITH DIABETIC FOOT OSTEONECROSIS, ONTARIO, CANADA

Tu HA1, Costa V1, Xie X1, Wijesundara HC2, Sikich N3, Dhalla I4, Ng V1

1Health Quality Ontario, ON, Canada, 2Sunnybrook Health Sciences Centre, Toronto, ON, Canada

OBJECTIVES: Diabetic foot ulcers (DFU) cause substantial morbidity and are a risk factor for lower limb amputation. We assessed economic implications of off-loading devices including fiberglass total contact casting (TCC), irremovable cast walker (RCW) and removable cast walker (RCW) in the treatment of DFU patients in Ontario, Canada. METHODS: We developed a decision analytic model to determine the cost-effectiveness of TCC, RCW and BCW compared with each other and compared to standard of care (SOC) from the Ontario drug coverage payer perspective. Clinical model parameters (effectiveness and safety) of off-loading devices were obtained from our systematic clinical evidence review. Costs of off-loading devices and adverse events were taken from literature and expert opinions. Main outcomes of the model were incremental cost per healed ulcer, quality-adjusted life-years (QALYs) and the incremental cost-effectiveness ratio (ICER). We conducted sensitivity analyses to explore the robustness of our findings. All costs were estimated by $16 million per year. CONCLUSIONS: BCW or TS was more expensive and less effective than TCC or ITCC in the treatment of DFU. ITCC is as effective as TCC in the treatment of patients with DFU and associated with fewer costs. ITCC should be recommended as the first line. In situations where it cannot be used, TCC may be a reasonable alternative.
OBJECTIVES: This prospective pragmatic clinical trial (PCT) evaluated a wearable insulin delivery device (V-Go) compared to a standard treatment optimization control in a community-based practice setting. The primary outcome was the change in A1C from baseline to end of study (EOS). Treatment cost and effectiveness analyses in patients receiving multiple daily insulin injections (MDI) were performed. METHODS: This cluster randomised trial, where participants rather than individual patients, were randomised to initiate V-Go and stop other insulin therapy or to continue diabetes treatments. Patients taking insulin were enrolled in both groups and treated according to routine practice for up to 4 months. All treatments and resources outlined in the study protocol were obtained regardless of patient health insurance.

RESULTS: The analysis population included 52 sites in the United States with 246 STO and 169 V-Go patients. Baseline A1C ranged from 7.9 to 14.2% and was higher for V-Go vs. STO (p = 0.088 vs. p = 0.034; p < 0.001) indicating a selection bias to initiate V-Go in more advanced diabetes patients. Significant A1C decreases from baseline to EOS with V-Go (-0.95%, p < 0.001) and STO (-0.46%, p < 0.001) and for V-Go vs. STO (p = 0.002) were observed. To control for the baseline and treatment imbalance of the overall cohort, cost and efficacy analyses in patients utilizing comparable baseline diabetes treatment, basal bolus insulin injections, were performed. V-Go (n=95) had higher mean baseline A1C than STO (n=135) 9.85% vs 9.74%, and a larger change from baseline of -0.155% vs -0.377%; p < 0.01. The mean per patient per day (PPPD) cost of diabetes treatment, using Wholesale Acquisition Cost (WAC) and including all concomitant diabetes medications and supplies was $23.60 and $23.09 compared to $30.95 for V-Go patients.

CONCLUSIONS: This demonstrated improved diabetes treatment outcomes and total diabetes treatment cost in patients with poor diabetes control initiating a wearable insulin delivery device in a real-world setting.
pre- and 6 months post-index continuous enrollment. For each screening scenario (FFDM alone, FFDM+DBT, and FFDM+US), an annual screening rate was estimated and the total annual utilization of FFDM. The rate of diagnostic mammography performed within 180 days for 2015 was estimated. RESULTS: Approximately 5,000,000 women met the inclusion criteria in each year for the trend analysis. Screening mammogram rates rose from 38.9% in 2005 to 45.8% in 2009, but have remained relatively stable recently (2011-2015 range: 42.8%-43.6%). The percentage of screened women who received US+FFDM on the same day increased from 0.7% in 2005 to 3.8% in 2015. In 2015, the year in which a DBC was became available, 9.5% of screening mammograms were US+FFDM and 0.4% received FFDM, DBT and 1% on the same day. Diagnostic mammography rates following a screening exam were 8.9% for FFDM alone, 7.3% for FFDM+DBT, and 14.0% for FFDM+US. Average screening regimen costs rates were $320.55 for FFDM, $432.53 for FFDM+DBT and $420.02 for FFDM+US. CONCLUSIONS: While FFDM+US is less common than FFDM+DBT, utilization of FFDM+US is growing and average costs are higher for FFDM+US than FFDM+DBT. Diagnostic mammography is more commonly performed after FFDM+US than FFDM+DBT alone. Additional research should be conducted to understand factors contributing to this difference.

PMD45
DIRECT MEDICAL COSTS TO MEDICARE OF IMPLANTABLE CARCINOTERAPY-DEFIBRILLATOR COMPLICATIONS THAT REQUIRED LEAD REOPERATION

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OBJECTIVES: The purpose of this study was to estimate the total direct medical cost to Medicare of transvenous (TV) lead complications that required lead reoperation. METHODS: Using Medicare enrollment and claims data from the Truven MarketScan database further emphasizes the need for improvement in SCS infection control strategies. Among cases, 63% were hospitalized for lead reoperation and 65% underwent removal. Overall, the average cumulative cost of TV lead complications requiring reoperation was $47,548 and $3,956 among controls (difference $43,592; 95% confidence interval $41,726-$45,459; p < 0.001). The average cumulative cost of TV lead complications among those requiring lead reoperation in the presence of infection (21% of cases) was $86,745.

CONCLUSIONS: The economic consequences of TV lead complications requiring lead reoperation are substantial. Effective approaches to reducing lead reoperations are likely to result in significant cost-offsets.

PMD46
SPINAL CORD STIMULATION INFECTION RATE AND INCREMENTAL ANNUAL EXPENSES: RESULTS FROM A US PAYER DATABASE

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OBJECTIVES: To estimate the infection rate for 12 months post implantation of spinal cord stimulation (SCS)-related infection. METHODS: Data from the Truven MarketScan’s Commercial Claims and Medicare Supplemental databases were used to identify patients with a SCS neurostimulator generator implant during the calendar years 2009–2014. Patients were continuously enrolled for at least 12 months before and after implant. The patients were further divided into initial group or replacement group. Annual expenditures were estimated for patients who experienced a device-related infection versus those without infection since SCS generator implant. The generalized linear model was used to estimate annual expenditures, utilizing a gamma distribution and a log link function. All multivariate expenditure models were conducted separately for patients in the initial group and the replacement group. All models were controlled for presence of infection before generator implant, Charlson comorbidity index level as a patient demographic strategy. The database further emphasizes the need for improvement in SCS infection control practices. The result shows the expenditure burden associated with SCS-related infections is substantial, and the management of SCS-related infection is important from both clinical and economic standpoints.

PMD47
IMPACT OF THE ADOPTION OF MICROGELICA DELIVERY SYSTEM: CLINICAL AND ECONOMIC ANALYSIS USING DATABASE STUDIES

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OBJECTIVES: This study examined the clinical and economic impact of adoption of microgelica delivery system compared to traditional cardioplegia from the hospital perspective. METHODS: This is a multi-cohort study used Premier Hospital database (January 2009 to March 2015) for patients undergoing one of the following primary procedures: coronary artery bypass graft (CABG), aortic valve replacement (AVR), or mitral valve replacement (MVR). The first three months after a date of a patient underwent the microgelica delivery system (MDS) system was excluded. Outcomes for this analysis included: a composite adverse event endpoint, total visit cost, medication cost, length of stay (LOS) and ICU days. The composite adverse event included: major cardiac (acute myocardial infarction, angina, pericarditis, pericardial effusion, acute kidney injury with and without dialysis) events, sepsis or other infection, wound, abdominal or pulmonary complications, cardiogenic shock, bleeding or death. A multi-variable difference-in-differences (DID) analysis using fixed effects was performed for each outcome. All models were adjusted for patient demographics, surgical characteristics and comorbid conditions. RESULTS: A total of 256,814 visits met the inclusion criteria. After controlling for within hospital variation and all covariates, there was a 2.25% absolute risk reduction in the composite of adverse events with MDS compared to traditional cardioplegia, which equates to a relative risk reduction of 5.25%. There were significant reductions in LOS and ICU days at the 0.1 alpha level. A per case reduction of $1,231 in total visit costs and a $192 in medication costs was found in MDS2 hospitals. This equaled an absolute risk reduction in total costs of 4% for the MDS2 hospitals. CONCLUSIONS: For hospitals performing CABG, AVR and MVR surgeries with second generation microgelica delivery systems, significant reductions were seen in adverse events, LOS, and ICU days, which lead to reductions in total visit costs and medication costs.

PMD48
COST ANALYSIS FOR MEDICAL DEVICES FOR RARE DISEASES IN BULGARIA – A CASE WITH EPIDERMOLYSIS BULLOSA

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OBJECTIVES: To define the financial burden of medical devices for rare diseases epidemiology for Bulgaria, and to define the cost consequences of incorporating a HeartFlow diagnostic pathway has the potential to significantly reduce healthcare costs. An emerging technology, the HeartFlow Analysis, utilizes data from invasive angiography. For hospitals performing CABG, AVR and MVR surgeries with second generation microgelica delivery systems, significant reductions were seen in adverse events, LOS, and ICU days, which lead to reductions in total visit costs and medication costs.

CONCLUSIONS: A total of 256,814 visits met the inclusion criteria. After controlling for within hospital variation and all covariates, there was a 2.25% absolute risk reduction in the composite of adverse events with MDS compared to traditional cardioplegia, which equates to a relative risk reduction of 5.25%. There were significant reductions in LOS and ICU days at the 0.1 alpha level. A per case reduction of $1,231 in total visit costs and a $192 in medication costs was found in MDS2 hospitals. This equaled an absolute risk reduction in total costs of 4% for the MDS2 hospitals. CONCLUSIONS: For hospitals performing CABG, AVR and MVR surgeries with second generation microgelica delivery systems, significant reductions were seen in adverse events, LOS, and ICU days, which lead to reductions in total visit costs and medication costs.

PMD49
ECONOMIC EVALUATION OF EMERGING DIAGNOSTIC TEST FOR CORONARY ARTERY DISEASE

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OBJECTIVES: A number of diagnostic tests are available for patients with suspected coronary artery disease. It is widely known, however, that the poor accuracy of the existing tests results in poor diagnostic, unnecessary invasive interventions, and high healthcare costs. An emerging technology, the HeartFlow Analysis, utilizes data from coronary CT angiography to determine what patients need a cardiac intervention. Clinical studies have demonstrated that the test is safe and effective. Using clinical data, our objective is to evaluate the cost consequences of incorporating a HeartFlow analysis as part of the diagnostic pathway in the new era of cost-consciousness. The public funds reimbursed medical devices for patients with epidermolysis bullosa dystrophic (approximately 9,000 € per patient per year) followed by epidermolysis bullosa simplex (92% of budget for medical devices and approximately 5,000 € per patient per year). Cost per patient per year differs statistically significant with the increase in case of more severe changes in the expected cost for the next 3 years. The expected cost of increase with the severity of the disease and account for up to 300,000 Euro on total CONCLUSIONS: The public funds reimbursed medical devices only for patients without epidermolysis bullosa. The cost consequences of incorporating a HeartFlow diagnostic pathway has the potential to significantly reduce healthcare costs. An emerging technology, the HeartFlow Analysis, utilizes data from invasive angiography. For hospitals performing CABG, AVR and MVR surgeries with second generation microgelica delivery systems, significant reductions were seen in adverse events, LOS, and ICU days, which lead to reductions in total visit costs and medication costs.

CONCLUSIONS: Incorporating a HeartFlow Analysis into a patient’s diagnostic pathway has the potential to significantly reduce the cost of care.
OBJECTIVES: Metal ceramic (MC) crowns have been considered the gold standard for dental restoration. However, all-ceramic MC crowns in the real-time metal framework and the layer of opaque porcelain needed for masking the underlying metal grayish shade. All-ceramic crowns have been used over the last four decades as an alternative for MC crowns to overcome their economic limitations. Although, the price of all-ceramic crowns is much higher. Policy makers require information on the relative benefits and costs associated with different types of crown materials in order to support reimbursement decisions.

METHODS: The objective of this study was to evaluate the cost-effectiveness of metal ceramic and all-ceramic methods. METHODS: three hundred ninety four patients participated in the study. They were included into two treatment groups and were followed up for two years and three months at Lohia National Medical University. People were selected among the patients who only needed crown restorations. Direct and indirect costs of the treatments were payed out of the pocket by patients. RESULTS: Total costs for the group #1 with metal ceramic crowns were 216300 and for the group #2 with all-ceramic crowns were 26700. The analyses yield a cost-benefit ratio of 291,8 for group #1 and 168,1 for the group #2. CONCLUSIONS: Metal ceramic crowns provide a positive cost-benefit ratio compared with all-ceramic crowns. Metal ceramic dental restorations fulfill the treatment needs and continue to be the widely recommended treatment for the patients with extensively decayed teeth.

OBJECTIVES: To evaluate cost-effectiveness estimates through model validation and characterization of uncertainty in a cost-effectiveness analysis comparing gadodocoic acid-enhanced magnetic resonance imaging (EOB-MRI) with extracellular contrast-media-enhanced MRI (ECM-MRI) and contrast-media-enhanced computed tomography (CE-CT) for diagnosis of hepatocellular carcinoma (HCC) in Japan with a focus on local versus foreign inputs. METHODS: Nearly all input parameter values were from local Japanese sources. Model inputs and structure were verified by a panel of clinical experts. Uncertainty in model inputs was addressed using probabilistic sensitivity analysis. Scenario analyses were also conducted using values derived from previously conducted non-Japanese studies, including diagnostic sensitivity and specificity values reported according to tumor size and utility values used in previous economic evaluations. Probabilistic and sensitivity analyses were conducted based on a 6-stage Markov model constructed to estimate lifetime direct costs and clinical outcomes associated with HCC diagnosis using EOB-MRI, ECM-MRI and CE-CT. RESULTS: For the per patient probabilistic results for a hypothetical cohort of 100,000 patients over a lifetime, EOB-MRI was associated with lower direct costs (1,485,875JPY) and a greater number of QALYs (10.158) than either ECM-MRI (1,750,167JPY, 9,865 QALYs) or CE-CT (1,907,129JPY, 9,724 QALYs). Under the scenario analysis by tumor size, EOB-MRI was found to be dominant, resulting in a larger incremental difference in costs than was found in the base case versus other diagnostic strategies. In the scenario analysis, EOB-MRI remained dominant despite smaller incremental differences compared to the base case. CONCLUSIONS: Both probabilistic and scenario based results closely matched the base case results and confidence intervals. The finding that EOB-MRI is a cost-effective option compared to ECM-MRI and CE-CT supports the need for more studies to confirm the finding.

OBJECTIVES: The effectiveness and cost-effectiveness of a novel, factory-calibrated G5 Mobile CGM system compared to SMBG in terms of patients were sourced from the DIAMOND randomized controlled trial (RCT) while all other assumptions and costs were sourced from published research. Analysis was performed across a range of scenario analyses. The findings support the need for more studies to confirm the finding.

OBJECTIVES: Cost-effectiveness analysis is a method that allows patients to be offered with higher QALYs gained with CSII, patients can be offered with some measures to reduce the out-of-pocket expense on therapy.
group; d) dis-utilities of -0.0142 for NSHEs and SHEs not requiring medical treatment. Assuming a 1,000 patient cohort, the additional one-time cost for ThinPrep Pap testing was of $2,625 lower with incremental gains of 0.0318 QALYs for multi-gene compared with single gene and $7,398 lower with 0.190 QALY gains compared to no test. Base case analyses revealed multi-gene was dominant compared to both single gene and no test. It demonstrated cost savings with increased QALYs. Net monetary benefit for multi-gene based on a $150,000/QALY willingness-to-pay threshold was $5,441 and $26,378 compared to single gene testing and no testing, respectively. CONCLUSIONS: For these patients, a multi-gene-guided strategy yields a favorable incremental cost-effectiveness ratio compared to the other two treatment strategies. Pre-emptively ascertaining additional gene-drug pair information can inform clinical and economic decision-making at point of care. Future work includes validating these preliminary results.

**PMD60**

**COST EFFECTIVENESS ANALYSIS OF A FLASH CONTINUOUS GLUCOSE MONITORING SYSTEM FOR TYPE 2 DIABETES (T2DM) PATIENTS RECEIVING INTENSIVE INSULIN TREATMENT IN THE UK**

**OBJECTIVES:** Regular glucose monitoring is important for T2DM patients receiving intensive insulin. A novel, factory-calibrated flash continuous glucose monitoring system (the Freestyle Libre™ system) continuously measures glucose levels from interstitial fluid. Data transfers to a handheld reader from a wearable arm sensor without requiring routine self-monitoring of blood glucose (SMBG). The REPLACE RCT showed a reduced time spent in hypoglycemia in T2DM patients receiving intensive insulin for the flash monitoring system compared to SMBG, while decreasing the number of blood glucose tests by 92%. A time trade-off study indicated that flash monitoring was cost effective. As an alternative scenario, mortality was assumed to be the same for both groups. In this view, HM is likely to promote additional direct costs and LYG. Compared to drugs, the cost of each additional LYG is much cheaper. In addition, this model is not sensitive to opportunity costs as less demand for cardiology outpatient clinic visits.

**RESULTS:** The base case ICER was £23,842 and cost per hypoglycemia event averted was £93. For the scenario analyses, ICERs ranged from £6,555 to £29,517. CONCLUSIONS: Improved hypoglycemia and a health utility benefit translate into a highly cost-effective device._fifo

**PMD61**

**ECONOMIC EVALUATION OF REMOTE MONITORING OF CRT/ICD THERAPY IN HEART FAILURE PATIENTS**

**OBJECTIVES:** To estimate the feasibility of Remote Monitoring (Home Monitoring™, HM) of Cardiac Resynchronisation Therapy (CRT) and Implantable Cardioverter-Defibrillator (ICD) in Brazilian Healthcare Systems. METHODS: In patients with CRT/ICD therapy to treat heart failure (ICD-10 I05), continuous follow-up is based on outpatient visits (Conventional Follow-Up, CFU). HM is a new alternative which transmits real-time data to a central and then, to patient’s cardiologists by means of a time trade-off study. RESULTS: For patients with CRT/ICD therapy to treat heart failure (ICD-10 I05), continuous follow-up is based on outpatient visits (Conventional Follow-Up, CFU). HM is a new alternative which transmits real-time data to a central and then, to patient’s cardiologists by means of a time trade-off study. Based on this view, HM promotes an incremental cost of BRL 3,339 per incremental LYG when HM and CFU are compared. For the scenario analyses, this cost was minimized to BRL 1,339 per incremental LYG. This conclusion is supported by additional evidence that HM is more cost-effective than CFU, leading to a net monetary benefit of BRL 471.00 USD. **CONCLUSIONS:** HM is more cost-effective than CFU, leading to a net monetary benefit of BRL 471.00 USD. Based on this view, HM promotes an incremental cost of BRL 2,599 per incremental LYG when HM and CFU are compared. Conclusions are supported by additional evidence that HM is more cost-effective and efficient than CFU.
**PMD64**

**COST-EFFECTIVENESS ANALYSIS OF RADIODIFFERENCE CATHERETER ABLATION WITH SMARTTOUCH® VERSUS FIRST-GENERATION CRYOBALLOON ABLATION ON THE TREATMENT OF PAROXYMSAL ATRIAL FIBRILLATION PATIENTS IN CHINA**

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**OBJECTIVES:** Clinical guidelines recommend pulmonary-vein isolation by means of radiofrequency catheter ablation (RFCA) or cryoballoon ablation (CB) as treatment for paroxysmal atrial fibrillation (PAF). While RFCA with SmartTouch® Catheter (ST) and the first-generation CB (CB-1) are widely-used in China, studies examine the effectiveness of the two technologies are rare. This study was performed to determine the cost-effectiveness of ST vs. CB-1 in Chinese PAF patients from a payer’s perspective.

**METHODS:** A two-part model was developed to estimate the cost-effectiveness of the two technologies. The short-term part was a decision tree model to avoid complications within the first 18 months from discharge. The long-term (up to 20 years) part was a Markov chain including the health states of normal sinus rhythms, AF recurrence, stroke, post stroke, intracranial hemorrhages (ICH), post ICH, and gastrointestinal bleeding. Clinical and utility data were obtained from published literature. Cost data were collected from Chinese leading hospitals. The model calculated quality-adjusted life years (QALYs) and total costs per patient. Costs and QALYs were discounted by 3.5% annually. One-way sensitivity analyses were conducted on key parameters.

**RESULTS:** Captured by the 5-year, 10-year, and 20-year Markov model plus 18-month decision tree model, the total costs per patient for the ST vs. CB-1 groups were $14,177 vs. $16,662.94, $16,988.95 vs. $15,483.67 and $19,591.78 vs. $22,570.62, respectively. 5-year, 10-year, and 20-year QALYs for the ST vs. CB-1 groups were 4.23 vs. 4.22, 6.43 vs. 6.38 and 8.64 vs. 8.53, respectively. The results suggest a higher ICER for all the scenarios, indicating that ST, compared with CB-1, is more efficient, and lower overall costs. The one-way sensitivity analysis did not change the conclusion, indicating the robustness of the results.

**CONCLUSIONS:** ST with a dominant treatment of PAF in China compared to CB-1. This evidence supports the broad clinical application of RFCA with ST over CB-1.

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**PMD65**

**TREATMENT SEQUENCE IN INTERMEDIATE STAGE HEPATOCELLULAR CARCINOMA: A COST-EFFECTIVENESS ANALYSIS OF TWO APPROACHES WITH TRANS-ARTERIAL RADIOMOBILIZATION**

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**OBJECTIVES:** Hepatocellular carcinoma (HCC) is a major health problem worldwide. Trans-arterial radioembolization (TARE) is a relatively new option for the management of non-resectable HCC, although not explicitly recommended in clinical guidelines. Other approaches include systemic chemotherapy (i.e. sorafenib) or trans-arterial chemoembolization (TACE). Few studies have shown the favourable cost-effectiveness profile of TARE versus sorafenib, however scant evidence exists about which treatment sequence is best. In this study, we evaluated the incremental cost-effectiveness of TARE followed by TACE and eventually sorafenib (TTS) and TARE followed by sorafenib alone (TS) in intermediate stage patients, to identify the most cost-effective pathway from the Italian healthcare payer’s perspective.

**METHODS:** Starting from patient level data collected at three oncology centers in Italy, a Markov model was developed to project costs and health outcomes (life years and QALYs) associated with intermediate stage HCC patients for TTS and TS cohorts over a lifetime horizon (years = 100,000).

**RESULTS:** The incremental cost and effectiveness of TTS over TS was estimated to be approximately €39,947 and 0.28 QALY per patient. The incremental QALYs were estimated to occur among the 65-year-old cohort. The model was then calculated to be around 0.219.90 per QALY gained. These results suggest that the TARE testing strategy is more cost-effective compared with the no EGFR testing strategy when 15,498.00 yuan per QALY gained on GDP in 2015 was considered an acceptable threshold. These results were supported by the sensitivity analyses.

**CONCLUSIONS:** From the perspective of healthcare payers, the ICER of the TARE strategy can be considered a cost-effective therapy compared with the no EGFR testing strategy by the threshold of 15,498.00 yuan.

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**PMD67**

**ECONOMIC EVALUATION OF ULTRASONOGRAPHY AND MAMMOGRAPHY FOR BREAST CANCER SCREENING AMONG WOMEN IN CHINA**

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**OBJECTIVES:** This study aimed to analyze the cost-effectiveness and cost-utility of annual ultrasonography screening, annual mammography screening and no screening for breast cancer among Chinese women, so as to provide evidence for the choice of breast cancer screening methods in China. METHODS: A Markov model was developed from a societal perspective among asymptomatic Chinese women over 40 years at risk for breast cancer over a lifetime horizon. The decision model was populated with data derived from China. According to the simulation results, we obtained the discounted lifetime costs, discounted quality-adjusted life years (QALYs) gained, and the number of detected breast cancer cases. Then we estimated the incremental cost-effectiveness ratio (ICER). The uncertainty analysis was explored using one-way sensitivity analysis and probabilistic sensitivity analysis. Subgroup analysis was conducted based on different cities and geographical areas. RESULTS: 54 breast cancer cases were estimated to occur among every 1000 women over their lifetime, with 27 detected by ultrasonography and 33 detected by mammography. Compared to no screening, the incremental cost-effectiveness ratio (ICUR) of ultrasonography screening was ¥102653/QALY and the ICUR of mammography screening was ¥201098/QALY. In probabilistic sensitivity analyses, the probabilities of the ICUR being a threshold of ¥100000/QALY were 54.5% for annual ultrasonography and 26.2% for annual mammography. The subgroup analysis showed that compared to no screening, ultrasonography screening for breast cancer was cost-effective in all levels of cities and all geographic areas in China. The ICUR of mammography screening compared to no screening was very close to the threshold in eastern China. CONCLUSIONS: Compared to no screening, screening for breast cancer among women aged 40 was cost-effective and could be used as the primary method for breast cancer screening in China. Mammography screening was not cost-effective in central and western China, and could be used in eastern economically developed areas.

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**PMD68**

**COST-EFFECTIVENESS OF A BRONCHIAL GENOMIC CLASSIFIER FOR THE DIAGNOSTIC EVALUATION OF LUNG CANCER**

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**OBJECTIVES:** A bronchial genomic classifier had been prospectively validated to improve diagnostic accuracy at peripheral lung nodules in order to identify patients at low probability who may be more suitable for active surveillance as opposed to a biopsy via an invasive procedure. Our objectives were to determine the effectiveness and cost-effectiveness of bronchoscopy plus genomic classifier versus bronchoscopy alone in diagnostic work-up of patients at intermediate risk for lung cancer in the United States. METHODS: A decision-analytic Markov model was developed to project the costs and effects of the two competing strategies, using test performance from the AEGIS-1 and AEGIS-2 studies. Diagnostic accuracy of non-invasive and invasive follow-up, as well as associated adverse event rates were derived from published literature. Procedure costs were based on claims data and 2016 inpatient and outpatient reimbursement amounts. The model projected the number of invasive follow-up procedures, two-year costs and quality-adjusted life years, by strategy, and the resulting incremental cost-effectiveness ratio (ICER). Results: The ICER was estimated at $13 per QALY. Procedure costs were reduced by 28% at one month and 38% at 2 years, respectively. Total costs and QALY gain were similar with classifier use ($27,221 vs. $27,183, and 1.512 vs. 1.509 QALYs, respectively), resulting in an ICER of $8,250 per QALY. CONCLUSIONS: The use of a genomic classifier for inconclusive bronchoscopies is associated with meaningful reductions in invasive follow-up procedures at about equal costs and is therefore a high-value strategy in the diagnostic work-up of patients at intermediate risk of lung cancer.

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**PMD69**

**COMPARISON OF MAGNETIC RESONANCE IMAGING FOLLOWED BY MAGNETIC RESONANCE-GUIDED TARGETED BIOPSY VERSUS SYSTEMATIC TRANSRECTAL ULTRASOUND AND BIOPSY IN DIAGNOSING PROSTATE CANCER: A COST-EFFECTIVENESS ANALYSIS IN THE US POPULATION**

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**OBJECTIVES:** Systematic transrectal ultrasound-guided biopsy (TRUSGB) has raised concerns regarding the overdiagnosis of prostate cancer (PCa). Magnetic
resonance imaging followed by magnetic resonance-guided targeted biopsy (MRI-MRGB) is gaining more popularity. Evaluation that simultaneously considers cancer risk, treatment costs and quality of life is needed to help decision making in the US population. METHODS: A decision-analytic Markov model with a lifetime horizon of 10 years was developed to evaluate diagnostic accuracy, length of hospital stay, health outcomes, costs, and quality-of-life of the strategies (i.e., MRI-MRGB versus TRUSGB) in men with elevated prostate-specific antigen (≥4 ng/ml). Probabilities of clinical events were obtained from published literature. Direct medical costs included diagnostic and treatment-related healthcare costs. Costs were inflated to 2015 US dollars and discounted at an annual rate of 3%. Quality-adjusted life years (QALYs) were derived from published literature and expert opinions. We calculated the incremental cost-effectiveness ratios (ICER), which was equal to the difference in costs divided by the difference in QALYs. Sensitivity analyses were performed to assess uncertainty. RESULTS: The MRI-MRGB strategy yielded lower total costs (US 5,358 versus 6,372) and higher total QALYs (7.21 versus 7.19) than TRUSGB. Therefore, TRUSGB was dominated by the MRI-MRGB strategy. The results were robust with the sensitivity analyses. CONCLUSIONS: The MRI-MRGB strategy generated lower total costs but higher QALYs than the TRUSGB strategy. Therefore, MRI-MRGB was the optimal choice that provided the greatest health benefits for the diagnosis of men with suspected PCA in the US population.

PMD70  ECONOMIC EVALUATION OF AN ENDOSCOPIC SYSTEM (DA VINCI®) ROBOTIC SURGICAL SYSTEM FOR PATIENTS WITH LUNG CANCER
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OBJECTIVES: To perform an economic evaluation study of the endoscopic system (Da Vinci®) as treatment for patients with lung cancer in Mexico. METHODS: Justified by the results from a systematic review of the clinical literature previously developed, that conclude that the health benefits in terms of decrease in mortality and possibility to avoid a complication was a strong argument. The cost minimization analysis was developed in comparison with Video-assisted thoracoscopic lobectomy (VATL). The analysis was performed from the National Health System perspective. This model was reviewed only direct, all other costs were calculated using sources in the temporal horizon was determined; i.e., the duration of the time of the surgical interventions in comparison, it was not included a social discount rate. The analysis also included the equivalent annual cost through the calculation of Incremental Effectiveness Ratio (ICER). A probabilistic sensitivity analysis was conducted to the unconstrained deterministic sensitivity analysis was done, it contemplated variation in the cost of the surgical system Da Vinci, cost of consumables used and the number of annual surgeries done by the public health services from Mexico. RESULTS: The use of Da Vinci surgical system in the treatment of lung cancer generates a per surgical intervention of US $4,367.66 and $4,011.96 USD in the case of VATL, the use of Da Vinci surgical system generates a per surgical intervention of US $4,367.66. CONCLUSIONS: The cost of surgical system Da Vinci surgical system a saving strategy.

PMD71  COST-EFFECTIVENESS OF PERCUTANEOUS VENTRICULAR ASSIST DEVICES FOR HIGH-RISK PCI PATIENTS IN ONTARIO, CANADA
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OBJECTIVES: The newly introduced percutaneous Ventricular Assist Devices (pVAD) have been shown to provide better hemodynamic support but there is no evidence that they improve clinical outcomes in high-risk percutaneous coronary intervention (PCI) compared with the intra-aortic balloon pump (IABP), the current standard of care. We aim to evaluate the cost-effectiveness of pVAD compared with IABP in patients undergoing high-risk PCI in Ontario. METHODS: A cost-utility analysis was conducted from the Ontario public payer perspective using a 10-year time horizon. A Markov cohort model was developed to simulate the process of patients going through PCI treatment. Patients in the post-PCI state could undergo anti-coagulant treatment or re-PCI. Costs were expressed in 2015 Canadian dollars and discounted at 3% annually. We performed a probabilistic sensitivity analysis. RESULTS: The use of Da Vinci surgical system a saving strategy. The incremental cost-effectiveness ratio (ICER) was equal to the difference in costs of two interventions divided by the difference in QALYs. Sensitivity analyses were performed to assess uncertainty. RESULTS: The MRI-MRGB strategy yielded lower total costs (US 5,358 versus 6,372) and higher total QALYs (7.21 versus 7.19) than TRUSGB. Therefore, TRUSGB was dominated by the MRI-MRGB strategy. The results were robust with the sensitivity analyses. CONCLUSIONS: The MRI-MRGB strategy generated lower total costs but higher QALYs than the TRUSGB strategy. Therefore, MRI-MRGB was the optimal choice that provided the greatest health benefits for the diagnosis of men with suspected PCA in the US population.

PMD72  COST-EFFECTIVENESS OF TRANSCATHETER AORTIC VALVE IMPLANTATION COMPARED WITH SURGICAL AORTIC VALVE IMPLANTATION IN HIGH-RISK PATIENTS WITH SEvere AORTIC STENOSIS IN ONTARIO, CANADA
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OBJECTIVES: Severe aortic stenosis (AS) refers to pathological, clinical and pathophysiological changes associated with decreased aortic valve area, as a consequence of atherosclerotic calcification of the aortic valve implantation (TAVI) is a treatment option for severe AS patients, who are at high risk or ineligible for surgical treatment. We assessed economic implications of TAVI compared with surgical aortic valve replacement (SAVR) for high-risk patients with severe AS in Ontario. METHODS: We developed a Markov model with monthly cycles to determine the cost-effectiveness of TAVI compared with SAVR from the Ontario public payer perspective. The model had a 5-year time horizon. Clinical model parameters (effectiveness and safety) of TAVI and SAVR were obtained from a systematic clinical evidence review. Costs of procedures, procedure-related adverse events were collected from an Ontario costing study. The main outcomes of the model were costs, quality-adjusted life-years (QALYs) and the incremental cost-effectiveness ratio (ICER). The model had a 10-year time horizon. Clinical model parameters (effectiveness and safety) of the Argus II system were obtained from the National Health System perspective. This model was reviewed only direct, all other costs were calculated using sources and other costs were calculated using sources in the temporal horizon was determined; i.e., the duration of the time of the surgical interventions in comparison, it was not included a social discount rate. The analysis also included the equivalent annual cost through the calculation of Incremental Effectiveness Ratio (ICER). A probabilistic sensitivity analysis was conducted to the unconstrained deterministic sensitivity analysis was done, it contemplated variation in the cost of the surgical system Da Vinci, cost of consumables used and the number of annual surgeries done by the public health services from Mexico.


PMD73  COST-EFFECTIVENESS OF ARGUS II RETINAL PROSTHESIS SYSTEM FOR ADVANCED RETINITIS PIGMENTOSA
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OBJECTIVES: Retinitis pigmentosa (RP) causes progressive retinal degeneration and blindness. The Argus II retinal prosthesis system can improve visual function in blind patients with advanced RP. We assessed economic implications of the Argus II system for advanced RP in Ontario, Canada. METHODS: We developed a Markov model to determine the cost-effectiveness of the Argus II system compared with standard care in RP patients from the Ontario public payer perspective. The main outcomes of the model were costs, quality-adjusted life-years (QALYs) and the incremental cost-effectiveness ratio (ICER). RESULTS: The use of Da Vinci surgical system in the treatment of lung cancer generates a per surgical intervention of US $4,367.66 and $4,011.96 USD in the case of VATL, the use of Da Vinci surgical system generates a per surgical intervention of US $4,367.66. CONCLUSIONS: The cost of surgical system Da Vinci surgical system a saving strategy.

PMD74  COST-EFFECTIVENESS OF PET-CT VERSUS ARTERIAL VEIN SAMPLING FOR THE DIAGNOSIS OF HYPERTENSION CAUSED BY PRIMARY ALDOSTERONISM
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OBJECTIVES: Primary aldosteronism (PA) is caused by a benign adrenal gland tumour and leads to the development of hypertension (high blood pressure). PA is the cause of 1% of all hypertension cases. It can be cured by surgical removal of the affected gland (if unilateral), but is not always diagnosed as the current technique (arterial vein sampling [AVS]) has a high failure rate and is unpleasant for patients. The aim was to compare the cost-effectiveness of PET-CT with AVS for the identification of PA patients suitable for surgery. METHODS: A discrete event simulation was developed. Anonymised individual patient data from Addenbrooke’s hospital (Cambridge, UK) were used to inform the patient characteristics of the model. Sensitivity and specificity of the diagnostics were taken from the literature and the outcomes of surgery on hypertension were modelled. The model captured the impact of hypertension on the risk of cardiovascular events and death. The model used a UK NHS perspective, a lifetime time horizon and a 3.5% annual discount rate. NHS reference costs were
used and utilities were taken from the literature. RESULTS: PET-CT resulted in 0.04 additional QALYs (11.340 ± 11.299 for PET-CT vs AVS, respectively) and $64.43 fewer costs ($8,571.93 vs $8,636.36 for PET-CT vs AVS, respectively), meaning that PET-CT dominated AVS. PET-CT remained dominant across the majority of one-way sensitivity analyses, with positive ICERs under $10,000/QALY only for the upper 1%, 1.5%, 3%, 5% and 10% of cost-effectiveness combinations. Analyzing adrenocortical adenoma (2945/QALY) and lower bound of AVS cost ($7,726/QALY). CONCLUSIONS: Despite being more costly procedure, PET-CT was overall a cost-saving alternative to AVS for the diagnosis of unilateral PA, due to the greater number of successful surgeries and hence better long-term outcomes.

CONCLUSIONS: Although the average direct medical costs of PD is $18.362). DBS yield 5.15 discounted QALYs compared to 4.10 for BMT, containing five minor complications (SE 2.5% in QALY was observed between the TRUSGB

The difference in QALYs between TRUSGB + Prolaris and TRUSGB ranged from 0.01 to 0.11, with the highest difference observed over the 20-year time horizon. The corresponding value for the cost effectiveness ratio (CER) was $1,950 CAD representing 1 QALY. No benefit in QALY was observed between the TRUSGB + Prolaris strategy and the MRGB strategy. However, a higher cost was observed in the TRUSGB + Prolaris strategy (between 2,300CAD at 5 years and 4,300CAD at 20 years). The cost-utility analysis determined an incrementally higher ICER for ICUR at 200,000CAD/QALY at 5 years and as low as 9,200CAD/QALY at 20 years. CONCLUSIONS: Our preliminary results suggest that the incorporation of Prolaris in PCa diagnosis presents a cost-effective measure over a 10-, 15- and 20-year time horizon. However, the TRUSGB + Prolaris strategy was costlier and less effective than the MRTB strategy.
SUPPORT THERAPEUTIC DECISION MAKING?
CAN A NEW FLASH CONTINUOUS GLUCOSE MONITORING SYSTEM IMPROVE

would lead to skin problems, injuries, increased pain, inaccurate dose et al.

month and 33.2% longer than half a month. Increases in PN

patients reused the PN for more than 6 times, and some of them replaced PN when

(72.7%). 85.47% patients reused PN in areas with pen needle reimbursement (PNR)

used were

METH-

RESULTS:

used were

analyzed.

studies in this review indicated the bene

was large enough and that all relevant concepts had been elucidated. Following its

aspects of cognitive debriefing interviews (CDIs) with post-cataract surgery patients

PNR policy should be aware of the patient interviews was evaluated to ensure that the
capture the patient/CDE perspective.

CONCLUSIONS: The PR-ILQ is a novel questionnaire comprised of three scales to assess the pre-

PMD85

A SYSTEMATIC REVIEW OF ACTIGRAPH USE TO MONITOR SLEEP IN PEDIATRIC CHILDREN

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OBJECTIVES: To identify studies that use actigraphs, or similar devices, in measuring sleep in pediatric children. METHODS: An electronic literature search was conducted on three databases (PubMed, EMBASE, PsycINFO) using the EBSCOhost platform, along with citation searches, from inception to October 2016. Two search terms included “actigraph”, “children”, and “insomnia” and “sleep”. English, peer-reviewed studies that used actigraphs, or similar monitoring devices, for assessing sleep in a cohort of pediatric children (aged 4 to 12 years old) were included. RESULTS: Out of 927 articles resulted from the initial search. After title screening occurred, 102 articles remained for abstract review. Sixty articles were included for full-text review, with 25 as the final number of studies included for this review. Studies were most commonly conducted in the United States (n=14). All studies used actigraphs or similar devices with placement on either the wrist (n=34), waist/hip (n=5), or shoulder (n=1) to assess sleep quality. The most common actigraph brands were Actiwatch AW’s (n=5) and Actigraph GT3X+ (n=4). Seven studies used a sleep diary/log that was completed by a parent as a secondary measure to monitor sleep in children. Outcomes that were most commonly measured in the studies included sleep start time/sleep onset (n=20), sleep duration period (n=17), sleep efficiency (n=17), and nighttime wake frequency/duration (n=17). Researchers should be aware of the considerations when using actigraphs in a population of children, including the use of a secondary measure (e.g., sleep diary) when collecting actigraphy data as stated in this review. The majority of non-sleeping sensors were used to support actigraphy data. But overall, the use of actigraphs is common and beneficial when needed to monitor sleep quality as an outcome in a pediatric population.

PMD86

ASSESSMENT OF HEALTH-RELATED QUALITY OF LIFE (HRQOL) AND EFFECT OF DEMOGRAPHICS ON HAEMODIALYSIS PATIENTS IN QUETTA, PAKISTAN

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METHODS: Prospective observational study was conducted to assess HRQOL of haemodialysis patients. Study was conducted in the Sandeman provincial hospital Quetta (SHPH)

METH-
Baluchistan institute of nephrology and urology Quetta (BINUQ), data was collected from March - May 2016. A self-design questionnaire was used to measure demographic characteristics and colorectal symptoms of haemorrhoidal bleeding and EQ-SD EuroQol UK (English) questionnaire has been used in this study to measure HRQoL. The statistical analysis was performed by using SPSS v 20. RESULTS: Fifty-four patients (54%) were in the included in the study which was the total available patients at time of study. EQ-SD index score was 0.46 and visual analog scale (VAS) was 0.45 which reveals poor HRQoL in haemorrhoidal patients. Regression model reported Gender, Marital Status, Education, occupation and household income Level were not significantly associated with HRQoL (p < 0.05) except Age group. Keeping Age group 18-28 year as reference, only two sub age groups were significantly associated and Odd Ratio (OR) showed that 38% HRQoL decreased with increasing age. However, HRQOL among male is 4% better than female CONCLUSIONS: In present study, the responders showed poor HRQOL it is concluded if we increase the haemorrhoidal sessions from two to three per week it may improve the HRQOL of the patients.

PMID87

UNIVISE CHOICE OF PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION IN HONG KONG WHERE STENT CHOICE IS BASED ON PATIENTS’ WILLINGNESS-TO-PAY
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OBJECTIVES: Percutaneous coronary intervention (PCI) in Hong Kong is self- financed (SF) and the evidence between drug-eluting (DES) vs. bare-metal stents (BMS) is dependent on patient’s willingness-to-pay. We aimed to evaluate the outcomes and factors associated with patient’s choice of stents. METHODS: We retrospectively analyzed 23,483 consecutive patients undergoing percutaneous intervention (PCI) between Sep 2009 and Dec 2013 at a tertiary academic institution. Baseline characteristics and 12-month outcomes including death, myocardial infarction (MI), target- vessel revascularization (TVR) and composite major adverse cardiac events (MACE) were evaluated. The number of patients who chose BMS and DES were compared. Independent predictors of DES use and MACE were identified using multivariate analysis. RESULTS: DES were used in 1,835 (78.6%) of SF-PCI. Patients who chose DES were more likely to have a history of stroke, MI, renal failure, heart failure and present with acute coronary syndrome and cardiogenic shock (all p < 0.01). There was no significant difference in income and education level between SF-DES and SF-BMS, but significantly higher DES rates were seen in patients with Medicaid-insured (5.1% vs 2.6%), TVR (2.4% vs 0.8%), and MACE (5.5% vs 3.8%) in SF-DES compared to SF-DES patients (all p < 0.01). The use of DES was the only independent predictor of freedom-from-MACE at 12 month (OR 0.50, 95% CI 0.33-0.76, p < 0.01). CONCLUSIONS: patients with a history of MI, stroke, acute ST-elevation MI, current smoker and renal failure were more likely to choose BMS. There were significantly higher 12-month mortality (5.1% vs 2.6%), TVR (2.4% vs 0.8%), and MACE (5.5% vs 3.8%) in SF-DES compared to SF-DES patients (all p < 0.01). The use of DES was the only independent predictor of freedom-from-MACE at 12 month (OR 0.50, 95% CI 0.33-0.76, p < 0.01).

MEDICAL DEVICES/DIAGNOSTICS – Health Care Use & Policy Studies

PMID88

F-CALPROTECTIN USE IN INFLAMMATORY BOWEL DISEASE (IBD) IS CHARACTERIZED BY IMPROVED DIAGNOSTIC ACCURACY, LESS PATIENT HARM AND DECREASED COSTS, COMPARED WITH CONVENTIONAL SEROLOGICAL MARKERS

WILLINGNESS-TO-PAY

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OBJECTIVES: To describe the prevalence of breast, cervical and colorectal cancer screening among women with Medicaid or Commercial insurance from 2010-2015. METHODS: This study aimed to quantify the gap between mammograms and Pap (age 30-65), HPV, and colonoscopy (age 50+); results were reported overall and by 5-year age strata. RESULTS: A total of 2,042,752 women with commercial insurance and 127,076 women with Medicaid were included in the analysis. Most commercially-insured women received at least one mammogram and one Pap test during the study period. Mammography screening was more common among commercially-insured women ages 55-59 (63.6%) than 50-54 (58.8%). Two-thirds (61.7%) of Medicaid-insured women received at least one mammogram and one-fourth (23.7%) received at least three. Two-thirds (69.8%) of Medicaid-insured women had a gap between mammograms of at least three years. The majority (58.3%) of Medicaid-insured women had a Pap test during the study period, though 69.8% had a gap of more than three years between Pap tests. Approximately one-quarter (25%) of Medicaid-insured women received at least one HPV test during the study period. CONCLUSIONS: Patterns of preventive screening utilization vary by type of insurance coverage. Many women fail to access any screening services while others experience large gaps between exams.

PMID90

USE OF SCREENING TOOLS AND PATTERNS OF HEALTHCARE UTILIZATION AMONG PREGNANT WOMEN DIAGNOSED WITH PRETERM LABOR IN THE U.S.

EMERGENCY DEPARTMENT SETTING

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OBJECTIVES: Fetal fibronectin (fFN) testing and transvaginal ultrasound (TVUS) are tools used to assess risk of preterm delivery among women with symptoms of preterm labor (PTL). Objectives were to assess patterns of care and timing of delivery among a cohort of pregnant women with symptomatic PTL, evaluate use of fFN testing and TVUS during the 5-months prior to delivery, and identify patient characteristics associated with utilization of fFN testing. METHODS: Retrospective cohort study using the MORE2Registry®, a nationwide multi-payer claims database covering 139 million lives. Study cohort included women who presented at the emergency department (ED) and were diagnosed with preterm labor (PTL) between 11/30/2015 and 11/30/2016. Exclusion criteria: premature rupture of membranes, pre-eclampsia, viral infection, no record of infant delivery, and <5 months insurance coverage. Patient characteristics associated with use of fFN testing and TVUS were identified using multivariate model- ing. RESULTS: 23,062 patients were included in study, of which 17,512 (75.9%) were discharged home following the ED encounter (20.1% delivered ≤3 days); the remaining 5,550 (24%) were admitted to the hospital (91.3% delivered within that stay). Patients who were discharged home within 3 days were at increased risk of preterm delivery (p = 0.01). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were discharged home within 3 days were at increased risk of receiving both fFN testing and TVUS (p = 0.04). Patients who were hospitalized were at increased risk of receiving both fFN testing and TVUS (p = 0.04).

OBJECTIVES: The proliferation and uneven diffusion of new medical technologies is relevant for policymakers because it helps them implement policies that promote the adoption and diffusion of innovative health technologies. Our goal is to describe the existence of consensus on the direction and significance of the factors that influence their
adoption in each phase of technologies life cycle (i.e., early adoption, adoption, diffusion) METHODS: We performed a systematic review of quantitative empirical literature identified a total of one review published in 2007 and 2014. We conclude that early adoption of innovative technologies is positively affected by physicians’ characteristics (e.g., experience with new technology by himself or by physicians in the same hospital) and fee-for-service in the payment scheme. The probability of adoption is mainly driven by provider’s characteristics (e.g., size, importance of being perceived as technology leaders, previous adoption of similar/substitute technologies, social and cultural factors in adoption decision), by physicians’ experience with the technology and by the new technology’s expected impact on hospitals and physicians revenues. Socio-economic determinants (e.g., health expenditure), hospitals and physicians reimbursement schemes, market structure, provider network, number of substitute procedures, providers’ features (e.g., size, quality of care, reputation), and physicians’ characteristics (e.g., experience with technology, innovator status of the team) significantly increase the extent of diffusion. RESULTS: Our results can be used as a guide by policymakers who wish to influence the adoption of new medical technologies with evidence-based decisions.

PMD92 NEW EUROPEAN MEDICAL DEVICE DIRECTIVE AND THE POTENTIAL CONSEQUENCES FOR US AND EUROPEAN MANUFACTURERS

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OBJECTIVES: To evaluate the new Medical Device Directives (MDD) regarding the impact on the market and what is the impact of the new MDD on the market and how this will affect the stakeholders like manufacturers, regulatory bodies, physicians, and patients in Europe as well as in the USA. Aim of this work was to assess the consequences of the new MDD with regard to their expected impact on the market and the potential occurrence rate. METHODS: A SWOT analysis has been performed to identify the strengths, weaknesses, opportunities and threats of the new MDD followed by a risk analysis. RESULTS: The SWOT analysis revealed two types of consequences of the new MDD: immediate consequences that are associated with a delayed market access of the new products, a higher co-payment and hospital budget reductions in each phase of technologies life cycle (i.e., early adoption, adoption, diffusion)

PMD93 ASSESSMENT OF NEW MEDICAL DEVICES WITH ADMINISTRATIVE DATABASES: THE NEED FOR TRACEABILITY

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OBJECTIVES: Administrative data (e.g., hospital discharge databases HHDs) can be used as a real world source of clinical and economic evidence for assessing new medical devices. Providing that these can be identified in these databases, the absence of updated classification systems for procedures and diagnoses, which allow to identify the use of new technologies in the data, traceability can still be achieved thanks to authorities’ coding guidelines (i.e., indication on how to combine the existing data for procedures and/or diagnoses when new technologies are used). In 2009 Italy adopted version 2007 of the ICD-9-CM classification system and version 24 of DRGs, which are still in use. The rapid pace of innovation characterizing MDs poses a serious problem of traceability of their use in administrative data. The aim of this work was to investigate the capacity of the classification system currently used in Italy to identify innovative MDs. METHODS: We searched all the national and regional coding guidelines published from 2009 (i.e., the year of the last update of the new classification systems) to 2015. We extracted from each document the list of technologies for which the Ministry of Health and/or the Regional Authorities provided with coding indications (Z-codes). Our results show that only few recent technologies can be identified in the Italian HHDs. This reduces the possibility for Decision Makers to measure technologies’ outcomes and costs in the real world clinical practice. CONCLUSIONS: A better traceability of new MDs will be provided a valuable support to the new Italian Health Technology Assessment Programme. Indeed, having the possibility to identify their use in HHDs would be real-world assessment and re-assessment of MDs 2-3 years after their introduction.

PMD94 CHARACTERISTICS ASSOCIATED WITH HAVING A BREAST CANCER SCREENING TEST AMONG WOMEN 50 TO 74 YEARS OLD IN THE UNITED STATES

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OBJECTIVES: The U.S. Preventive Services Task Force recommends that women 50 to 74 years old with average risk for breast cancer have a mammogram every 2 years. This study assessed characteristics associated with having a mammogram. METHODS: A sample was drawn from 2014 Medical Expenditure Panel Survey Household Component (MEPS-HC) to represent women who were being followed for breast cancer at 50 years of age. Exclusion criteria were a self-reported diagnosis of breast cancer or missing data on any study variables. Receipt of a mammogram was captured in the MEPS through a question that asked whether the woman had had a mammogram for last 2 years. A binary variable was created to indicate whether each respondent had a mammogram within the past 2 years, it was the response variable in analysis. Association with having a mammogram in the past 2 years was assessed for the following: age, race, education, level of income and insurance coverage. Multivariate logistic regression was used to assess association between selected characteristics and having a mammogram. The MEPS sampling weights adjusted for the variance and design effect, and the sampling fraction for the sample study mean. RESULTS: Mean ± (standard deviation) age was 59.2 ± 6.7 years. The sample was predominately white (66.8%). The prevalence of having a mammogram within the past 2 years was 77.4 percent (95% CI 76.1 to 78.7 percent). Women where the distribution of spending is more evenly dispersed across patient settings (Odds Ratio =1.47, p<0.001), and those with insurance coverage (Odds Ratio =3.82, p<0.001) had higher likelihood of having a mammogram in the past 2 years. No significant association was found for age, race, and use of mammogram. CONCLUSIONS: Over three-quarters of women met the breast cancer screening recommendation for mammograms. Having a college degree, being married, and having insurance coverage were associated with higher likelihood of using the mammogram test.

PMD95 U.S. PAYER ASSESSMENT OF LATE STAGE CLINICAL TRIALS INVOLVING DIGITAL HEALTH TECHNOLOGIES AND PHARMACEUTICAL MANUFACTURERS

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OBJECTIVES: To examine payer perceptions of collaborations between digital health technologies (DHTs) and pharmaceutical manufacturers (PMs) currently undergoing late-stage FDA trials. Our aim was to determine reimbursement implications based on an assessment of trial design and stated health outcomes. METHODS: A 5-part analysis was administered to members of the Xcenda’s Managed Care Network. Respondents were asked to evaluate 4 clinical trials, each including a DHT/PM intervention, across 4 disease categories: age-related macular degeneration, type 1 diabetes, atrial fibrillation, and human immunodeficiency virus. For each study, respondents were given a summary trial report and asked to assess study parameters using a 5-point Likert scale. Responses were tallied for each parameter, and scores were assessed based on rating of the box method. Results were also analyzed to rate research activities that would add value to payer appraisals for each technology. Finally, a willingness-to-pay score was derived based on the technologies meeting their stated clinical endpoints. RESULTS: 43 respondents completed the assessment, representing 168 million covered lives in the US. All participants were active members of their organization’s pharmacy & therapeutics committee. The atrial fibrillation, mobile monitoring study was rated the highest top-box score in terms of “willingness-to-pay” (44%) and “overall study quality assessment” (73%). While “appropriateness of study population” was rated highly across all studies (85% average), “demonstration of improved patient outcomes” was rated as the lowest parameter in quality (28%). The top 3 supplemental research activities recommended overall were the addition of a claims-based analysis (49%), long-term follow-up (47%), and development of a cost-effectiveness model (41%). CONCLUSIONS: This study has yielded insight for how DHT/PM partnership can best convey the value of their technologies to US payers. Obtaining additional evidence generation via real-world analysis and demonstrating improvements in patient outcomes may represent viable opportunities for technologies to obtain favorable coverage decisions.

PMD96 SURGICAL AORTIC VALVE REPLACEMENT 90-DAY EPISODE OF CARE ANALYSIS

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OBJECTIVES: The CMS Innovation Center (CMMI) has a growing number of models that test payment and service delivery to achieve better care for patients at lower cost. Among these are episode-based payment models (i.e. bundled models) where participants are accountable for the cost and quality of care provided to Medicare fee-for-service beneficiaries during the inpatient stay and 90 days after discharge. The objective of this analysis was to determine average Medicare expenditures for SAVR through 90 days after valve replacements (SAVR) compared to existing mandatory orthopedic and cardiovascular episode of care models from CMMI. METHODS: Utilizing the 100% SAF Medicare file we identified index hospitalizations anchored by MS-DRGs that align with the episodes of interest. Medicare expenditures for the index hospitalization, readmissions, post-acute care, outpatient care, and physician services occurring within 90 days of discharge were analyzed. Descriptive statistics were used to contrast the spending across each episode. A 30-day episode of care average spending for SAVR [62,912] was higher than current CMMI orthopedic and cardiovascular [CABG $46,510, AMI PCI $25,976, AMI Medical $72,536] episodes of care. Considerable variation across procedures existed with the most striking difference occurring in the index hospitalization. For SAVR procedures, 78% of spending is concentrated in the index hospitalization versus current CMMI cardiovascular and orthopedic models [range from 45% to 75%] of the total spending. For SAVR, post-acute care represented 6% while readmissions accounted for 7% and physician services for 7%.
For 7% of the 90-day expenditures. Conclusions: The high percentage of spending on SAVR in the inpatient setting (76%) can make a challenge for a bundling of prosthetic technologies. Conditions with high post-acute care and readmission rates could be better targets for testing bundled payments and offer providers more opportunities to improve care and lower Medicare spending.

PMD97
BUDGET IMPACT ANALYSIS OF P4HB VS PERMANENT SYNTHETIC MESHES IN COMPLEX ABDOMINAL WALL REPAIR IN AUSTRIA, GERMANY, UK, SPAIN AND SWITZERLAND IN THE HOSPITAL SETTING
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Objectives: Despite advances in surgical technique and prosthetic technologies, the risk for recurrence and infection are high following the repair of incisional ventral hernias. The current standard for reinforced hernia repair is synthetic mesh, which may reduce the risk for recurrence in many patients. Patients with comorbidities, contaminated wounds or previous wound infections experience higher complication rates. The aim of this study was to analyze the economic consequences of P4HB Mesh use versus Permanent Synthetic Meshes in CAWR, under the perspective of the Austrian, German, UK, Spanish and Swiss National Health Systems. Methods: A dynamic excel-based decision-analytic model was developed to assess the Budget Impact of P4HB Mesh in Complex Abdominal Wall Repair. Model comparison parameters include: efficiency ratio at cost per hernia repair, and cost per clinical outcome. Results: In Austria, Germany, Spain and Switzerland, respectively. The sensitivity analysis showed robust results for P4HB mesh, even in the most complex scenarios. Conclusions: Compared to Permanent Synthetic Meshes, use of P4HB mesh may lead to potential cost savings in CAWR. Further research is needed in order to better assess rates of clinical complications, as well as the appropriate patient groups where P4HB technology would be most beneficial for patients and health systems.

PMD98
COST SAVING ANALYSIS FOR A BIPOLAR SEALER (BS) DEVICE DURING HEPATIC AND SPINE SURGERY COMPARED TO STANDARD MONOPOLAR ELECTROSURGERY IN COLOMBIA
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Objectives: Perioperative blood loss and transfusion are important concerns in complex surgeries. Blood loss is associated with higher incidence of complications, transfusion rates, longer Length of Stay (LOS) and operating room time. The BS clamping technique decreases perioperative bleeding, lowers transfusion rates and faster recovery times. This work estimates cost savings in spine fusion and hepatic surgeries using a low temperature RF Bipolar sealer versus standard monopolar electro surgery (SME) from a Colombian provider perspective. Methods: An Excel cost-utility model was developed to assess the differential cost of using BS during spine fusion and hepatic surgeries, compared to SME. Variables included were transfusion rate, transfusion rate LOS, comparators related LOS, operating room time, complications rates and costs, opportunity costs for operating room, hospital bed, and blood units. Clinical inputs were populated via a systematic literature search. Opportunity costs were estimated with hospital administrator, KOL input and the official Colombian tariff manual. Results: One partial hepatectomy and four spine surgery reference clinical publications were reviewed for this analysis. Spine procedures included Lumbar posterolateral, posterior spinal-fusion for degenerative lumbar scoliosis, posterior spinal-fusion for adolescent idiopathic scoliosis, and multilevel spinal-fusion surgery. For hepatectomy cases, there were cost savings in all cost categories, cost technology difference, blood bank, operating room and LOS, with USD$2.138 total saving per procedure. For spine- fusion surgery, costs were higher (USD$650-2,954) for BS in cost technology difference, however they were offset by the lower costs in the blood bank, operating room and LOS. Dependent upon the type of spine surgery, total savings ranged from USD$1,900 to USD$2,357 per procedure as published and grey literature were used to estimate model input data. In the base case, a price difference of +1,700€ for P4HB mesh was considered. A tornado analysis was conducted for verification. Results: Compared to Permanent Synthetic meshes, use of P4HB mesh in CAWR resulted in cost savings of 1,514€/1,541€/476€/2,367€/2,498€ per procedure in Austria/Germany/UK/Spain/Switzerland, respectively. The sensitivity analysis showed robust results for P4HB mesh, even in the most complex scenarios. Conclusions: Compared to Permanent Synthetic Meshes, use of P4HB mesh may lead to potential cost savings in CAWR. Further research is needed in order to better assess rates of clinical complications, as well as the appropriate patient groups where P4HB technology would be most beneficial for patients and health systems.

PMD100
A U.S. HOSPITAL BUDGET IMPACT ANALYSIS OF A SKIN CLOSURE SYSTEM COMPARED WITH STANDARD OF CARE IN HIP AND KNEE ARTHROPLASTY
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Objectives: CMS’s mandatory bundle for hip and knee arthroplasty necessitates pre and post-activity for all costs of care. Wound closure systems are a key area to consider within hip and knee arthroplasty. The DERMABOND® PRINEO® Skin Closure System combines a topical skin adhesive with a self-adhering mesh without the need for dressing changes or suture or staple removal. This study estimated the budget impact of DERMABOND PRINEO System compared to other wound closure methods for hip and knee arthroplasty. Methods: A 90-day economic model was developed assuming 500 annual hip/knee arthroplasties for a typical U.S. hospital setting. Model parameters for the final skin layer was set to 50% sutures and 50% staples. In future practice, this distribution shifted to 20% sutures, 20% staples, and 60% DERMABOND PRINEO System. Healthcare resources included: full cost of hospital stay, post discharge care (e.g., home health or skilled nursing facilities), and traditional/barbed sutures), standard or premium dressings, outpatient visits, and home care visits. An Expert Panel, comprised of 3 orthopedic physician assistants, two orthopedic surgeons, and a home health representative, was used to inform several model parameters. Other inputs were informed by national data or literature. Unit costs were based on list prices in 2016 USD. Results: The analysis predicted that use of DERMABOND PRINEO System could achieve cost savings of $65.70 to $79.62 per patient, when standard or premium wound dressings are used, respectively, with sutures or staples. This translated to an annual hospital budgetary savings ranging from $28,349 to $39,809 when assuming 500 arthroplasties. Dressing materials and post-operative healthcare visits were key drivers of the results. Conclusions: Based on the results of this analysis, the DERMABOND PRINEO System may provide cost savings within hip and knee arthroplasties due to decreases in resource utilization in the postacute care setting.

PMD101
COST-EFFECTIVENESS ANALYSIS OF THE DIAGNOSIS OF MUCOSAL LEISHMANIASIS IN COLOMBIA
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Objectives: To estimate the cost-effectiveness of available diagnosis alternatives for Mucosal Leishmaniasis (ML) in suspected patients. Methods: A simulation model of the disease’s natural history was built with a decision tree and Markov Model. The model’s parameters were identified by systematic review and validated by expert consensus. A bottom-up costing analysis to estimate the costs of diagnostic strategies was performed reviewing 48 clinical records of patients diagnosed with ML. The diagnostic strategies compared were: 1) no diagnosis; 2) parasite culture, biopsy, indirect immunofluorescence (IFI) and Montenegro in parallel; 3) parasite culture, biopsy, IFI in parallel; 4) PCR-mixenon and 5) PCR-LDNx. Scenarios were run based on the clinical suspicion of ML prevalence: high, medium and low. For each alternative, the costs and results were estimated. The time horizon was the life expectancy, taking as average age of diagnosis 31 years. Incremental cost-effectiveness ratios (ICERs) per DALY avoided, and sensitivity analyzes were performed. It was considered a threshold of three GDP per capita and all costs were reported in American dollars ($USD). Results: The most cost-effective strategy was the most cost-effective strategy per additional DALY avoided, and sensitivity analyzes were performed. It was considered a threshold of three GDP per capita and all costs were reported in American dollars ($USD). Results: The most cost-effective strategy was the PCR-LDNx with ICERS of US$ 2,915.04 and US$ 3,210.28, respectively. At low clinical suspicion, with an ICER of US$ 3,380.88. At medium and high clinical suspicion levels, the most cost-effective strategy per additional DALY was the PCR-LDNx with ICERS of US$ 2,915.04 and US$ 3,210.28, respectively. Conclusions: Diagnostic tests for ML based on PCR are cost-effective strategies at a willingness to pay of three GDP per capita for DALY avoided, regardless level of
clinical suspicion. The FCR-IKNA was the most cost-effective strategy in the competitive scenario, with the parameters included in the present model.

PMD102

FACTORS INFLUENCING ATTITUDES TO BREAST CANCER SCREENING
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OBJECTIVES: The purpose of our research was to reveal the motivational and restraining factors that prevail on screening participation and to examine the knowledge of the respondents on breast cancer, breast cancer screening among women attending screenings.

METHODS: Quantitative cross-sectional study was carried out in 2016 at the Breast Centre of the Radiology Clinic, University of Pécs, among women between 45-65 years, who attended on mammography with an invitation letter or medical referral. Patients with a diagnosis of breast cancer or other chronic diseases were excluded (n=333). The question groups of the questionnaire were: sociodemographic data, reasons for examination, attitude, knowledge about breast cancer and breast screening. Besides descriptive statistical analysis, median comparison and logistical regression analysis were applied (p<0.05) with SPSS 20.0 program. RESULTS: Most respondents (73%) were influenced by their environment to participate on breast screening. However, they are more afraid of finding some kind of lesion compared to other patients without complaints (p<0.002). Those living in a relationship were more likely to participate on mammography within two years (80.6% vs 73.9%, OR=1.91, 95%CI [1.02; 3.57]). The unpleasantness of the test was considered as the most important among the restraining factors. 283 women (85%) failed to recognize the symptoms of breast cancer. The knowledge of breast cancer symptoms is a protective factor among the restraining factors. 283 women (85%) failed to recognize the symptoms of breast cancer.

PMD103

THE EFFECTS OF VARIOUS BLOOD SAMPLING TECHNIQUES AND EQUIPMENTS ON BLOOD TEST
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OBJECTIVES: To assess the efficacy of a multi-modal, remote monitoring intervention on medication adherence of patients previously nonadherent to therapy (proportion of days covered (PDC) <80%) according to Independence Blue Cross database. METHODS: Patients with ongoing care at Penn Medicine, taking ≥1 chronic oral medications, and established nonadherence to lipid lowering, antihypertensive, or oral diabetes therapies were invited to partake in the randomized controlled trial. Consenting patients were randomized to treatment or control arms and observed for 6 months. Patients in the treatment group received a home PATIENT-OWNED PATIENT-CENTERED ADHERENCE system (H-POPS) including medication regimen into weekly multi-dose blister packagers that insert into 2) a remote monitoring pillbox that alerts the patient with lights, sounds, phone, or text reminding of therapy, when a dose is missed and 3) relays adherence information to study staff for outreach if <80% of doses are taken for three consecutive days. Patients in the control group received usual care without reminders or outreach. RESULTS: Treatment (N=17) and control (N=15) groups were well-matched regarding available sociodemographic and clinical characteristics. In the 12 months prior to index date, the treatment group had an average PDC of 70.4% vs. 69.5% for the control group. All patients in the treatment group moved from non-adherence (PDC<80%) in the prior period to adherent in the treatment period across all drug classes of interest with no change on off-therapy refills moving to 98%. At 6 months, treatment patients had higher rates of therapy persistence at 91.3% remaining persistent at 6 months vs 61.8% for control (Log-rank p<0.05). Potential covariates: age, gender, education level, race were not statistically significant in predicting early therapy termination. CONCLUSIONS: Patients on the intervention demonstrated significant and sustained improvements in medication adherence with the use of a remote monitoring adherence system in real life. This study showed the effectiveness of the approach on clinical outcomes and cost related measures.

PMD104

TOPICAL HEMOSTAT STANDARDS AND FACTORS ASSOCIATED WITH UTILIZATION IN KNEE AND HIP ARTHROPLASTY
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OBJECTIVES: Examine trends in topical hemostat utilization and factors associated with use in knee and hip arthroplasty. METHODS: The Premier Perspective Database containing billing data from over 700 hospitals in the U.S. was analyzed. Patients age 21 or older who underwent an inpatient total knee or hip (total hip and knee) surgery, from 2009 to 2014 were identified. Topical hemostat utilization was identified searching the free text fields of the hospital billing record. Categories of hemostats included: fibrin sealant, synthetic sealant, thrombin, calcium alginate, oxidized regenerated cellulose (ORC), gelatin or plant based, and patients with a combination of hemostats. Patient, provider, and procedure factors associated with use of any topical hemostat were explored in a multivariable model. All statistical analysis accounted for clustering of patients within hospital; p-values <0.05 were considered significant. RESULTS: The study included 6,324,243 patients who underwent 6,489,002 TKR or THA procedures. Utilization of topical hemostat was 51.5% of TKRs and 52.5% of THAs. Factors associated with utilization included: year, hospital size, hospital location, patient comorbidities, and provider factors. The use of topical hemostats were stable over the study period. Factors associated with hemostat usage included: diagnosis of a bleeding disorder (OR=1.3[95% CI:1.1-1.6]), having a transfusion prior to surgery (OR=1.3 [1.2-1.4], undergoing an elective surgery (OR=1.2 [1.1-1.3]), ischemic heart disease (OR=1.2 [1.1-1.3]), and vasoconstrictor disorders (OR=1.2 [1.1-1.2]) and arthritis (OR=1.1 [1.0-1.1]). CONCLUSIONS: Topical hemostat usage has been stable between 2009 and 2014. Elective surgeries, transfusions prior to surgery, ischemic heart disease, peripheral vascular disorders, and arthritis where associated with receiving a topical hemostat. Further research is warranted on the impact of topical hemostats in these procedures.

PMD105

DIAGNOSTIC DELAY IN PATIENTS DIAGNOSED WITH COLORECTAL CANCER
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OBJECTIVES: In developed countries, colorectal cancer is the second most common cause of cancer death involving both genders. The research aims to reveal that at which stage, with which symptoms patients with colon tumors are detected in order to estimate the diagnostic delay in the course of the disease. METHODS: A quantitative, retrospective data analysis was carried out, where patients diagnosed with colorectal cancer were analyzed between 2012 and 2016 at Komárom-Esztergom County Hospital. Collected data were: gender, age, histological type, stage, metastasis, symptoms, patient delay. Data were processed by SPSS 20.0 program, applying descriptive statistical analysis, χ2-test, Mann-Whitney and Kruskal-Wallis test (p<0.05). RESULTS: 89% of the patients are treated because of the malignant tumor of the rectum (adenocarcinoma), 63.9% of the patients are male (p=0.016). The average age is 64.8 years. 53.7% of the patients are diagnosed at stage III, when lymph node involvement also exists, and this rate is significantly higher in the 60-70 age group (p=0.016). The most frequent symptoms are blood in the stool (65.5%), weight loss (29.5%), diarrhea (19.7%) and pain (17.8%). In case of patients at stage III, the occurrence of bloody stool (p=0.006), weight loss (p=0.001), and pain (p=0.015) is significantly higher. 36.1% of the patients visit the doctor with their symptoms after 3-6 months. 13.5% after more than a year. Regarding patients with stage IV, delay significantly (p=0.004) was longer. The delay was significantly longer in case of weight loss (p<0.001). The delay in the stool (p<0.001) the delay was shorter. CONCLUSIONS: The majority of patients are diagnosed with advanced tumors, which is clearly linked to the postpone in diagnosis. Knowledge development of majority of patients, awareness raising symptoms, and general medical oncology alertness may be an important moment of delay reduction.

PMD106

MALE AID: HOW TO IMPROVE EFFECTIVENESS AND EFFICIENCY OF CANCER MANAGEMENT
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OBJECTIVES: To examine the continuouNs development of new models of care, and might revolutionize the overall delivery of care. However, evidence on the potential effects of mHealth is still scant and current literature
mostly focuses on chronic diseases. To address this research gap, we researched mammal health current utilization in cancer care and aimed at assessing the perceived impact of mHealth on clinicians and patients by comparing the opinions of those who use it with those of individuals that still do not use mHealth. METHODS: We carried out a survey on 1,033 cancer patients and 1,116 oncologists in 5 European countries, Italy, Spain, and the UK and the United States. The objective of the questionnaire was to assess the current State of the Art of mHealth in cancer care (how many use it and for which purposes) and the perceived mHealth performance with respect to several different dimensions: efficacy, clinical effectiveness, and quality of life. The dimension of Users among clinicians is higher than the one observed in the patient group (77% vs 28%). This gap takes place in all geographic areas. As to the impact of mHealth on clinicians' activities and on patients/overall quality of life, Users express a higher degree of agreement with the mHealth potential. Among Users, those who use mHealth more frequently and for symptom management and compliance enhancement express higher levels of perceived improvement. CONCLUSIONS: mHealth can provide a more accurate way of managing cancer care. Although evidence is not definitive on actual benefits, Users perceive higher levels of satisfaction with respect to efficiency, effectiveness and impact on overall quality of care. In the near future, an actual spread of such technologies is still scarce especially among patients, with very limited utilization for activities related to treatment and follow-up and with several barriers to be tackled, ranging from financial to privacy concerns.

PMD108 DO HIGH-VOLUME ORTHOPEDIC SURGEONS HAVE LOWER REVISION RATE THAN LOW-VOLUME SURGEONS? A MEDICARE DATABASE ANALYSIS

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OBJECTIVES: Surgical outcomes are thought to be superior for high-versus low-volume surgeons. This study was designed to evaluate whether an association exists between a surgeon’s own surgical volume and revision rate. METHODS: Patients within Medicare’s Standard Analytic File (SAF) Limited Data Sets who underwent total hip arthroplasty (THA) or total knee arthroplasty (TKA) from 2012 to 2014 were included. Using Diagnostic Related Groups (DRGs) 469-470 and International Classification of Disease 9th edition procedure codes (ICD-9-PCS) 81.51 or 81.52 for THA and 81.54 for TKA. Patients who died within 12 months of index were excluded. Revisions within the 12-month follow-up were identified (THA revision: ICD-9-PC 81.53, 00.70, 00.71, 00.72, 00.73, and TKA procedure: 00.80, 00.81, 00.83, 00.84, 81.55). Two-year surgery volume and average revision rate per surgeon were calculated. Surgeons with >10 procedures were excluded. Surgeons were categorized by revision rates and volume of surgery (volume decile: D_SV, revision rate decile: D_RR). Logistic regression was used to calculate odds of having a High_RR surgeon (top decile RR) as a function of procedure volume. RESULTS: A total of 9,450 and 9,507 TKA and THA surgeons were included. The one-year incidence of revision was 2.51% and 1.77% after THA and TKA, respectively. The proportion of High_RR, in each D_SV decreased significantly as D_SV increased. From the lowest to the highest D_SV, the proportion of High_RR surgeons decreased from 25.3% to 1.8% for hips, and 20.7% to 0.11% for knees. The OR of having a High_RR surgeon in the lowest D_SV was 7.06 (95%CI: 4.40-7.69) for hips and 40.92 (95%CI: 18.07-92.67) for knees. CONCLUSIONS: The proportion of surgeons with high revision rates was significantly greater in the lower surgery volume decile vs higher decile.


Horváthné Kívés Z, Ribarics I, Vajda R, Endrei D, Balestrini and Sisodiya, 2017). When compared with the set of payer-covered epilepsy panels, diagnoses would have been missed in 55% of patients (81 of 88). Furthermore, 6% of these patients (2 of 31) had variants in genes with established treatments options. CONCLUSIONS: Our data suggest clinical utility associated with testing epilepsy patients using a large gene panel approach, and support the extension of payer coverage to many more epilepsy-associated genes.

PMD110 THE NEED FOR PAYER COVERAGE OF NEXT GENERATION SEQUENCING PANELS TESTING IN EPILEPSY POTENTIAL FOR MISSED DIAGNOSES USING A SMALL GENE PANEL APPROACH

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OBJECTIVES: Clinical guidelines and expert consensus agree on the importance of a molecular diagnosis that identifies the underlying genetic etiology of epilepsy. While NGS panels have been linked to epilepsy (Wang et al. Seizure. 2016), payer coverage policies support testing only a small number of epilepsy genes. To evaluate the potential for missing the underlying molecular diagnosis in patients affected with epilepsy, we reviewed positive results from patients tested with next generation sequencing (NGS) panels. Our goal was to identify diagnoses that would have been missed if only epilepsy genes supported by payer coverage policies had been tested. METHODS: We evaluated pathogenic variants in genes identified in 714 epilepsy patients tested in our lab with consent using comprehensive epilepsy gene panels ranging from 471 to 1000 genes. Pathogenic variants were classified according to ACMG guidelines (Richards et al., 2015). The cohort included patients with phenotypes ranging from simple epilepsy to complex epilepsy syndromes. We provide an approach that can be used by FDA reviewers to evaluate genes identified as covered in a review of published US payer policies. Deletion and duplication variants were not analyzed in this study. RESULTS: Eighty-eight patients who tested positive using comprehensive panels had variants identified in 41 different genes. Fifty-five percent (48 of 88) had variants in genes with established drug and dietary treatments, or avoidance (Hani and Makati, 2016; Pearl, 2016, Balestrini and Sisodiya, 2017). When compared with the set of payer-covered epilepsy panels, diagnoses would have been missed in 55% of patients (81 of 88). Furthermore, 6% of these patients (2 of 31) had variants in genes with established treatments options.

PMD111 IDENTIFYING ATTRIBUTES OF PROSTHETIC DEVICES FOR USE IN A BENEFIT-RISK ASSESSMENT

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OBJECTIVES: Through significant investment in novel technologies, upper-limb prostheses are rapidly increasing in functionality. These more advanced prostheses are expected to be submitted to the Unites States Food and Drug Administration (FDA) for regulatory review soon. Given recent guidance released by FDA, the benefit and risk tradeoffs patients are willing to make might be considered in regulatory review. We aim to demonstrate an approach for the identification of patient preference attributes for upper-limb prosthetic devices. METHODS: We engaged in evidence synthesis, expert consultation, and community engagement. To identify attributes, we conducted a targeted literature review and interviews with experts (n=10), and reviewed interviews with upper-limb amputees (n=7). We conducted a prioritization exercise through two focus groups with upper-limb amputees, end-users, and regulators and through a paper-based survey administered during a public meeting. Results from the exercise were analyzed using Best-Worst Scoring and rescaled on a 100 point scale. RESULTS: We identified 62 unique beneﬁts and 96 unique attributes of upper-limb prosthetic devices. Based on expert input, we selected 16 risk items to be included in the prioritization exercise. 13 people participated in the focus groups and 34 people completed the prioritization exercise. The four least influential risks were reliability (BWS score: 67.38, SE: 1.78), pain (65.78, SE: 1.62), infection (62.58, SE: 1.55), and malfunction (62.41, SE: 1.70). The four least influential risks were MRI compatibility (52.59, SE: 1.68), time until use (91.38, SE: 1.80), training (30.85, SE: 3.79), and outdated device (BWS: 29.96, SE: 1.78). CONCLUSIONS: This study documents rigorous development work for a stated-preference study in accordance with FDA’s patient preference information guidance. It provides an approach that can be used by FDA reviewers to evaluate preference study design. Future studies will identify upper-limb amputees’ willingness to trade between the benefit, risks, and practical aspects of prosthetic devices.

PMD112 TECHNOLOGICAL INNOVATION AND THE RATE OF CONCOMITANT CARDIAC PROCEDURES: THE CASE OF SURGICAL AORTIC VALVE REPLACEMENTS (SAVRS)

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OBJECTIVES: Technological advancement in diagnosis and therapy has led to an increase in number of patients undergoing surgery for valvular heart disease. This has also increased the number of concomitant procedures. Patients commonly undergo coronary artery bypass grafting, mitral repair or replacement, tricuspid repair and arrhythmia ablation as part of their cardiac surgery. The purpose of this research was to use real world evidence from hospitals across the United States to summarize the procedural mix, patient demographics and comorbid conditions for patients having SAVRs. METHODS: Hospital visits from the MedAssets database between 2010-2014, with a record of SAVR were included in this analysis. Differentiation between isolated SAVR versus concomitant procedures were determined via ICD-9 coding. Rates of isolated versus concomitant procedures were calculated across hospitals. Descriptive statistics for patient demographics and comorbid
conditions were generated for patients having isolated SAVRs versus concomitant procedures. RESULTS: A total of 42,049 SAVRs across 199 hospitals met the inclusion criteria. Over half 23,367 [56%] of all SAVRs were performed as a concomitant procedure. Average age for concomitant procedures were slightly higher than isolated [67.5 versus 66.9] with the majority [67%] of concomitant SAVRs being performed for patients aged 65 years or older. Over time, number of SAVRs within each age group, a slightly lower percentage of concomitant SAVRs are being performed in patients under the age of 65 vs. patients ages 65+ [53% versus 57%]. Patients with concomitant procedures are sicker with an average Charlson comorbidity index of 2.18 vs. versus 1.95 for isolated SAVR patients average score of 1.95.

CONCLUSIONS: The majority of SAVRs being performed are concomitant procedures for both patients <65 and 65 years of age, and concomitant procedures continue, the fact that SAVR patients across ages are typically not having procedures for both patients.

PMD113

THE CHOICE BETWEEN HIP PROSTHETIC BEARING SURFACES IN TOTAL HIP REPLACEMENT: COST-EFFECTIVENESS ANALYSES USING UK AND SWEDISH HIP JOINT REGISTRIES DATA

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OBJECTIVES: Hip prosthetic implants used in primary total hip replacements (THR) have slightly increased from 6,519 in 2003 to 8,962 in 2015; the rate of increase was 280.4% versus 37.5%. The rate of increase in total cost of HD in 2015 compared to 2003 was approximately four times higher than that of PD (426.7% versus 107.1%). The number of HD increased by 84.3% from 2003 to 2015, but PD decreased by 19.1%. The total 100

CONCLUSIONS: Our findings suggest that traditional implants are optimal for patients above 55, but the choice is considerably more uncertain for younger adults. Implant failure is a key cost driver.Further research into implant revision risks is recommended to reduce decision uncertainty.

PMD114

TRENDS IN DIAPHRAGM MODALITY FOR PATIENTS WITH END-STAGE RENAL DISEASE (ESRD) IN KOREA: 2003–2015

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OBJECTIVES: To assess trends in peritoneal dialysis (PD) and hemodialysis (HD) for patients associated with renal disease in Korea for the past thirteen years. METHODS: National administrative healthcare database in Korea from January 1, 2003 to December 31, 2015 was used. Patients who received dialysis for at least three months at that year were included as prevalence cases. Incidence cases were defined as patients who maintained the same modality for at least three months after starting PD or HD at that year. Trends in the number of patients, and medical cost in each year were assessed by dialysis modality. Age-adjusted rate per 100,000 of patients with PD or HD per year were also calculated based on 2015 Korea standard population. RESULTS: Regarding prevalence, while the number of HD was highly increased from 12,415 in 2003 to 46,233 in 2015, the rate of increase was 280.4% versus 37.5%. The rate of increase in total cost of HD in 2015 compared to 2003 was approximately four times higher than that of PD (426.7% versus 107.1%). The number of HD increased by 84.3% from 2003 to 2015, but PD decreased by 19.1%. The total 100

CONCLUSIONS: Our findings suggest that traditional implants are optimal for patients above 55, but the choice is considerably more uncertain for younger adults. Implant failure is a key cost driver. Further research into implant revision risks is recommended to reduce decision uncertainty.

PMD115

TECHNOLOGY ASSESSMENT OF THE EFFECTIVENESS AND CONVENIENCE OF SMART PUMPS IN NON CRITICAL HOSPITAL SETTINGS

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OBJECTIVES: To assess the effectiveness and staff convenience of Smart Pumps in comparison with Standard Pumps for intravenous drug administration in non-critical hospital settings. METHODS: A systematic literature search was conducted following IETs recommendations, by using Medline, Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects and LI-LACS. The search was restricted for Spanish, English or Portuguese, including indexed journal, humans, and preference for original studies. Titles and abstracts were independently reviewed by two reviewers. Full texts of studies that had a second level screening by two additional reviewers. Relevant information was gathered in a predefined template. Because heterogeneity and qualitative nature of the information, results were presented in a narrative form. RESULTS: 27 studies were included in the review. 14 (52%) were randomized, 12 (44%) were observational and 1 (4%) was a case series. 20 (74%) were from the USA and 6 (22%) from other countries. 18 (67%) were observational studies, 7 (26%) were randomized and 2 (8%) were case series. 14 studies compared standard pumps to smart pumps, 11 studies compared two smart pumps, and 2 studies compared standard pumps to another technology. 14 (52%) of the studies were conducted in pediatric settings, 11 (41%) were in adult settings, 2 (8%) were in mixed settings, and 1 (4%) was in an unspecified setting. CONCLUSIONS: Smart Pumps showed heterogeneous and different degrees of benefits in terms of the following outcomes: medication error avoidance, reduction in adverse drug events, improvement in isolation adherence and reduced medication errors for nursing staff. This technology assessment suggests that the use of Smart Pumps, for intravenous drug administration in non-critical settings, could be an effective technology to improve medication errors, adverse events and adherence, while enhancing nursing staff convenience.

PMD116

STUDYING THE STATUS OF LUNG FUNCTION OF CARPENTERS IN QUETTA DISTRICT, PAKISTAN

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OBJECTIVES: The study was designed to assess the effect of wood dust on pulmonary system of carpenters. METHODS: The total number of 100 male carpenters aged ranging from 18-50 years, more than one year work experience selected randomly from the wood industries in Quetta district, Pakistan. Data was collected by using self-questions and spirometric tests were carried out to examine the lung function. RESULTS: The study determined that the wood dust adversely affect the Pulmonary System and this damage is linked with the duration of exposure to wood dust. The study population related to the wood industries workers affected with the restrictive lung disease.

PMD117

EXAMINING UNCERTAINTY AROUND THE AMERICAN COLLEGE OF MEDICAL GENETICS (ACMG) RECOMMENDATIONS FOR NEWBORN SCREENING (NBS) FOR MEDIUM/SHORT CHAIN L-3-OH ACYL-CoA DH DEFICIENCY (M/SCHAD)

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OBJECTIVES: In 2006, ACMG published NBS recommendations. This research examined the reliance on ACMG’s screening and adherence to these guidelines. METHODS: The ACMG guidelines were updated in 2015 and the new recommendations determined an entry point to an algorithm (EA) leading to recommendations, different EAs led to different algorithmic questions. METHODS: ACMG did not acknowledge uncertainty RE: scoring. We examine sampling uncertainty and uncertainties: Health led with missing responses, individually and jointly. We examine one condition, M/SCHAD (score, 1223), recommended as a Secondary Target. We use two questions with reported data: sensitivity/speciﬁcity of the test (SCREEN) and need for specialists in conﬁrming diagnosis (CONF DIAG). Missing data uncertainty uses boundary estimates based on potential scores for missing values; sampling uncertainty uses bootstrapping. Total scores < 1200 imply a new EA and potentially a different recommendation. RESULTS: CONCLUSIONS: Not recommended.

PMD118

EXAMINING THE EFFECTIVENESS OF SMART PUMPS IN NON-CRITICAL HOSPITAL SETTINGS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: Health technology assessment (HTA) of medical devices is rarer than pharmaceuticals, due to limited clinical evidence, shorter lifespan and variable
Evaluating the utility of economic evidence to enable the decisional hierarchy of the adoption of technologies.

### PMD119

**Title:** Economic Evaluation of Lung Cancer Screening with Low-Dose Computed Tomography (LDCT) for Smoking Groups in Taiwan

**Authors:** Hsieh H, Chang J, Lin Y, Xie J, Wang Y, Lin Y, Yeh J

**Institution:** National Taiwan University, Taipei, Taiwan

**Objective:** To evaluate the economic feasibility of lung cancer screening using low-dose computed tomography (LDCT) for smoking groups in Taiwan, considering the trade-offs between resource utilization and costs.

**Methods:** A cost-effectiveness analysis was conducted using data from the Taiwan Health Insurance Research Database (T-HIRD) and literature reviews. The analysis was performed using a Markov model to simulate the lifetime of patients and assess the long-term benefits and costs of LDCT screening.

**Results:** LDCT screening was found to be cost-effective compared to no screening, with lower costs and higher QALYs gained. The incremental cost-effectiveness ratio (ICER) was calculated to be $X per QALY gained, indicating cost-effectiveness.

**Conclusion:** LDCT screening for smoking groups is economically justified in Taiwan, offering a significant improvement in health outcomes with acceptable costs.

### PMD120

**Title:** Incorporating Economic Evidence into Cochrane Reviews: An Updated Methods Framework and a Worked Example

**Authors:** Aluko PO, Vale L, Smith T

**Institution:** University of Oxford, Oxford, UK

**Objective:** To develop an updated methods framework for incorporating economic evidence into Cochrane Reviews and provide a worked example to illustrate its application.

**Methods:** A systematic review of the existing literature on economic evidence in Cochrane Reviews was conducted, and a new methods framework was developed. The framework includes guidelines for identifying, extracting, and synthesizing economic evidence.

**Results:** The framework was applied to an example Cochrane Review, demonstrating its feasibility and potential impact on the quality of evidence presented.

**Conclusion:** Incorporating economic evidence into Cochrane Reviews can enhance their utility for decision-makers. An updated methods framework has been developed to facilitate this process.

### PMD121

**Title:** Machine Learning as a Diagnostic Tool for Validation of Sensitivity

**Authors:** Kasiap S, Murphy D, Cates J, Squire C

**Institution:** University of Maryland Baltimore, Baltimore, MD, USA

**Objective:** To evaluate the feasibility of using machine learning algorithms for validating the sensitivity of diagnostic tests.

**Methods:** A retrospective dataset was collected, including data from clinical trials and real-world applications. Machine learning models were developed to predict true-positive rates (TPR) and false-positive rates (FPR).

**Results:** The machine learning models achieved a TPR of 85% and an FPR of 12%, demonstrating the potential of using machine learning for sensitivity validation.

**Conclusion:** Machine learning holds promise as a diagnostic tool for validating sensitivity, offering a more efficient and accurate method compared to traditional approaches.

### PMD122

**Title:** Quality of Mandatory Reporting of Adverse Events Associated with Intravenous Patient-Controlled Analgesia Devices

**Authors:** Molyhany M, Lawal O, Njier D, Katz N

**Institution:** Analytic Solutions, LLC, Natick, MA, USA

**Objective:** To assess the quality of mandatory reporting of adverse events associated with intravenous patient-controlled analgesia (PCA) devices in the US, focusing on completeness, timeliness, and accuracy.

**Methods:** A retrospective review of the FDA Medical Device Reporting (MDR) database was conducted. The dataset included reports from January 1, 2011, to December 31, 2016. The quality of reporting was assessed using predefined criteria.

**Results:** The completeness of reporting was 85%, with 15% of reports missing critical information. The timeliness of reporting was 78%, with 22% of reports submitted after 30 calendar days. The accuracy of reporting was 93%, with 7% of reports containing errors.

**Conclusion:** While the quality of mandatory reporting has improved, there is still room for improvement, particularly in terms of completeness and timeliness.

### PMD123

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A CROSS SECTION STUDY ON PHARMACOVIGILANCE IN POST STROKE PATIENTS

PCV1
A CROSS SECTION STUDY ON PHARMACOVIGILANCE IN POST STROKE PATIENTS
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1ACADEMY OF PHARMACEUTICAL SCIENCES, KANNUR, India, 2ACADEMY OF MEDICAL SCIENCES, KANNUR, India, 3crescent college of pharmacy, kannur, India
OBJECTIVES: To determine the prevalence of neuropsychiatric disorders and to assess the adverse reactions and cost effects in stroke management. METHODS: The patients diagnosed as stroke and wished to participate were identified from Neurology Outpatient Department and recorded in a pilot study. Cross-sectional study for six-month duration after getting clearance from the Human Ethical Committee (order no: IEC no.70/22/2011/AICT). All the subjects were evaluated for adverse drug reactions through telephonic or face to face interview. Data processing tabulation of descriptive statistics did on statistical software. RESULTS: Out of 52 patients 71.15% were males and 28.84% females. The mean age of the patients was 63.21 (±10.19) years and the median was 65. 85% stroke patients were non-registered with PAI. In 2011, patients 2,077, followed by 55% Demands of visits by region was: South (40%), Midwest (24%), Northeast (21%), and West (15%). Regional comparisons showed significant differences in the reporting of medical devices.

PCV2
REGIONAL DIFFERENCES IN THE ECONOMIC BURDEN OF HEART FAILURE: EVIDENCE FROM THE HEALTHCARE COST AND UTILIZATION PROJECT (HCUP) DATABASE
Coleman A, O’Toole E
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OBJECTIVES: The aim of this study is to examine regional differences in hospital cost, healthcare utilization, and mortality for Medicare patients with heart failure. METHODS: The study is a retrospective observational design using visit-level de-identified hospital records from the Healthcare Cost and Utilization Project database for the year 2013. Visits with a primary diagnosis of HF, Medicare insurance, age of 18 or older, and with the hospital region recorded were eligible for inclusion. Descriptive statistics were applied to patient demographics, comorbidities, and hospital characteristics by region (Northeast, Midwest, South, West). Primary outcomes included cost, length of stay, and mortality. RESULTS: A total of 143,732 visits met inclusion criteria. Despite the annual variations in visitation by region was: South (40%), Midwest (24%), Northeast (21%), and West (15%). Across all regions, HF patients had high rates of hypertension (70%), renal failure (45%), diabetes (45%), and other medical conditions (60%). The differences in hospital costs were observed, with the South having the highest percentage of people with diabetes (47.28%). Conclusion: This study found differences in cost, healthcare utilization, and mortality between regions with the most significant differences occurring in the West, with the highest average cost per visit and a high mortality rate, yet the shortest average length of stay.

DISEASE-SPECIFIC STUDIES
CARDIOVASCULAR DISORDERS – Clinical Outcomes Studies

PCV3
ASSESSMENT OF TREATMENT & OUTCOMES OF ST SEGMENT ELEVATION MYOCARDIAL INFARCTION (STEMI) IN SANDEMAN PROVINCIAL HOSPITAL QUITTA, PAKISTAN
Naq N, Sehar S, Nastim A
University of Balochistan, Quetta, Pakistan
OBJECTIVES: Study aimed to assess treatment & outcomes of STEMI in Sandeman Provincial Hospital Quetta. A cross-sectional descriptive study was conducted in cardiac patients of STEMI at the principal diagnosis registered in Sandeman provincial hospital Quetta. Data obtained from 194 STEMI patients’ hospital records from August 2016 to January 2017. The primary outcome of interest was to report the treatment & outcomes of STEMI in Sandeman Provincial Hospital Quetta. The purpose of this study was to assess the treatment & outcomes of STEMI in Sandeman Provincial Hospital Quetta. RESULTS: A total of 143,732 visits met inclusion criteria. Despite the annual variations in visitation by region was: South (40%), Midwest (24%), Northeast (21%), and West (15%). Across all regions, HF patients had high rates of hypertension (70%), renal failure (45%), diabetes (45%), and other medical conditions (60%). The differences in hospital costs were observed, with the South having the highest percentage of people with diabetes (47.28%). Conclusion: This study found differences in cost, healthcare utilization, and mortality between regions with the most significant differences occurring in the West, with the highest average cost per visit and a high mortality rate, yet the shortest average length of stay.

PCV4
THE EFFECT OF SHORT-ActING 2-AGONISTS ON ARRHYTHMIA FOR PEDIATRIC PATIENTS WITH BRONCHOPULMONARY DYSPLASIA AND CONGENITAL HEART DISEASE USING TEXAS MEDICAID DATABASE
Hee H, Vohra Y, Grishis S, Rascals KL
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OBJECTIVES: Congenital heart disease (CHD) is known to be associated with congenital and acquired airway disorders such as bronchopulmonary dysplasia (BPD). Short-acting β2-agonists (SABA) are highly effective in the treatment of BPD. However, β-adrenoceptor agonists have inotropic and chronotropic effects that can increase arrhythmias or tachycardia. To our knowledge, among pediatric patients with CHD, the association of SABA therapy with arrhythmia in pediatric patients with BPD have not been evaluated before. The focus of this study was to compare the occurrence of arrhythmia between SABA users and non-users among
pediatric patients with BPD and CHD. METHODS: Texas Medicaid database from 2008-2014 was used to conduct the retrospective cohort study. Patients aged 12-17 years who had a diagnosis of CHD (ICD-9-CM 745-747.xx, V151) and BPD (ICD-9-CM 770.7) were included in this study. SABAs included albuterol, ipratropium, levalbuterol, and tiotropium. Covariates adjusted for were demographic factors (age, gender), medical factors (respiratory distress syndrome admission, atrial fibrillation, cardiovascular condition, and use of anti-arrhythmia drugs). Propensity score matching, logistic regression, Cox proportional hazard regression model, and Kaplan-Meier plots were used to compare the occurrence of arrhythmia between the control and the test groups. After 1:1 matching, 2,882 patients were identified. Logistic regression showed that SABA users were more likely to have arrhythmia compared to non-users (OR=2.17, 95% CI 1.56-3.02, p<.0001). For individuals on SABA therapy, the number of supply days of SABA was significantly associated with the occurrence of arrhythmia (p<.001). A Cox proportional hazard model showed that the risk of arrhythmia for SABA users was significantly higher than non-users (HR=2.10, 95% CI 1.53-2.90, p<.0001). CONCLUSIONS: SABA use in pediatrics and CHD may be associated with higher risk of arrhythmia. Physicians should monitor patients for long-term SABA therapy to avoid potential risk of arrhythmia.

PCV5 PATTERNS AND PREDICTORS OF DEPRESSION TREATMENT AMONG STROKE SURVIVORS WITH DEPRESSION IN AMBULATORY SETTING IN THE UNITED STATES Bhattacharjee S.q, Aton Dk, Goldstone L, Lee JC1

1The University of Arizona, Tucson, AZ, USA, 2University of Arizona, Tucson, AZ, USA, 3University of Arizona, Tucson, AZ, USA

OBJECTIVES: The objectives of this study were to examine the depression treatment patterns among stroke survivors with depression in ambulatory care in ambulatory settings in the United States (US). METHODS: We used a cross-sectional study design by pooling multiple-year data (2005-2013) from the National Ambulatory Medical Care Survey and the outpatient department of the National Hospital Ambulatory Medical Care Survey (NHAMCS). The study included patients aged (age ≥ 50 years) in the United States with a stroke diagnosis and depression comprised the final study sample. Ambulatory visits that involved stroke diagnosis were identified by using International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) codes of 430.xx-438.xx. Depression treatment was identified in visits where the answer to the question "Regardless of the diagnoses written, does the patient now have depression?" was "yes." Depression treatment defines antidepressant use with or without psychotherapy comprised the dependent variable in this study. Multivariable logistic regression analysis was used to ascertain the predictors of depression treatment. All analyses were adjusted for the complex survey design of the datasets to obtain nationally representative estimates. RESULTS: During 2005-2013 timeframe, approximately 4.96 million ambulatory care visits recorded a stroke and depression diagnosis. Overall depression treatment was observed in 47.32% of the study sample, mainly driven by antidepressant use alone. An overwhelming majority used selective serotonin reuptake inhibitors (77% of overall antidepressant use), and sertraline was the most prescribed antidepressant (30.5% of overall antidepressant use). Sex, race/ethnicity, region of residence, number of medications recorded at the sampled visit, and number of chronic conditions were significantly associated with depression treatment. For example, men were approximately three times more likely (Odds Ratio=2.772, 95% CI, 1.127-6.819, P=0.027) than women to receive depression treatment. CONCLUSIONS: According to this nationally representative survey, depression treatment is low among stroke survivors in ambulatory care settings in the US. Appropriate interventions should be developed to optimize post-stroke depression treatment.

PCV6 PATTERNS AND PREDICTORS OF DEPRESSION TREATMENT AMONG COMMUNITY-DWELLING OLDER ADULTS WITH STROKE AND DEPRESSION IN THE UNITED STATES Bhattacharjee S., Yami MA, Kurdi S, Aton DK

1The University of Arizona, Tucson, AZ, USA, 2University of Arizona, Tucson, AZ, USA, 3University of Arizona, Tucson, AZ, USA

OBJECTIVES: The objectives of this study were to examine national-level patterns and predictors of depression treatment among community-dwelling stroke survivors with comorbid depression METHODS: This study adopted a retrospective, cross-sectional study design using multiple alternate years of Medical Expenditure Panel Survey (MEPS) [2002, 2004, 2006, 2008, 2010, 2012] data. The study sample consisted of older adults (age ≥ 50 years) who were stroke (ICD-9-CM codes of 430.xx-438.xx) survivors with comorbid depression (ICD-9-CM code of 296.xx, or 311.xx) and did not die during the calendar year. Depression treatment, identified by antidepressant medication use with or without psychotherapy, was the dependent variable of this study. Multinomial logistic regression analysis was conducted to examine the association of factors with depression treatment in the study sample. Depression treatment categories included antidepressant use only, combination therapy of antidepressant and psychotherapy, and no depression treatment. RESULTS: Mean staining mortality at 87.6% was included in the study sample. Depression treatment categories included antidepressant use only, combination therapy of antidepressant and psychotherapy, and no depression treatment. Only 8.8% of the sample (unweighted N=370) reported some form of depression treatment. Antidepressants only and combination therapy were reported by 74.8% and 12.8% of study sample respectively. The study sample represented 28.6% of the US older adults. METHODS: Electronic English NHS health records of 6,078 previously untreated patients of age 60+ receiving statins following the occurrence of a myocardial infarction (MI) and a one-to-one propensity score matched control of untreated patients after a MI, resulted in n=12,156 patients. Costs of primary care was calculated from English NHS health records. Costs of other inpatient hospitalisations from HES and HRG codes. QALYs were calculated from ONS mortality records and utilities from the literature applied to MI or ischemic stroke events recorded in HES. Inverse probability of censoring weights (IPCW) were used to estimate counterfactual outcomes in the absence of treatment cross-over in the
control arm. **RESULTS:** The distribution of baseline characteristics was balanced across the two treatment groups, and 43% initially untreated patients crossed over to the treatment group. For 60-74 year olds, we found an increase in QALY with statues of 95% (CI: 0.44-0.87) and, in the 75+ group, a gain of 0.81 (95% CI: 0.72-0.88) per patient. Excluding the CV-unrelated costs of inpatient hospitalizations, the total incremental costs per person were respectively 95% (CI: 1347-2095) and 62.64% (CI: 2034-2963) per patient. Statins had an ICER of £2456 (95% CI: 1814, 2759) in the younger patient group and of £2510 (95% CI: 2843, 3531) in the older group. In contrast, when inpatient hospitalisation costs ICD-10 codes for non-CV events were included, results stated in cost savings (95% CI: -1165, 2762), and was consequently dominant, in the younger group, and had incremental costs of £5526 (95% CI: 4356, 6436) for an ICER of £7200 (6221, 8578) in patients aged 75+.

**CONCLUSIONS:** Quasi-experimental evaluation using data from electronic medical records of patients treated in routine practice is feasible. CECA based on decision models may underestimate the cost-effectiveness of statins, due to their omission of hospitalisation costs associated with non-CVD outcomes.

**PCV10**

**HEALTHCARE UTILIZATION AND COSTS IN PULMONARY ARTERIAL HYPERTENSION (PAH) PATIENTS TREATED WITH ENDOTHELIN RECEPTOR ANTAGONISTS (ERAS) OR PHOSPHODIESTERASE TYPE 5 INHIBITORS (PDE5IS)**

**OBJECTIVES:** Pulmonary arterial hypertension (PAH) is a rare, progressive disease characterized by increasing pulmonary vascular resistance and pressure. There are 13 approved PAH-specific medications in the USA targeting three distinct pathways. Without head-to-head comparative effectiveness trials, stakeholders may assume that ERAs and PDE5Is produce similar health outcomes. The study evaluated all-cause healthcare utilization, all-cause hospitalization costs, and adherence in PAH patients treated with ERAs or PDE5Is. **METHODS:** Using the PharMetrics Plus claims database, the most recent PAH therapy for all patients was identified between 1/1/2009-6/30/2015 (first Rx claim = index date). Treatments included the ERAs ambrisentan, bosentan, and macitentan and the PDE5Is sildenafil and tadalafil (PDE5Is erectile dysfunction drugs were excluded). Patients had continuous healthplan enrollment ≥ 3 months pre- and ≥ 6 months post-index date. Healthcare utilization costs were assessed during days post-index date. Costs were compared between ERA and PDE5I. Multivariable general linear models were used to assess all-cause hospitalization costs. **RESULTS:** A total of 805 ERA and 1,818 PDE5I patients were analyzed over 6 months post index. The mean age of the ERA cohort (59 vs. 53 y) and patients treated with ERA and PDE5I (74.5% vs. 61.5%, p < 0.0001). Post-index, ERA patients had more PAH prescriptions (mean 6.6 vs. 5.0, p < 0.0001), had fewer outpatient visits (mean 12.6 vs. 16.0, p < 0.0001), and fewer hospitalizations (29 vs 45, 36.5%, p = 0.0001). PDC was higher in ERA patients (mean 0.85 vs. 0.78, p < 0.0001). Mean adjusted hospitalization costs for all patients were lower in the ERA cohort ($20,017 vs. $37,570, p = 0.007). Adjusted hospitalization costs for patients with a hospitalization were 15% lower in ERA patients (p = 0.048) **CONCLUSIONS:** PAH patients treated with ERA were younger, with higher adherence to therapy, lower resource use, fewer hospitalizations, and lower hospitalization costs than PDE5I treated patients. These results provide real-world evidence of PAH therapies with different treatment pathways produce different clinical and economic outcomes.

**PCV11**

**COMPARISON OF AMLODIPINE VERSUS OTHER CALCIUM CHANNEL BLOCKERS ON BLOOD PRESSURE VARIABILITY IN HYPERTENSIVE PATIENTS IN CHINA: A RETROSPECTIVE PROPENSITY SCORE-MATCHED ANALYSIS**

**OBJECTIVES:** Calcium channel blockers (CCBs) were associated with lower blood pressure variability (BPV) than other classes of antihypertensive drugs. Nonetheless, the correlation within CCBs group is unclear. This study aimed to assess the effect of Amlodipine versus other CCBs on BPV. **METHODS:** A retrospective propensity score-matched analysis was conducted, which retrieved 6,995 hypertensive inpatients encounter data (with median age at 69 years old, 52% was male, diastolic blood pressure (DBP) ≥ 40 mmHg and < 150 mmHg; systolic blood pressure (SBP) ≥ 70 mmHg and < 150 mmHg), who took at least one antihypertensive agent and completed at least three SBP measurements during the visit. International Classification of Diseases (ICD-10) was used to identify the hypertensive patients. BPV was calculated with standard deviation of SBP during a single inpatient visit. The Propensity Score Matching (PSM) was used to balance the cohort of patients prescribed Amlodipine or other CCBs. Series of appropriate statistical tests were applied to the propensity score-matched sample to examine the differences between the two groups. Additionally, the comparative hypertensive patients with comorbidity i.e. Coronary Artery Disease (CAD), Diabetes Mellitus (DM), Myocardial Infarction (MI), Heart Failure (HF) and Chronic Kidney Disease (CKD) were analyzed. **RESULTS:** For the hypertensive patients (n=2004, for each cohort), patients prescribed Amlodipine had lower BPV than patients prescribed other CCBs (12.7 mm Hg vs 13.6 mm Hg, p < 0.05). For the hypertensive patients with comorbidity (n=1242, for each cohort), patients prescribed Amlodipine had lower BPV than patients prescribed other CCBs (13.1 mm Hg vs 14.0 mm Hg, p < 0.05). **CONCLUSIONS:** Amlodipine was associated with lower BPV than other CCBs for both hypertensive patients and hypertensive patients with comorbidity.

**PCV12**

**THE READMISSIONS, HEMORRHAGIC EVENTS AND ANTI-PLATELET STRATEGIES RECONSIDERED: PREDICTING INCIDENCE OF NON-CARDIOVASCULAR ISCHEMIC STROKE PATIENTS: A REAL WORLD STUDY**

**OBJECTIVES:** The objective of this SLR was to characterize the evidence supporting the use of SEN in clinical practice. SEN adverse drug events, economic burden of Aspirin, Clopidogrel, combined Aspirin and Clopidogrel in secondary prevention of non-cardiovascular ischemic stroke. **METHODS:** Newswise patients with ischemic stroke during Jan, 2012 to Dec, 2012 were identified by their diagnosis from Beijing medical insurance database, then followed up their records until Sep.2013. Prescription records of patients were separated into three groups, patients with Aspirin records only, patients with Clopidogrel records only, and patients with both Aspirin and Clopidogrel simultaneously for some time. Recurrence and incidence of hemorrhagic events were calculated in each group and compared with others. Logistic regression was used to test the relevant factors of recurrence. A generalized linear model (GLM) was performed to identify factors which affected annual medical costs. **RESULTS:** The readmissions of aspirin group, clopidogrel group and combined group were 42.5%, 71.1%, and 47.2% separately and the incidence of hemorrhagic events were 4.0%, 2.2%, 4.3% separately. Different antiplatelet strategies showed significant effects on annual medical costs. **CONCLUSIONS:** Aspirin is the most effective and cost-effective anti-platelet strategy to prevent recurrence in non-cardiovascular ischemic stroke patients. But limitations of Beijing medical insurance database and relevant bias should be taken into account when interpret the results.

**PCV13**

**EFFECTIVENESS OF A COMMUNITY-BASED HYPERTENSION SELF-MANAGEMENT EDUCATION (HSE) PROGRAMME IN THE STATE OF PENANG, MALAYSIA**

**OBJECTIVES:** To evaluate the impact of a structured, group-based Hypertension Self-management Education (HSME) programme on participant’s clinical and psychosocial outcomes. **METHODS:** A pre-post study design was employed. With the help of community leaders from non-governmental organisations in the state of Penang, participants diagnosed with hypertension and aged 18-75, in the intervention (HSE) group was the lowest among three groups and readmission, age, index hospitalization stays, levels of index hospitalization had significant effects on annual medical costs. **CONCLUSIONS:** This short term HSE though had limited impact on participants’ blood pressure but was found to improve other clinical and psychosocial outcomes. Therefore, a well-structured educational programme should be in place to support hypertensive patient in maintaining daily self-care activities.

**PCV14**

**SYSTEMATIC LITERATURE REVIEW (SLR) OF EFICACY OF STATIN AND NONSTATIN LIPID LOWERING THERAPIES FOR CARDIOVASCULAR EVENT REDUCTION**

**OBJECTIVES:** The objective of this SLR was to characterize the evidence supporting the use of SEN in clinical practice. SEN adverse drug events, economic burden of Aspirin, Clopidogrel, combined Aspirin and Clopidogrel in secondary prevention of non-cardiovascular ischemic stroke. **METHODS:** Newswise patients with ischemic stroke during Jan, 2012 to Dec, 2012 were identified by their diagnosis from Beijing medical insurance database, then followed up their records until Sep.2013. Prescription records of patients were separated into three groups, patients with Aspirin records only, patients with Clopidogrel records only, and patients with both Aspirin and Clopidogrel simultaneously for some time. Recurrence and incidence of hemorrhagic events were calculated in each group and compared with others. Logistic regression was used to test the relevant factors of recurrence. A generalized linear model (GLM) was performed to identify factors which affected annual medical costs. **RESULTS:** The readmissions of aspirin group, clopidogrel group and combined group were 42.5%, 71.1%, and 47.2% separately and the incidence of hemorrhagic events were 4.0%, 2.2%, 4.3% separately. Different antiplatelet strategies showed significant effects on annual medical costs. **CONCLUSIONS:** Aspirin is the most effective and cost-effective anti-platelet strategy to prevent recurrence in non-cardiovascular ischemic stroke patients. But limitations of Beijing medical insurance database and relevant bias should be taken into account when interpret the results.

**PCV15**

**VALUE IN HEALTH 20 (2017) A1–A383**
or ongoing trials were identified: 43 trials focused on statin therapy, 7 trials on monotherapy of nonstatin agents and 16 trials on addition of agents to statins (e.g., FCP9 inhibitors, ezetimibe, fibrate). There were 8 trials reporting cardiovascular outcomes and evaluating agents added to statins (evolocumab N=3, alirocumab N=2; ezetimibe N=1; anacetrapib N=2) that could inform the NMA. Of which, 2 trials, 1 with a prevention, of which 4 were cardiovascular outcomes trials; 3 were in mixed primary prevention populations with exploratory cardiovascular outcomes. Secondary prevention trials differed in inclusion criteria regarding type and timing of prior cardiovascular disease. Most often composites generally including death, myocardial infarction, stroke, and hospitalization for unstable angina. Four studies also include revascularization within the composite endpoint. CONCLUSIONS: The NMA of clinical outcomes due to anticoagulation for cardiovascular events with lipid-lowering therapies. In the absence of head-to-head trials, the SLK will support an NMA that will assess the relative effectiveness of therapies that are added to statins (initially evolocumab vs ezetimibe).

PCV15 COMPARISON OF CALCIUM CHANNEL BLOCKERS VERSUS OTHER CLASSES OF ANTIHYPERTENSIVE DRUGS ON BLOOD PRESSURE VARIABILITY IN HYPERTENSIVE PATIENTS IN CHINA: A RETROSPECTIVE PROPENSITY SCORE-MATCHED ANALYSIS

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OBJECTIVES: Previous studies suggested that blood pressure variability (BPV) was an important component of arterial stiffness and coronary artery disease. This study aimed to assess the effect of calcium channel blockers (CCBs) versus other classes of antihypertensive drugs on BPV, including angiotensin-I receptor blockers (ARBs), angiotensin-converting-enzyme inhibitors (ACEIs), beta blockers (BB) and diuretics. METHODS: A retrospective propensity score-matched (PSM) analysis was conducted, which retrieved 5,627 hypertensive inpatients encounters data (with median age at 69 years old, 51% was female, diastolic blood pressure (DBP) ≥ 40 mmHg and <150 mmHg, systolic blood pressure (SBP) ≥ 70 mmHg and <260 mmHg), who took at least one antihypertensive agent and completed at least three SBP measurements during the visit. International Classification of Diseases (ICD-10) was used to identify the hypertensive patients who were matched using standard deviation of SBP of within a single inpatient visit. The PSM was used to balance the cohort of patients prescribed CCBs or other classes of antihypertensive drugs. Series of appropriate statistical tests were applied to the PSM data to measure the different effects on BPV. Additionally, the hypertensive patients with comorbidity i.e. Coronary Artery Disease (CAD), Diabetes Mellitus (DM), Myocardial Infarction (MI), Heart Failure (HF) and Chronic Kidney Disease (CKD) were examined. RESULTS: For the hypertensive patients (n=1,889, for each cohort), patients prescribed CCBs had lower BPV than patients prescribed other classes of antihypertensive drugs (12.3 mm Hg vs. 12.8 mm Hg, p <0.05). For the hypertensive patients with comorbidity (n=737, for each cohort), patients prescribed CCBs had lower BPV than patients prescribed other classes of antihypertensive drugs (11.9 mm Hg vs. 12.9 mm Hg, p<0.05). CONCLUSIONS: CCBs was associated with lower BPV than other classes of antihypertensive drugs for the hypertensive patients, and much lower BPV was associated for the hypertensive patients with comorbidity.

PCV16 FONDAPARINUX SODIUM COMPARED WITH LOW MOLECULAR WEIGHT HEPARIN: INSUFFICIENCY FOR THROMBOPROPHYLAXIS AMONG PATIENTS AT RISK AS PER VICHOW’S TRIAD: A SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: The objective of this meta-analysis was to systematically review the randomized clinical trials (RCTs) of Fondaparinux sodium 2.5 mg once daily versus low molecular weight heparins (LMWH) at the titrated dose for the prophylaxis of venous thromboembolism (VTE) among the patients who are at risk as per Vichow’s triad. METHODS: Systematic search in the database e.g. EMBASE, MEDLINE, Cochrane Library, ProQuest, Science Direct, Google Scholar and clinicaltrial.gov was done to identify RCTs evaluating both treatments for the prophylaxis of VTE among patients at risk published in English language from the year 2000 to 2016. A web-based systematic review tool “Covidence” was used to systematically screen the studies of interest. Analysis in “RevMan” was performed with the relative odds based on the random effect model. Results were presented as odds ratios (OR) with their 95% confidence intervals. The assessment of study quality and risk of bias among the included studies was performed per Cochrane collaboration. RESULTS: After screening 10, 506 articles, 4,676 were selected for review. Thirteen RCTs were included in the final analysis after reviewing the data. Pooled analysis demonstrated a significant 54% reduction (OR = 0.46 [0.36, 0.56]) and 11% reduction in mortality (OR = 0.89 [0.63, 1.25]) with Fondaparinux compared to LMWH. Contrarily, there was a significant 47% increase in the risk for the major bleeding (OR=1.47 [1.14, 1.31]) and 16% increase in minor bleeding (OR=1.16 [1.09, 1.40]) with Fondaparinux compared to LMWH. Quality assessment results identified four studies with high risk in the "blinding of participants and personnel" domain. CONCLUSIONS: This meta-analysis concluded that Fondaparinux showed a clinically significant benefit in terms of the incidence of VTE and mortality. However, it also increased the risk for major bleeding. Thus, observation is warranted to prevent the adverse effects post Fondaparinux administration.
The clinical benefits of achieving an LDL-C goal of <2.6mmol/L or obtaining a ≥50% reduction in LDL-C was associated with a significant reduction in MACEs. CONCLUSIONS: The benefit of achieving an LDL-C goal of <2.6mmol/L or obtaining a ≥50% reduction in LDL-C was not statistically different between cohorts overall or between subgroups.

**PCV20**

**THE IMPACT OF LOW-DENSITY LIPOPROTEIN CHOLESTEROL GOAL ATTAINMENTS ON CARDIOVASCULAR OUTCOMES: A RETROSPECTIVE COHORT STUDY IN CHINESE ACUTE CORONARY SYNDROME PATIENTS**

Wang Y1, Wu J2, Yan B3, Nichol MB2, Tomlinson B1

Onishi Y2, Hiroi S1, Uda A3, Shimasaki Y3, Teramoto T4

OBJECTIVES: To assess the effect of low-density lipoprotein cholesterol (LDL-C) goal attainment on ischemic stroke among acute coronary syndrome (ACS) patients who underwent percutaneous coronary intervention (PCI).

METHODS: A retrospective cohort study was conducted using case reviews of post-PCI ACS patients at an acute public hospital in Hong Kong between January 2009 and August 2015. Patients were followed from the date of PCI procedure until the first event of MAC (including all-cause death, myocardial infarction, heart failure, documented unstable angina, revascularization, and stroke) or to the end of the first year. Kaplan-Meier survival analysis was performed to calculate the impact of LDL-C goal attainment prior to the event on event-free time (time from the latest lipid goal attainment to the first occurrence of MAC). RESULTS: A total of 1684 patients were identified. Mean age was 68.7 years (78.8% males). At one-year endpoint, 59% (316) had LDL-C ≥1.8mmol/L, 26% (299) had LDL-C ≥2.6mmol/L, and 9% (101) had LDL-C >2.6mmol/L. About 10% experienced a MAC event within one year. The attainment of LDL-C goal ≥2.6mmol/L was significantly associated with lower incidence of MAC during the one-year follow-up, and a further lowering of LDL-C level to 1.8mmol/L did not lead to any incremental clinical benefits. Statin therapy was highly associated with LDL-C goal attainments but high-intensity statin therapy itself was not associated with a reduced rate of MACs. Obtaining ≥50% reduction in LDL-C was associated with a significant reduction in MACs.

CONCLUSIONS: The benefit of achieving an LDL-C goal of <2.6mmol/L or obtaining a ≥50% reduction in LDL-C was not statistically different between cohorts overall or between subgroups.

**PCV21**

**LIPID TARGET ACHIEVEMENTS AMONG HIGH AND VERY HIGH RISK PATIENTS IN OMAN: FINDINGS FROM THE CEPHEUS STUDY**

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OBJECTIVES: This study aimed to assess the effect of low-density lipoprotein cholesterol (LDL-C) goal attainment on ischemic stroke among acute coronary syndrome (ACS) patients who underwent percutaneous coronary intervention (PCI).

METHODS: A retrospective cohort study was conducted using case reviews of post-PCI ACS patients at an acute public hospital in Hong Kong between January 2009 and August 2015. Patients were followed from the date of PCI procedure until the first event of MAC (including all-cause death, myocardial infarction, heart failure, documented unstable angina, revascularization, and stroke) or to the end of the first year. Kaplan-Meier survival analysis was performed to calculate the impact of LDL-C goal attainment prior to the event on event-free time (time from the latest lipid goal attainment to the first occurrence of MAC). RESULTS: A total of 1684 patients were identified. Mean age was 68.7 years (78.8% males). At one-year endpoint, 59% (316) had LDL-C ≥1.8mmol/L, 26% (299) had LDL-C ≥2.6mmol/L, and 9% (101) had LDL-C >2.6mmol/L. About 10% experienced a MAC event within one year. The attainment of LDL-C goal ≥2.6mmol/L was significantly associated with lower incidence of MAC during the one-year follow-up, and a further lowering of LDL-C level to 1.8mmol/L did not lead to any incremental clinical benefits. Statin therapy was highly associated with LDL-C goal attainments but high-intensity statin therapy itself was not associated with a reduced rate of MACs. Obtaining ≥50% reduction in LDL-C was associated with a significant reduction in MACs.

CONCLUSIONS: The benefit of achieving an LDL-C goal of <2.6mmol/L or obtaining a ≥50% reduction in LDL-C was not statistically different between cohorts overall or between subgroups.

**PCV22**

**EXAMINATION OF CARDIO-VASCULAR RISK FACTORS IN THE PRIORITY OF ATRIAL FIBRILLATION**

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OBJECTIVES: Stroke-prophylaxis is the most massive subject of interest of atrial fibrillation, which is highly influenced by presence of risk factors toward for atrhythmia. Our goal was to examine risk factors, successfulness of frequency control, effectiveness of anticoagulant therapy.

METHODS: The study was a retrospective analysis using medical records. Target group was patients treated with anticoagulant therapy. Enrollment criteria: atrial fibrillation, age 20-90 years, NYHA II stage. Excursion criteria: patients that have experienced stable atrial fibrillation. The study was carried out at the University of Pécs Clinical Centre, Cardiology Clinic in 01.01.2012-31.12.2012. Data collecting was done by patients records analysis. Statistical analysis included linear regression, T-test, chi square test, variance analysis (ANOVA). RESULTS: We found significant correlation between BMI values-, systolic blood pressure-, modified medication and its effect on frequency control-, correct anticoagulant therapy- and the INR parameters, and the increased risk of atrial arrhythmia. (Schnabel, 2012) Based upon clinical protocols and our study we emphasize importance of stratification of risk factors, individual optimization- and the implementation of the gastrointestinal prophylaxis (Járai, 2008) and increased chance of survival (Matoes, 2009).

**PCV23**

**INCIDENT CANCER AND ADHERENCE TO STATINS AND ANTIPHYTHEREPSE MEDICATIONS FOR CORONARY ARTERY DISEASE AMONG ELDERLY MEDICARE BENEFICIARIES**

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OBJECTIVES: To examine the relationship between incident cancer and adherence to statins and angiotensin-converting enzyme inhibitors (ACEIs), angiotensin II receptor blockers (ARBs), or beta-blockers among elderly individuals with CAD.

METHODS: A retrospective cohort study was conducted by assessing elderly Medicare fee-for-service beneficiaries with pre-existing CAD and incident breast (BC), colorectal (CR), or prostate (PC) cancer (N=12,096) and those with no cancer (NC) during the period January 2009 to December 2010. ACEIs and ARBs were the index medications. MACEs were defined as the first occurrence of MI, stroke, or death from cardiovascular disease. CONCLUSIONS: We found significantly less likely to be adherent to both medication classes compared to their NC counterparts. No significant differences in adherence were observed for BC compared to those with NC. Even among those using single medication class, women [AOR=0.80, 95%CI=0.53-1.21, P<0.001] and men [AOR=0.62, 95%CI=0.49-0.74, P<0.0001] were significantly less likely to be adherent to that medication class compared to women and men with NC. CONCLUSIONS: Adherence to evidence-based medications for CAD varied by cancer types. Elderly Medicare beneficiaries with BC or PC were significantly more likely to be adherent to both medications as compared to their NC counterparts. Future research needs to explore the effect of non-adherence to concomitant medications on health outcomes such as survival among patients with incident BC and PC.
PCV25
BASELINE CHARACTERISTICS OF A RETROSPECTIVE CLAIMS ANALYSIS OF ASCVD IN TAIWAN: HEALTH CARE RESOURCE UTILIZATION AND COSTS IN HIGH-RISK STAIN-TREATED PATIENTS WITH HYPERTENSION/CEREDERMA
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OBJECTIVES: The ongoing REDUCE-IT study is investigating the effects of the prescription omega-3 fatty acid icosapent ethyl as add-on therapy to statins on long-term cardiovascular (CV) outcomes in high-risk patients with hyperlipidemia. The objective of this study was to examine real-world evidence on CV outcomes and health care resource utilization and costs in a patient population similar to REDUCE-IT patients.
METHODS: This was a retrospective administrative claims analysis using the Optum Research Database of medical and pharmacy claims data, enrollment information, laboratory results, and mortality data. Patients ≥45 years with documented diabetes and/or atherosclerotic CV disease (ASCVD), baseline triglycerides ≥150 mg/dL, and up to 5 years of available data for follow-up were included. Patients had continuous enrollment with medical and pharmacy coverage for 6 months of baseline and ≥6 months of follow-up. Evaluation parameters included use of fibres and prescription omega-3 fatty acid products, statin titration patterns, rates of occurrence of first and subsequent major CV events, new chronic heart failure, transient ischemic attack, coronary revascularization, and quantification of health care costs and resource utilization. RESULTS: This report describes the baseline characteristics of the study population: 27,471 patients were included and had these characteristics: mean (SD) age, 61.6 (9.6) years; 46.7% female; 41.2 months mean follow-up; 69.5% commercial insurance enrollees; 30.7% Medicare; 83.7% on statins only, 13.4% on statin+fibrate, 1.9% on statin+omega-3, 1.0% on statin+fibrate+omega-3. Most (85.0%) patients had diabetes, 29.1% had ASCVD, 2.1% had prior myocardial infarction and or prior stroke. CONCLUSIONS: This real-world evidence study of patients with characteristics similar to those in REDUCE-IT identified more than 27,000 patients for an analysis that is well positioned to provide robust insight into medication patterns, CV events, health care costs and resource utilization, and the potential impact of icosapent ethyl therapy, based on the forthcoming REDUCE-IT results.

PCV26
FREQUENCY, PROGNOSIS AND RISK FACTORS AMONG CONGESTIVE HEART FAILURE PATIENTS ATTENDING DIALYSIS PATIENTS ATTENDING PUBLIC HOSPITALS OF QUETTA CITY, PAKISTAN
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OBJECTIVES: The current research was conducted to evaluate Congestive Heart Failure (CHF) in dialysis patients; its frequency, prognosis, and risk factors among patients attending public healthcare institutes of Quetta city, Pakistan. METHODS: This is a multicenter cohort study conducted at two public healthcare institutes of Quetta city, Pakistan. Data of 117 patients for one year was screened from the official records and evaluated retrospectively to identify variables of interest. Data was cross validated through a validated information sheet. SSIS v.20 was used for data analysis and data was described descriptively. RESULTS: All patients had End-stage Renal Disease (ESRD) and were on regular maintenance hemodialysis therapy. Out of all enrolled patients 11% had Non-Insulin-Dependent Diabetes Mellitus, 4.3% patients had Ispenic Heart Disease, 76.8% had LVH; 30.4% had Cardiomyopathy. Forty five patients (38.46%) were confirmed with CHF. Thirty seven (31.6%) of those had systolic dysfunction. 26 (22.2%) had diastolic dysfunction and 4 (3.4%) had both systolic and diastolic dysfunction. In the subjects with systolic dysfunction, 2.6% measured ejection fraction (EF) ≤ of 20%, 13.7% measured 21-30% and 15.4% measured 3-40%. Additionally, 13 (28.9%) patients developed de novo CHF. Recurrence of CHF was observed in 26 patients (57.7%) whereas among the CHF group, ten patients died during the study period presenting a mortality rate of 24% in CHF group. CONCLUSIONS: The incidence of CHF was relatively high in our study population of ESRD. It was also observed that risk factors of both the disease conditions collaboratively exacerbated each other, resulting in worsening of patients’ condition. Frequent recurrence of the disease, re-hospitalization and enhanced mortality in our study population is evident of adverse prognosis of CHF in ESRD population.

PCV27
BLEEDING-RELATED HOSPITAL ADMISSIONS AND 30-DAY RE-ADMISSIONS WITH DABIGATRAN VERSUS WARFARIN IN PATIENTS WITH NONVALVULAR ATRIAL FIBRILLATION
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OBJECTIVES: To compare the incidence of bleeding-related hospital admissions and 30-day re-admissions with dabigatran versus warfarin in patients with nonvalvular atrial fibrillation (NVAF). METHODS: Retrospective cohort study using a population-wide database managed by the Hong Kong Hospital Authority. Patients ≥18 years of age with NVAF from 2004 through 2014 and with continuous dabigatran or warfarin were 1:1 matched by propensity score. The incidence rate of hospital admission with bleeding (a composite of gastrointestinal bleeding, intracranial hemorrhage, and bleeding at other sites) was assessed by zero-inflated negative binomial regression. Among patients who were continuously prescribed with their initial anticoagulants upon discharge, we assessed the risk of 30-day re-admission with bleeding using a Cox proportional hazard regression model, with adjustment for length of stay and type of bleeding in the initial bleeding episode. RESULTS: Preliminary results indicated that among the 51946 patients with NVAF, 8309 users of dabigatran or warfarin were identified, with 5160 patients matched by propensity score. Of these, 151 (9.5%) dabigatran users and 172 (6.7%) warfarin users were readmitted with bleeding during follow-up. The incidence of first hospitalized bleeding did not differ significantly between groups (incidence rate ratio[IRR]: 0.92; 95% confidence interval[CI]: 0.66-1.28). Cox regression analysis indicated that dabigatran use was associated with a higher risk of 30-day re-admission with bleeding over warfarin (adjusted hazard ratio [HR]: 2.87; 95%CI: 1.10-7.43). The difference became statistically non-significant when the observation period was extended to 60 days of discharge (HR: 1.89; 95%CI: 0.89-4.04). CONCLUSIONS: When compared to warfarin, dabigatran was associated with a comparable incidence of hospital admission but a higher risk of 30-day re-admission with respect to bleeding. Given that dabigatran achieves full anticoagulation more quickly than warfarin, close early monitoring of patients initiated on dabigatran following hospital discharge for bleeding is warranted.

PCV28
PREVALENCE AND INCIDENCE OF CLINICAL ATEROSCLEROTIC CARDIOVASCULAR DISEASE (ASCVD) IN TAIWAN
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OBJECTIVES: To estimate the annual prevalence and incidence of clinical atherosclerotic cardiovascular disease (CVD) in Taiwan. METHODS: We conducted a cross-sectional study using Taiwan’s 2005-2013 National Health Insurance Research Database (NHIRD). Patients with clinical ASCVD, defined as patients with coronary artery disease (acute coronary syndrome, coronary revascularization, stable angina or unstable angina) or stroke, were identified by a representative case-control study. RESULTS: Prevalence and incidence increased among men and women. The prevalence and incidence increased with age. Overall, the prevalence and incidence were 5.1/1000 and 0.11/1000, respectively. CONCLUSIONS: The prevalence of ASCVD increased over time from 2006 to 2013 among Taiwanese population. Stable incidence of clinical ASCVD was observed during the study period.

PCV29
PROTECTING THE GAINS: WHAT CHANGES ARE NEEDED TO PREVENT A REVERSAL OF THE DOWNWARD CVD MORTALITY TRENDS?
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OBJECTIVES: Cardiovascular disease (CVD) mortality has decreased by ~60% over the past 50 years, partially due to development of preventive therapeutics (e.g., statins, antihypertensive agents) and acute interventions, however progress is slowed for the aging US population, an expected rise in obesity and diabetes, and competing needs for limited resources, future patterns of CVD are uncertain. METHODS: We developed a Microsoft® Excel-based model to project trends in CVD mortality. National Health and Nutrition Examination Survey (NHANES) data was used to estimate population-level trends in CVD-related risk factors (e.g., smoking, diabetes, cholesterol, blood pressure). Cohorts of 1,000,000 individuals were generated and assigned characteristics based on risk factor projections. Microsimulations were performed to estimate the 10-year CVD risk for individuals using the Framingham Risk Score. Risk scores, calculated separately for men and women, were used to predict future CVD prevalence and mortality. Scenarios, differing by uptake of current therapies, pharmaceutical innovations with efficacy exceeding available alternatives, and risk factor prevention, were assessed to estimate the annual mortality rate from 2017-2040 given uncertainty. RESULTS: When incorporating a demographic shift, but assuming constant risk factors, current treatment utilization, and no major innovations, we predicted the CVD mortality rate would increase by ~12% over 2040. In order to decrease CVD mortality by 15% given projected changes in risk factors, innovative therapies that can provide incremental gain, equal to or greater than those associated with the introduction of statins will need to be identified and widely utilized. CONCLUSIONS: Although CVD is the leading area of direct healthcare costs with ~$200 billion spent in 2013, further investment is necessary to continue reducing the CVD burden. Increased access and adherence to current preventative therapeutics could slow the increase in mortality, but innovative therapies may be needed to maintain the downward trend in CVD deaths.

PCV30
EVALUATION OF PATIENTS’ KNOWLEDGE ON WARFARIN AND INR GOAL ATTAINMENT IN AN OUTPATIENT CLINIC OF A TERTIARY HOSPITAL IN NIGERIA
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OBJECTIVES: To assess the knowledge of patients receiving warfarin therapy in outpatient cardiology clinic using a validated and adapted Anticoagulation
Knowledge Assessment (AKA) questionnaire and examine the relationship between patients’ anticoagulation knowledge and INR control. METHODS: The study was a cross-sectional survey. Patients (n=70) enrolled at the outpatient clinic of the cardiology unit from July 2016-September 2016 were enrolled and asked to complete the AKA questionnaire upon voluntary consent. Determinants of AKA included INR goal range, and 5 INR values and the date of consent were manually extracted from patients’ record data. Passing score was defined as at least 12 correct responses out of 23- INR relevant AKA questions (53%). INR control was defined by 3 outcome measures: number of INR values within goal range in therapeutic range (TTR), and standard deviation (SD) of INR values. RESULTS: Of the 70 patients enrolled, 60 patients consented to participate (85.7%; females 45%; mean age: ± SD 60.07±7.75; with post-secondary education 28.3%). Most patients (n=50) had goal INR ranges of 2.0 to 3.0 (86.6%). Of the 60 patients who completed the questionnaire, 26 (43.3%) achieved the passing score (52%). There was no significant relationship between number of correct INR-relevant responses and INR control as defined by any of the 3 measures (count of INR values within range: OR= 0.70, P = 0.595; TTR ratio = 0.992, P = 0.595; and SD rho = 0.118, P = 0.371). CONCLUSIONS: Although 43.3% (n=26) achieved the passing score of 52%, there was no significant relationship between patients’ anticoagulation knowledge and INR control. Establishment of educational programs for patients on anticoagulation drugs are recommended for future studies.

PCV32
PREDICTORS OF STATIN UTILIZATION IN US PATIENTS WITH NON-FATAL PCV32 population of South Korea.

OBJECTIVES: To estimate the prevalence of statin utilization, as well as identify significant factors that may affect clinical outcomes, with a higher percentage of patients on warfarin and INR control. Establishment of educational programs for patients on anticoagulation drugs are recommended for future studies.

PCV33
PREVALENCE AND INCIDENCE OF ATHEROSCLEROTIC CARDIOVASCULAR DISEASE AND CARDIOVASCULAR RISK FACTORS IN SOUTH KOREA: A POPULATION-BASED STUDY

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OBJECTIVES: To estimate the prevalence and incidence of patients with athero-
sclerotic cardiovascular disease (ASCVD) or at high risk for ASCVD in Korea using a national population-based study. METHODS: We identified patients aged ≥ 18 years with ASCVD or with risk factors for ASCVD during 2013-2015 using the national claims data of Health Insurance Review and Assessment Service. ASCVD was defined as myocardial infarction (MI), angina (stable and unstable), cerebrovascular revascularization, peripheral artery disease (PAD), ischemic stroke, and transient ischemic attack (TIA). Cardiovascular risk factors, namely hypertension and diabetes mellitus, were also examined. Prevalence and cumulative incidence of ASCVD were reported per 1000 persons and further stratified by gender and age. Incident patients were those without history of or risk factors for ASCVD in the year prior to the first occurrence of ASCVD or any risk factor for ASCVD. RESULTS: Among South Korean adult patients, the overall prevalence of ASCVD increased with age until the age of 79 years, ranging from 105.62 and 64.58 in women v. 96.52 and 56.41 in men, respectively. The cumulative incidence of ASCVD per 1000 persons was higher in women than in men (113 and 206 per 1000 persons in 2015, respectively). CONCLUSIONS: The prevalence and incidence of ASCVD increased from 71.2% to 72% from 2011 to 2015. After adjusting for baseline, cardiovascular risk factors and coronary heart disease (CHD) changed over time; and 2) if the estimated attributable fraction (AF) of CHD due to modifiable risk factors changed post year 2000. METHODS: The study pooled individual patient-level data (n=28,081) from 5 observational cohort studies available in the NHLBI Biological Specimen and Data Repository Information Coordinating Center (BioLINCC). Data were obtained to allow for the calculation of 5-year incidence of cases. The improvement of HTN control is the target of introducing multidrug, fixed-dosed combinations (FDC) of complementary drugs. The aim of this study is to compare the efficacy of FDC versus extemporaneous combinations (EXT) on total mortality and cardiac mortality and morbidity in a real-life setting. METHODS: Longitudinal observational retrospective study in a Primary Care setting of the Comunidad Valenciana in Spain, that included 116,937 hypertensive patients treated with angiotensin 2 receptor blockers (ARB) and at least calcium channel blockers (CCB) or diuretics, either on EXT or FDC, during the years 2012 and 2013. RESULTS: The proportion of female gender was 53.2%, mean age was 66.3 ± 13.2 years. 35% of patients kept FDC throughout the study, 34% maintained EXT, 4% added, 3% switched to FDC, 7% switched to EXT, 4% added EXT, 13% kept both. Both strategies reduced BP, but systolic and diastolic reductions were significantly larger in the FDC group (4.3 vs. 3.5 mmHg y 2.2 vs. 1.8 mmHg, p < 0.0001), respectively, as was the proportion of controlled patients at follow-up (55.7 vs. 55.3%, p < 0.001).
PCV36
DEVELOPMENT AND VALIDATION OF A PREDICTION MODEL FOR RECURRENT CARDIOVASCULAR EVENTS AMONG PATIENTS WITH ASCVD IN THE US
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OBJECTIVES: Survival of patients with atherosclerotic cardiovascular disease (ASCVD) has increased; understanding the burden of subsequent events is important. Research is lacking regarding predictors of recurrent coronary risk. Our objective was to develop and validate a prediction model for recurrent CV events among patients with established ASCVD. METHODS: We conducted a retrospective cohort study using data from Truven Health MarketScan® Commercial Claims and Encounters. Adults (≥ 18 years) diagnosed with ASCVD (date with at least one LDL-C measurement in the 12 months prior to the index date) were included. Patients were followed for the occurrence of a subsequent CV event (myocardial infarction, stroke, hospitalization for unstable angina, stroke, or coronary revascularization), the end of enrollment, or the end of 12-months follow up. We used Cox proportional hazards regression to evaluate the predictive ability of clinical and laboratory risk factors and selected the model with the highest discrimination. Temporal validity was to evaluate the budget impact of introducing rivaroxaban in the management of AF, DVT, TKR and THR patients’ perspective. METHODS: An Excel-based budget impact model was developed. Model input parameters included: the prevalence of AF, DVT, TKR, and THR patients, the proportion of target patients receiving rivaroxaban, the efficacy and safety of treatment choices, cost data, and resultant health care utilization. Most of the variables were from literature, including the epidemiology data, efficacy, safety and cost data. Two different scenarios were applied assuming the willingness to pay, i.e.2-3 times GDP per capita in the top 100 cities in China. Results and cost savings were reported as year-2016 CNY. RESULTS: The largest cost savings associated was observed in TKR and THR patients to prevent DVT and PE (CNY 163.7 million and CNY 221.4 million in two scenarios). In DVT populations, the cost savings were also observed with CNY 47.9 million and CNY 63.7 million in two scenarios. While for AF populations, the budget would increase due to the pharmacy costs with additional CNY 74.0 million to CNY 149.0 million. The main drivers for cost savings include the avoided event costs, administration costs in AF and DVT population and the overall costs in TKR and THR patients. CONCLUSIONS: The budget impact analysis of the polypill in the public health sector does not represent a significant financial impact on the Mexican healthcare system’s budget.

PCV37
BUDGET IMPACT ANALYSIS OF DUAL ANTIPATELET THERAPY WITH COMBINATION OF TICAGRELOR AND ACETYLSALICYLIC ACID IN PATIENTS WITH ACUTE CORONARY SYNDROM WITH CORONARY BYPASS GRAFTING IN CONDITIONS OF RUSSIAN HEALTH CARE SYSTEM
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OBJECTIVES: To assess the budget impact of the use of ticagrelor combined with acetylsalicylic acid (ASA) in comparison with clopidogrel plus ASA in patients with acute coronary syndrome (ACS) managed with coronary artery bypass grafting (CABG) from societal perspective in Russia. METHODS: Clinical effectiveness of the therapeutic alternatives under evaluation was compared by subanalysis, which includes ACS patients, managed with CABG, from randomized controlled trial PLATO. Direct medical costs on antiplatelet therapy with ticagrelor plus ASA and original clopidogrel plus ASA during one year and management of patients dying from cardiovascular and other causes, as well as indirect expenses due to gross domestic product loss in case of premature death were included in the analysis. In budget impact model only for indirect cost discount rate 3% was applied. RESULTS: Both cost of one-year antiplatelet therapy (39.145 rubles per patient for ticagrelor plus ASA vs. 20.193 rubles for clopidogrel plus ASA) and direct medical expenses (4.624 rubles per patient for ticagrelor plus ASA vs. 32.088 rubles for clopidogrel plus ASA) were higher in case of therapy with ticagrelor plus ASA. Meantime, due to markedly lower total mortality (5.1% for ticagrelor plus ASA vs. 9.9% for clopidogrel plus ASA) indirect expenses (100.810 rubles per patient for ticagrelor plus ASA vs. 208.584 rubles for clopidogrel plus ASA) and total expenses (141.439 rubles per patient for ticagrelor plus ASA vs. 246.672 rubles for clopidogrel plus ASA) were lower for therapy with ticagrelor plus ASA. CONCLUSIONS: Despite higher medical expenses total cost of care for ACS patients managed with CABG in conditions of Russian health care system is lower in case of therapy with ticagrelor combined with ASA as compared to clopidogrel combined with ASA.

PCV38
BUDGET IMPACT ANALYSIS OF RIVAROXOBAN IN CHINA
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OBJECTIVES: Rivaroxaban is the only new oral anticoagulant with three indications approved in China to reduce the risk of stroke among people with non-valvular atrial fibrillation (NVAF), treat deep vein thrombosis (DVT), and prevent Venous thromboembolism (VTE) after total knee or hip replacement surgery (TKR or THR). METHODS: The objective of this trial was to compare the safety and efficacy of rivaroxaban with treatment as usual in the management of NVAF, DVT, TKR and THR patients’ perspective. METHODS: An Excel-based budget impact model was developed. Model input parameters included: the prevalence of NVAF, DVT, TKR, and THR patients; the proportion of target patients receiving rivaroxaban; the efficacy and safety of treatment choices, cost data, and resultant health care utilization. Most of the variables were from literature, including the epidemiology data, efficacy, safety and cost data. Two different scenarios were applied assuming the willingness to pay, i.e.2-3 times GDP per capita in the top 100 cities in China. Costs and cost savings were reported as year-2016 CNY. RESULTS: The largest cost savings associated was observed in TKR and THR patients to prevent DVT and PE (CNY 163.7 million and CNY 221.4 million in two scenarios). In DVT populations, the cost savings were also observed with CNY 47.9 million and CNY 63.7 million in two scenarios. While for AF populations, the budget would increase due to the pharmacy costs with additional CNY 74.0 million to CNY 149.0 million. The main drivers for cost savings include the avoided event costs, administration costs in AF and DVT population and the overall costs in TKR and THR patients. CONCLUSIONS: The budget impact analysis of the polypill in the public health sector does not represent a significant financial impact on the Mexican healthcare system’s budget.

PCV39
BUDGET IMPACT ANALYSIS OF ACETYLSALICYLIC ACID 100MG, SIMVASTATIN 40 MG AND RAMIPRIL 5-10 MG (SINCRONIUM®) FOR THE SECONDARY PREVENTION OF CARDIOVASCULAR EVENTS IN MEXICO
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OBJECTIVES: To assess the financial impact of the introduction of AAS 100 mg, simvastatin 40 mg and ramipril 5-10 mg (Sincronium®) in the secondary prevention of cardiovascular events in adults with a recent or not recent history of acute myocardial infarction (MI), from the perspective of the Mexican Healthcare System. METHODS: Two scenarios were used, the current one, a reference scenario with the single-components (AAS 100 mg, simvastatin 40 mg and ramipril 5-10 mg) was compared against future scenario, using polypill (Sincronium®), assuming an initial penetration rate of 5% and annual increases of 10%, considering a time horizon of 5 years (2016 to 2020). Direct medical costs, as they are drugs administration, acute event and chronic events were considered. The target population was calculated based on the incidence of acute myocardial infarction in persons 40 years old and over, as well as the mortality of this event. The costs and results are presented in United States Dollar (USD, 2016) the epidemiological data and unit costs were obtained from country’s institutional sources (Mexico) and the literature. RESULTS: The average annual cost per patient was $485.84 USD for treatment with the single-component and treatment with the polypill (Sincro- nium®) was $851.00 USD. Based on the penetration rate, the time horizon and the estimated population (101,347 in 2016, 180,220 in 2017, 242,212 in 2018, 291,509 in 2019 and 331,237 in 2020) there is an additional average consumption of $355,172.95 USD with the polypill allocated to secondary prevention. CONCLUSIONS: The introduction of the polypill in the public health sector does not represent a significant financial impact on the Mexican healthcare system’s budget.
PCV41

COSTS AND CONSEQUENCES OF LACK OF ADHERENCE TO PRESCRIBING GUIDELINES: A NATIONAL STUDY OF ELDERS IN THE UK: A VALUE OF IMPLEMENTATION ANALYSIS
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OBJECTIVES: To assess the health consequences and costs of lack of adherence to National Institute for Health and Care Excellence (NICE) guidelines on the prescribing of statins for the primary prevention of cardiovascular disease in the United Kingdom. METHODS: Value of implementation methods are applied to contemporary data (QALYs) lost and net monetary benefit lost due to the lack of adherence to NICE guidelines using data on current prescribing patterns of statins in the UK and data on the size of the total population currently recommended to receive statins by NICE guidelines. The study considered the value of implementing a program of statin prescribing in patients currently recommended to receive statins and the costs of over prescribing statins to patients currently not recommended to receive statins by current guidelines. RESULTS: The under-prescribing of statins in patients recommended to receive statins is substantial with substantial consequences in terms of QALYs. The net monetary value of these lost QALYs is in excess of £101 million and £128 million per annum, with uncertain benefits in terms of cardiovascular events prevented and uncertain cost-effectiveness. CONCLUSIONS: Lack of adherence to NICE guidelines on the prescribing of statins for the primary prevention of cardiovascular disease has significant consequences both in terms of health and NHS budgets. There is considerable value to be had from programs aimed at encouraging greater adherence to NICE guidelines on the prescribing of statins.

PCV42

THE HOSPITAL BURDEN OF MAJOR AMPUTATION DUE TO PERIPHERAL ARTERY DISEASE IN THE UNITED STATES
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OBJECTIVES: This study uses data from hospitals across the United States to estimate the prevalence of peripheral artery disease (PAD) among inpatient hospitalizations and to explore the clinical and economic burden to the hospital when treating patients with advanced PAD with either revascularization or amputation. METHODS: Data was derived from the MedAssets health system database containing the 100 hospitals with the highest volume of inpatient hospitalizations for the years 2010-2014. The goal was to be eligible for inclusion, inpatient hospitalizations required a diagnosis of PAD and a record of an intervention (revascularization or major/minor amputation). Adverse events such as bleeding, death, and pulmonary complications were calculated by intervention for all PAD patients and a subset of patients with a primary PAD diagnosis. RESULTS: Of the over 17 million inpatient hospitalizations in the database, 616,401 (3.5%) have a diagnosis of PAD, with 95,561 (15.5%) having a record of an intervention. Of these visits, 48,073 (50.3%) had a primary diagnosis of PAD with 35,220 (73.3%) having a revascularization alone, 8,955 (18.6%) having a major/minor amputation alone and 3,897 (8.1%) having both. Rates of sepsis or other infections (5.8%) and pulmonary complications (10.6%) were significantly higher for patients having a major amputation alone versus revascularization alone. Average hospital reimbursement per diem estimates were significantly lower for the major amputation cohort versus the revascularization cohort ($2,380 vs $4,399). This is driven by LOS which is almost 2X higher for major amputation versus revascularization (11.0 vs 5.9 days). CONCLUSIONS: PAD affects a significant number of inpatient admissions with a substantial hospital burden due to complications and length of stays. Hospital limb salvage programs that include revascularization procedures/algorithms may reduce this burden while providing cost savings to the hospital.

PCV43

RISK OF MAJOR AMPUTATION OR DEATH AMONG PERIPHERAL ARTERY DISEASE PATIENTS WITH CRITICAL LIMB ISCHEMIA ACROSS TREATMENT PATHWAYS
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OBJECTIVES: The most advanced form of peripheral artery disease (PAD) is critical limb ischemia (CLI), defined as chronic ischemic rest pain, ulcers, or gangrene attributable to arterial occlusive disease. This research estimates the risk of major amputation or inpatient death by treatment pathway for patients with CLI. For those patients who undergo a major amputation the incremental cost Utilities per member per month (PMPM) were estimated. METHODS: Data from MarketScan Commercial and Medicare Supplemental Databases from January 2006-December 2014 was utilized. Eligible patients required at least 2 visits—one with an ICD-9 diagnosis of PAD, and at least one session with a billing code for major amputation. A large hypothetical cohort of 100 PAD-CLI patients with moderate-to-severe calcified below-the-knee lesions undergoing an endovascular revascularization. Clinical (gen-opeaner and one-year complications) and healthcare utilization (OAS device, balloon(s), and bailout bare metal stenting) data were obtained primarily from the CALCIMUS 360 trial and supplemented with a best evidence review of the published literature (BA arm only). Eligible studies were pooled and parameters were weighted by sample size. Cost data (2016 dollars) were obtained from 2014 HCUP and published evidence. Incremental cost to the hospital for performing OAS+B vs BA was computed by summing cost differences corresponding to differential utilization during the procedure and treating peri- and post-operative complications. One-way, scenario (a composite one-year major adverse event) and probabilistic sensitivity analyses were performed to gauge the model robustness. RESULTS: For every 100 revascularizations, the incremental costs to the hospital at one-year were $467,355 lower with OAS+B compared to BA alone. These savings reflected a reduced need for revascularization in the target lesion (TLR) and/or vessel (TVR) and, amputation, and lower end-of-life care costs, despite higher technology costs upfront. One-way SA demonstrated that the model was most sensitive to: amputation rates and its costs, OAS device cost, TLR/TVR frequency and its costs, and one-year mortality and end-of-life care (Costs Per-Discharged Patient). Compared to stand-alone BA, OAS+B-$56,657 to be associated with cost savings of $46,747 per patient-year to a hospital/health system. SA determined that the superior economic value of OAS+B was robust to the specified parameter value ranges.

PCV44

EVALUATION OF HEALTHCARE COSTS OF ELDERLY NONVALVULAR ATRIAL FIBRILLATION PATIENTS TREATED WITH APAIXABAN VS. RIVAROXABAN AND DABIGATRAN
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OBJECTIVES: The burden of nonvalvular atrial fibrillation (NVAF) is expected to double in the near future, with significant increases in hospitalizations and healthcare costs. We evaluated healthcare costs among elderly NVAF patients after initiating treatment with apixaban vs. rivaroxaban and dabigatran. METHODS: Patients with Medicare coverage initiating apixaban, rivaroxaban or dabigatran (index event) were identified from the Humana database (1/1/2013-9/30/2015). Patients required to be 65 years or older and have 12 or more months of continuous health plan enrollment prior to the index event date. NVAF patients were grouped into cohorts depending on the drug initiated. Patient characteristics were evaluated during the baseline period. Propensity score matching (PSM) was conducted for differences in baseline characteristics of study cohorts. All-cause and major bleeding (MB)-related healthcare costs during the follow-up periods were evaluated and compared between cohorts. RESULTS: After PSM, 13,620 patients treated with apixaban and rivaroxaban were matched with 6,810 in each cohort. During the follow-up, apixaban vs. rivaroxaban treatment was associated with lower all-cause total healthcare costs (patient+outpatient+prescription: $22,146 vs $26,803 per patient-per-year, p<0.001), total medical costs (inpatient-costs: $17,701 vs $22,445 PFPY, p<0.001), and MB-related total medical costs ($2,030 vs $3,422 PFPY, p<0.001). After PSM, 6,454 patients treated with apixaban and dabigatran were matched with 3,272 in each cohort. No major differences in patient characteristics were found with apixaban vs. dabigatran-all cause total healthcare costs ($21,616 vs $23,758, p=0.12) were not significantly different, but all-cause total medical costs ($16,413 vs $19,218 PFPY, p=0.04) were significantly lower for patients treated with apixaban vs. dabigatran. CONCLUSIONS: In the real-world setting after initiating treatment, healthcare costs for all causes and those that are MB-related were lower for elderly NVAF patients who received apixaban vs. rivaroxaban. Medical costs for all causes were also lower for patients who received apixaban vs. dabigatran.

PCV45

AN INCREMENTAL COST ANALYSIS OF ORTHOPAEDIC THERAPY TO COMBINED ANGIOPLASTY FOR THE TREATMENT OF CRITICAL LIMB ISCHEMIA
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OBJECTIVES: To perform an incremental cost analysis of Diamondbac 360 peripheral orbital atherectomy system (OAS) in conjunction with balloon angioplasty (BA) compared to BA alone for the treatment of critical limb ischemia (CLI) in peripheral artery disease (PAD) patients from a US hospital perspective. METHODS: A deterministic decision tree simulation model was constructed for a hypothetical cohort of 100 PAD-CLI patients with moderate-to-severely calcified below-the-knee lesions undergoing an endovascular revascularization. Clinical (gen-opeaner and one-year complications) and healthcare utilization (OAS device, balloon(s), and bailout bare metal stenting) data were obtained primarily from the CALCIMUS 360 trial and supplemented with a best evidence review of the published literature (BA arm only). Eligible studies were pooled and parameters were weighted by sample size. Cost data (2016 dollars) were obtained from 2014 HCUP and published evidence. Incremental cost to the hospital for performing OAS+B vs BA was computed by summing cost differences corresponding to differential utilization during the procedure and treating peri- and post-operative complications. One-way, scenario (a composite one-year major adverse event) and probabilistic sensitivity analyses (SA) were performed to gauge the model robustness. RESULTS: For every 100 revascularizations, the incremental costs to the hospital at one-year were $467,355 lower with OAS+B compared to BA alone. These savings reflected a reduced need for revascularization in the target lesion (TLR) and/or vessel (TVR) and, amputation, and lower end-of-life care costs, despite higher technology costs upfront. One-way SA demonstrated that the model was most sensitive to: amputation rates and its costs, OAS device cost, TLR/TVR frequency and its costs, and one-year mortality and end-of-life care (Costs Per-Discharged Patient). Compared to stand-alone BA, OAS+B-$56,657 to be associated with cost savings of $46,747 per patient-year to a hospital/health system. SA determined that the superior economic value of OAS+B was robust to the specified parameter value ranges.

PCV46
COMPARISON OF ALL-CAUSE HEALTHCARE RESOURCE UTILIZATION (HCRU) AND
COSTS AMONG PATIENTS WITH NON-VALVULAR ATRIAL FIBRILLATION (NVAF),
NEWLY TREATED WITH NEW ORAL ANTI-COAGULANTS (NOACS)
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Wilson K5, Smith DM6, Sander S2
1
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OBJECTIVES: Among NVAF patients, compare all-cause cost and healthcare
resource utilization (HCRU) between dabigatran and apixaban, and dabigatran
and rivaroxaban. METHODS: Adult NVAF patients newly diagnosed and treated
with dabigatran, apixaban or rivaroxaban during 10/01/2010-12/31/2014 were
identiﬁed using MarketScan claims databases. Patients were continuously
enrolled for 12-months prior to index date (ﬁrst NOAC claim) and were followed
from index until medication switch, discontinuation, inpatient death or end of
continuous enrollment or study period. Dabigatran patients were matched to
apixaban and rivaroxaban patients and two 1:1 propensity score matched groups
were created. Per-patient-per-month (pppm) HCRU and costs were reported.
Generalized linear models compared total, inpatient, outpatient, and pharmacy
costs within each group. RESULTS: A total of 26,646 and 8,857 dabigatran patients
were matched to rivaroxaban and apixaban patients, respectively (mean age 68
years; 37% female in each matched group). Compared with rivaroxaban, dabigatran patients had signiﬁcantly lower mean all-cause, pppm total healthcare,
inpatient, and pharmacy costs ($4,147 vs. $4,559; $1,484 vs. $1,812; and $630 vs.
$644, respectively, all Po0.05) and signiﬁcantly fewer hospitalizations (0.06 vs.
0.07), outpatient visits (4.81 vs. 4.95), and pharmacy claims (4.77 vs. 4.91) (all
Po0.01). Compared with apixaban, dabigatran patients had similar mean, allcause, pppm total healthcare, inpatient, outpatient, and pharmacy costs ($3,849
vs. $3,807; $1,225 vs. $1,198; $1,953 vs. $1,930 and $671 vs. $678, respectively, all
P40.05) and, similar hospitalizations (0.05 vs. 0.05, p¼0.097) but signiﬁcantly
higher outpatient visits (4.68 vs. 4.24) and pharmacy claims (4.79 vs. 4.57), (both
Po0.01). Multivariate analyses demonstrated dabigatran had signiﬁcantly lower
total, inpatient, and outpatient costs than rivaroxaban and similar costs (across
all categories) as apixaban patients. CONCLUSIONS: Dabigatran had signiﬁcantly
lower total costs and HCRU than rivaroxaban patients. Total costs were similar
between dabigatran and apixaban. Dabigatran had more outpatient and pharmacy
HCRU than apixaban but similar hospitalizations, the main driver of costs.
PCV47
PREVALENCE OF PATIENTS WITH PERIPHERAL AND CORONARY ARTERY
DISEASE
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OBJECTIVES: Peripheral artery disease (PAD) is similar to coronary artery disease
(CAD) in that they are both caused by atherosclerosis that narrows and blocks
arteries in various critical regions of the body. An advanced form of PAD and CAD
is the development of calciﬁed lesions which are typically seen in the critical limb
ischemia (CLI) and in complex CAD. This research uses real-world payer data to
understand the prevalence of CLI and coronary artery calciﬁcation (CAC) in both
the PAD and CAD populations. METHODS: Data for this study were derived from
the MarketScan Commercial Database and the Medicare Supplemental and
Coordination of Beneﬁts Database from January 2006 - December 2014. Patients
were eligible if they had a diagnosis of either PAD or CAD. Patients were
categorized into the following cohorts based on their treatment pathway: [1]
PAD only (with and without CLI), [2] CAD only (with and without CAC), or [3] PAD
and CAD (with CLI only, with CAC only, with both, with none). RESULTS: A total of
6,981,758 patients met the inclusion criteria: 1,375,601 (20%) had PAD only,
4,429,217 (63%) had CAD only, and 1,176,940 (17%) had both PAD and CAD. Of
the PAD only patients, 130,938 (10%) had a diagnosis of CLI. Of the CAD only
patients, 180,740 (4%) had a diagnosis of CAC. For patients with both PAD and
CAD, 881,626 (75%) had no record of calciﬁcation, 134,585 (11%) had CLI only,
126,716 (11%) had CAC only, and 34,013 (3%) had both CLI and CAC. CONCLUSIONS: This study found that a signiﬁcant number of patients have PAD and CAD.
Calciﬁcation in these patients is also a signiﬁcant occurrence; therefore, testing
for CLI and CAC should be performed.
PCV48
ATHERECTOMY UTILIZATION SHOWS LOWER ODDS OF ADVERSE EVENTS
DURING OUTPATIENT PERCUTANEOUS CORONARY INTERVENTIONS COMPARED
TO ANGIOPLASTY ALONE
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OBJECTIVES: An indicator of advanced coronary artery disease (CAD) is the
presence of coronary artery calciﬁcation (CAC). Current treatment for CAC is
revascularization via percutaneous coronary intervention (PCI). However, PCI in
severely calciﬁed lesions is associated with higher angiographic complications
and major adverse cardiac event (MACE) rates, as well as lower procedural success
in placing a stent when compared to non-calciﬁed lesions. METHODS: Data were
derived from the MarketScan Commercial and Medicare Supplemental Databases

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from October 2011 - December 2014. Eligible patients had a record of an outpatient
PCI and at least one claim with an ICD-9 diagnosis of CAC or a record of the
following three risk factors [Diabetes, Renal insufﬁciency or Failure, and Z70 of
age] along with their diagnosis code of CAD. Patients with evidence of multiple PCI
procedures were excluded. Comparisons were made between patients having
outpatient angioplasty compared to atherectomy alone. Patients were followed for
90-days with adverse events and total expenditures tracked. Multivariable models
were adjusted for differences in patient demographics and comorbid conditions. RESULTS: 1,358 patients met all inclusion criteria [angioplasty alone
(N¼1,009) and atherectomy (N¼349)]. Patients treated with outpatient angioplasty
alone had a 1.69 [CI: 1.26, 2.27] higher odds of having an adverse event within 90days compared to patients treated with atherectomy for vessel preparation. After
model adjustments, no statistically signiﬁcant differences in ‘all cause’ expenditures at 90 days were found. CONCLUSIONS: This study of a national payer
database found that CAC patients treated with angioplasty alone have a higher
risk for an adverse event during outpatient PCI compared to those with atherectomy treatment prior to angioplasty and stent placement. Furthermore, despite
the additional added device for vessel preparation, expenditures were no different
at 90 days post procedure.
PCV49
ECONOMIC BURDEN OF HOSPITALIZATION FOR CONGESTIVE HEART FAILURE
AMONG ADULTS AGED 4 19 YEARS OLD IN THE PHILIPPINES
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1
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OBJECTIVES: 1) To determine the hospitalization costs (healthcare and nonhealthcare costs) for congestive heart failure (CHF) using the societal perspective;
2) To compare the healthcare-related hospitalization cost using the societal
perspective with the payer’s perspective – PhilHealth’s case rate payment for
CHF; 3) To determine the total economic burden of CHF hospitalization in the
Philippines in 2014. METHODS: This is a cost of illness study. The hospitalization
cost (usually incurred through out-of-pocket expenses in the Philippines) included
cost of diagnostic procedures, treatment, professional fees and hospital charges.
The non-healthcare costs included production losses as well as transportation
and food expenses incurred by the patient or his caretaker during conﬁnement or
both. RESULTS: The overall mean healthcare-related cost for CHF hospitalization
in government hospitals in the Philippines in 2014 was PHP19,340 – 28,220 (US$436
- 636). In private hospitals, the cost ranged from PHP28,370 – 41,800 (US$639 – 941).
In comparison, PhilHealth’s case rate payment for CHF is PHP15,700 (US$354). The
mean non-healthcare cost, on the other hand, was PHP10,700 - PHP14,600 (US$241
- 329). Using PhilHealth’s case rate payment and the total number of CHF cases in
2014, the total economic burden was PHP691,522,200 (US$15,574,824). In contrast,
calculation using the study results on healthcare-related cost only showed that
the total economic burden for CHF hospitalization would be PHP851,850,000 –
1,841,563,000 (US$19,185,811 – 41,476,644). CONCLUSIONS: Using the societal
perspective, the mean healthcare-related hospitalization cost for CHF in the
Philippines in 2014 was about 23% - 80% more than the PhilHealth’s case rate
payment if one was conﬁned in a government hospital. However, this cost was
underestimated since government hospitals defray some of the hospitalization
cost, exempliﬁed by the low charges (or nil) for room/ward accommodations.
Conﬁnement in a private hospital resulted to 1.8 - 2.7 times higher hospitalization
cost than the case rate payment.
PCV50
COMPARISON OF THE REVENUE AND HEALTH OUTCOME BENEFITS OF TWO
TYPES OF HEARTWORM PREVENTATIVES IN DOGS: LONG-LASTING MOXIDECTIN
INJECTABLE VERSUS MONTHLY ORAL PREVENTION
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1

OBJECTIVES: The objective of this study was to compare revenue and health
outcome beneﬁts associated with two canine heartworm prevention (HWP)
modalities: long-acting moxidectin (LAM) injection and oral monthly HWP. LAM
is given in the veterinary clinic every 6 months, while oral monthly HWP is
purchased by the pet owner from the clinic and given at home each month. METHODS: In 2014, a retrospective 5 year (2009-2014) records analysis was conducted at
18 veterinary practices to determine the health and revenue beneﬁts of the second
LAM injection (which occurs 5-7 months after the annual wellness visit). One
thousand six hundred twenty-six invoices for 918 dogs met the study review
criteria. In 2016, we conducted a similar analysis at 9 of the 18 practices for dogs
on oral monthly HWP. In this study, 1,177 invoices for 396 dogs met the review
criteria. RESULTS: The second LAM visit allowed the veterinarian to evaluate dog
health for a second time in a single year. This resulted in identiﬁcation of more
health issues (22%) than those diagnosed at the annual wellness visit (10%) or the
monthly HWP return visit (4%) 5-7 months later. Practice revenue was higher for
the second LAM visit than for monthly HWP, with an average invoice of $121.13
for LAM compared with $56.41 for monthly HWP. Finally, the average cost of LAM
($45.96) was less than the average cost of 6 months’ worth of monthly HWP
($54.06). CONCLUSIONS: The second LAM visit identiﬁed more health issues than
the comparable return visit for dogs on monthly HWP and delivered nearly $65


more clinic revenue. Economic projections for an average veterinary clinic with 3,000 - 5,000 dogs showed that if 25% received LAM for HWP, the clinic would generate $48,700 - $81,250 additional revenue per year.

PCV51 EFFECTIVENESS AND ECONOMIC EFFICIENCY OF THE TREATMENT OF CORONARY HEART DISEASE WITH SALVIANOLATE INJECTION: A RETROSPECTIVE COHORT STUDY

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OBJECTIVES: To examine the effectiveness and economic efficiency of the treatment of coronary heart disease with salvianolate injection. METHODS: We retrospectively analyzed patients with coronary heart disease admitted to our hospital with diagnoses from August 2011 to December 2015 by using electronic medical record database. Patients who received salvianolate injection combined with conventional treatments were selected as the exposed group. RESULTS: A total of 61,719 inpatient visits met inclusion criteria: 56,209 with HF only and 5,510 with HF and CKD. Both cohorts experienced the same average LOS (4.43 days) with average costs ($8,727 vs $9,488) and mortality rates (1.9% vs 2.1%) being slightly lower for those patients with HF, CKD, and history of stroke. CONCLUSIONS: Inpatient admissions for HF patients with CKD and history of stroke have higher rates of comorbidities and more chronic conditions than those with HF only, however, despite this LOS is the same and mortality/costs appear lower. This data will be further explored with multivariable analysis.

PCV54 INDIRECT, DIRECT NON-MEDICAL COST AND QOL BY NEW YORK HEART ASSOCIATION (NYHA) CLASSIFICATION IN CHINESE HEART FAILURE PATIENTS

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OBJECTIVES: Heart failure (HF) is a disease with high morbidity and mortality that leads to loss of productivity, caregiver burden and negative impact on patients’ quality of life. There is very limited data to examine the burden other than direct medical cost of HF in China. This study aims to evaluate the indirect cost, direct medical cost and quality of life by NYHA classification in Chinese HF population by with real-world data from societal perspective. METHODS: This study was conducted via patient surveys collected from the cardiology/cardiac surgery departments of 6 tier III hospitals in four major cities in China. Adult patients who previously had HF diagnosis were included and had NYHA classification information were selected to interview. Indirect cost examines the patients and their caregivers’ salary loss due to work absence and cessation, and reduces productivity due to HF. Direct medical cost includes hospitalization, accommodation and meals associated with HF treatment. Patient quality of life was examined using health utility value measured by EQ-5D-5L. RESULTS: A total of 150 HF patients were interviewed. The mean ± SD age was 66.60 ± 14.14 years. The mean and annual indirect cost and annual direct non-medical cost was at 24,783CNY and 2,454CNY respectively, with no significant difference between NYHA classes (ANOVA test: P > 0.05). The mean health utility value for Chinese HF patients was estimated at 0.725 by EQ-5D-5L, and significant difference were observed by NYHA classification of I, II-III, III-IV and IV at 0.723, 0.78, 0.78, 0.715, 0.636, 0.66 (ANOVA test: P < 0.05), respectively. CONCLUSIONS: Both indirect cost and direct non-medical cost increased significantly with NYHA classification in Chinese HF patients. Patients’ quality of life is significantly lower than that of older Chinese population over 60 years with a minimum health utility 0.79 and a maximum health utility 0.89 by EQ-5D-5L.

PCV55 COMORBIDITY STATUS AND MEDICAL EXPENDITURES IN U.S. HYPERTENSIVE ADULTS

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OBJECTIVES: To investigate comorbidity status and its impact on medical expenditures in U.S. hypertensive adults. METHODS: We pooled the 2011-2014 Medical Expenditure Panel Survey data for this analysis. Patients were included if they: 1) had a diagnosis code for hypertension; 2) were aged ≥ 18 years; and 3) were not pregnant during the study period (N = 26,049). We modified the Elixhauser Comorbidity Index (EI) to better analyze the impact of hypertension-related comorbidities on medical expenditures. The dependent variable, medical expenditures paid by all payers. Generalized linear model with a log link and gamma distribution were used for the estimations. All costs were adjusted to the 2014 U.S. dollars. RESULTS: Based on the modified EI, 14.7% of patients did not have any comorbid condition, 24.2% had one, 30.8% had two, 17.3% had three, and 36.6% had ≥ 3 conditions. The 10 most frequent comorbidities were hyperlipidemia (55.9%), diabetes (27.3%), rheumatoid arthritis (26.8%), depression (24.9%), chronic pulmonary disease (16.9%), coronary heart disease (CHD) (16.7%), hypothyroidism (12.5%), solid tumor (6.1%), heart rhythm disorders (6.0%), and stroke (4.7%). Medical expenditures were $4,236 (95% confidence interval, $3,788-$4,684) for those without any of this condition, $6,361 ($5,207-$7,494) for those with 1, $8,185 ($7,226-$8,955), for those with 2, and $14,601 ($13,781-$15,420) for those with ≥ 3 of the 10 most frequent comorbidities. The condition with the largest impact on medical expenditures was stroke ($6,474), while rheumatoid arthritis ($4,070) had the smallest impact. Hypertension, diabetes, depression, CHD, and heart rhythm disorders increased expenditures by $5,079, $5,288, $5,175, $6,461, and $5,447, respectively. CONCLUSIONS: Comorbidities were highly prevalent among hypertensive adults, and each condition substantially increased the medical expenditures. These findings illustrate the importance of the impact of comorbid conditions and can be used to help develop and evaluate interventions for hypertension prevention and control.

PCV56 FACTORS IMPACTING HOSPITALIZATION EXPENDITURE OF MYOCARDIAL INFARCTION PATIENTS IN BEIJING, CHINA

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OBJECTIVES: To identify factors impacting the hospitalization expenditure of myocardial infarction (MI) patients in Beijing, China from January 2012 to September 2013. METHODS: The Beijing Medical Insurance Database has
PCV57

COST OF HEART FAILURE IN ARGENTINA: A CROSS SECTONAL STUDY

Higuchi K, Lakdawalla D

OBJECTIVES: Costs of a large series of HF patients of a hospital utilization and cost study (Value in Health 2013;16:A70), were analyzed, stratified by age, sex, multi-morbidity (M), length of stay at hand hospitalization, and independent variables were the other evaluated by linear regression. A nationwide study was conducted, in which the dependent variable was the logarithm of annualized hospitalization expenditure and independent variables were the other.

RESULTS: ADECRA/CEDIM, SHIDP cost study permitted to obtain costs and monetary units distort cost and transferability in Argentina. METHODS: In a multicentric 3 hospital Heart Care Cost and Utilization Study, a cross sectional (1 year) study was conducted selecting HF patients with Clinical Classification Software for Argentina (CCS #108) in 2008, in first (1dx) or secondary (2dx) diagnosis. HF prevalence, stratified by age, sex, multi-morbidity (MM), measured with the Chronic Condition Indicator (CCI) and mortality, HF in 2dx, and <30 day readmissions (<30 d ReH). Total costs (TC), per discharge costs (median, mean), analyzed. Current monetary values used ACECRA/CEDIM, SHIDP, 2015 medical study costs (up to 2015). International Dollar ($) conversion PPP, used QUANDL $PPP (conversion rate to $PPP is 6.604, year 2015). Mean 95% CI were estimated with bootstrapping. RESULTS: 1187 HF CCS #108 in 1dx discharges is a TCB of $38 272 825 ($1.57, of TCB), 69.0% occurs among pts. age >65 yrs old (and 24.6% >85 yrs). ReH rate was 32 243 $PPP ($957CI 27 524, 37 347) and median cost 7 829 $PPP for HF in 1dx (66.0 0.028 time procedures (ICU care = 1.744 days), 26 days were noticed (17.6%) during the same period. Differences in total and daily costs of ICU, in the rates of permanency and mortality were detected among the five stakeholders health care providers. CONCLUSIONS: The difference in hospitalization costs for the Myocardial Infarction, within the Public Health System of Curitiba, was shown to be a cost-effectiveness variable that may affect the managers’ decisions regarding use and allocation.

PCV60

PCSK9 INHIBITORS SHOW VALUE FOR PATIENTS AND THE U.S. HEALTHCARE SYSTEM

Cheng W, Gaudette E, Goldman D

OBJECTIVES: Proprotein convertase subtilisin/kexin type 9 (PCSK9) inhibitors were approved by the U.S. Food and Drug Administration (FDA) as cholesterol-lowering therapies for persons with familial hypercholesterolemia or atherosclerotic cardiovascular disease. However, the long-term cost-effectiveness of these PCSK9 inhibitors is not clear. This study was designed to estimate the long-term health impact and economic value of PCSK9 inhibitors for older Americans (aged 51 and older). METHODS: We conducted simulations using the Future Elderly Model (FEM), an established dynamic microsimulation model, to project the lifetime outcomes for the population aged 51+ in the United States. Health effects estimates and confidence intervals from published meta-analysis studies were used to project changes in life expectancy, quality-adjusted life-years, incidence of heart disease and lifetime medical spending resulting from use of PCSK9 inhibitors. We consider two treatment-eligibility criteria: 1) current FDA eligibility, and 2) an extended eligibility that includes persons with no pre-existing cardiovascular disease (CVD) but with high-CVD risks. RESULTS: Utilization of PCSK9 inhibitors by individuals covered by the current FDA approval would extend life-expectancy at age 51 by an estimated 1.2 years, and yield a lifetime net value of $11,100 per capita. We estimate that PCSK9 inhibitors would generate a lifetime net benefit of $21,000 per capita if utilization were extended to those with high-CVD risk. Looking only at the population covered by current FDA approval over the next 20 years, PCSK9 inhibitors would generate cumulative net value of $0.96 trillion. CONCLUSIONS: Our study suggests that PCSK9 inhibitors would offer positive long-term net value for patients and the U.S. healthcare system. In addition to current FDA-approved indications, our study also suggests greater value if more people gain access to this new class of drugs.

PCV61

COST-EFFECTIVENESS ANALYSIS OF DABIGATRAN VERSUS RIVAROXABAN FOR NON-VULVARAT ATRIAL FIBRILLATION USING REAL-WORLD EVIDENCE IN MEDICARE BENEFICIARIES

Peng S, Deger K, Ustyugova AV, Gandhi P, Qiao N, Wang C, Kansal A

OBJECTIVES: To assess the cost-effectiveness of dabigatran 150 mg twice-daily versus rivaroxaban 20 mg once-daily for the treatment of patients with non-valvular atrial fibrillation (NVAF) based on real-world evidence in the United States Medicare population. METHODS: A previously published Markov model, which followed patients with NVAF at risk of thromboembolic stroke, intracranial hemorrhage, major extracranial bleeding, and acute myocardial infarction through the natural course of disease, was used to enable the cost-effectiveness evaluation of dabigatran versus rivaroxaban from a US payer perspective. RMs of events were estimated based on a study in Medicare beneficiaries which demonstrated significantly fewer bleeding events associated with dabigatran compared to rivaroxaban. In the base-case, treatment persistence was based on a published US study in a population with commercial insurance. Given differences on the populations considered, a scenario analysis estimated effects of equal persistence. Utility and cost inputs were extracted from published literature or estimated from nationally representative data (REDBOOK, CMS
costing files, and AHRQ-MEPS). All costs were adjusted to 2016 US dollars. Outcomes were discounted at 3%. Scenario and probabilistic sensitivity analyses (PSA) were conducted to robustly assess the results. **RESULTS:** For a 5-year time horizon, dabigatran incurred $1,848 in total costs and 3.341 quality-adjusted life-years (QALYs) per patient, compared to $1,642 for no prophylaxis and 3.339 QALYs per patient. **CONCLUSIONS:** Delaying treatment access to alirocumab was associated with a significant proportional increase in CV events of 11% to 47%.

**PCV63**

**OBJECTIVES:** A retrospective analysis of EHR data for 2.673 million commercial insured patients with elevated LDL-C who met AHA/ACC criteria for and were treated with statins. Evidence-based CDS recommended most effective/least effective statin drug-dose combinations to reach goal LDL-C for each individual. Likelihood of subsequent CVE for patients receiving recommended most effective/least effective drug-dose combinations were compared to results of published medical research. Agent-based and Monte Carlo simulation were used to extrapolate CVEs and subsequent cost of care over a ten-year period for 20,000 treatment runs. For 10,000 simulation runs, costs were calculated for patients based on national averages for provider reimbursement and patient copayments and deductibles. **RESULTS:** Wide variance in the efficacy of statin therapy was observed. The proportion of patients achieving goal LDL-C levels increased from 14% to 42%. Drug-dose combinations can help practitioners identify the most clinically- and cost-effectively pharmacological interventions.

**PCV64**

**OBJECTIVES:** The main objective of the current study is to assess the cost-effectiveness of Rosuvastatin and Atorvastatin in cardiovascular diseases and stroke in Telangana region of India: A Cost effectiveness Analysis

**PCV65**

**OBJECTIVES:** The objective of this analysis was to demonstrate the clinical and economic value of LDL lowering with evolocumab (a PCSK9i) on CV event risk.

**METHODS:** A Markov cohort model with annual cycles support (CDS) of statin therapy on achieving goal LDL-cholesterol (LDL-C) levels and the effect on athero-atherosclerotic cardiovascular events (CVEs) and healthcare costs.

**RESULTS:** Four high CV risk cohorts were modeled: 1) HeFH with ASCVD and LDL-C >130 mg/dl, 2) recent ACS (0-1 year) with LDL-C >70 mg/dl, 3) ASCVD with LDL-C >100 mg/dl, and 4) ASCVD with LDL-C >70 mg/dl. **RESULTS:** For each aforementioned cohort, the model analyzed the 3-year CV risks when patients received add-on alirocumab at the start of the simulation or after 1- or 2-year delays. Baseline characteristics, annual CV risk and transition probabilities among ASCVD patients were estimated using real world data (with published literature to inform HeFH patients). **RESULTS:** Reductions were based on Cholesterol Treatment Treatments Trial (CTT) meta-analysis. Four high CV risk cohorts were modeled: 1) HeFH with ASCVD and LDL-C >130 mg/dl, 2) recent ACS (0-1 year) with LDL-C >70 mg/dl, 3) ASCVD with LDL-C >100 mg/dl, and 4) ASCVD with LDL-C >70 mg/dl. **RESULTS:** For each aforementioned cohort, the model analyzed the 3-year CV risks when patients received add-on alirocumab at the start of the simulation or after 1- or 2-year delays. Baseline characteristics, annual CV risk and transition probabilities among ASCVD patients were estimated using real world data (with published literature to inform HeFH patients). **RESULTS:** Reductions were based on Cholesterol Treatment Treatments Trial (CTT) meta-analysis.
effectiveness ratios were determined. Decision tree model was used and statistical comparisons are done using Microsoft excel 2007. RESULTS: This study revealed that Rosuvastatin was more effective in preventing recurrence of events i.e., events avoided by Rosuvastatin was 86.37% when compared to Atorvastatin of 64.07%. Rosuvastatin costs an incremental cost of $136.5 per lipid profile maintained while the event avoided costs $741.6 per lipid profile maintained in the groups respectively. When calculated in terms of lipid level maintenance Rosuvastatin showed a significant reductions like serum cholesterol(69.70/100mg/dl) with 2.8% vs. 0.3% per year and triglycerides were reduced by 8.3% vs. 0.5% per year. We followed this cohort until death and estimated the total life years and cost-effectiveness. We adapted an established economic-demographic microsimulation to estimate scenarios in which a hypothetical African American with hypertension and diabetes management service. Rosuvastatin showed a significant reduction in the primary outcomes by 21.5% compared to placebo and was more effective in improving cardiovascular disease outcomes among patients with hypertension and diabetes. The above results were presented at the American Diabetes Association annual meeting in 2012. Conclusions: Among the oral anticoagulants, rivaroxaban is estimated as a cost-saving technology for the prevention of thrombo-embolic events in patients with non-valvular atrial fibrillation in Colombia. METHODS: Development of Markov chain model with quarterly cycles and lifetime horizon. Cost-effectiveness ratios were presented as incremental cost-effectiveness ratio (in QALYs, per additional quality-adjusted life year). CONCLUSIONS: The ICER was $10,000 per QALY in Colombia. This study was a retrospective observational analysis, conducted using the 2013 HCUP NIS database. Inpatient admissions (n=230,868) were included in this analysis if Medicare was the primary payer and if the patient had a CAD or heart failure diagnosis. RESULTS: There were significant differences across the three groups (cardiac, pulmonary, vascular) with inpatient vascular admissions having the highest rate of diagnoses on record. Patients with vascular admissions were more likely to be male, African American, and coming from teaching hospitals located in urban areas. Vascular inpatient admissions had significantly higher total costs (mean of $25,927, SD $27,499) than cardiac (mean of $21,874, SD $20,547) and pulmonary (mean of $19,980, SD $21,046). Length of stay was significantly longer as well: vascular group (mean of 7.74 days, SD 8.84) compared to either cardiac (mean of 5.53 days, SD 5.3) or pulmonary (mean of 5.11 days, SD 4.33). Mortality rates were highest in vascular (15.4%) and lowest in cardiac (4.5%). CONCLUSIONS: Whether a congestive heart failure patient is admitted to the hospital for cardiac, pulmonary, or vascular reasons can significantly impact the burden of illness to the hospital for their inpatient stay.
PCV72
THE EFFECT OF GAPS IN ADHERENCE TO ANTITHYROID MEDICATION ON FALLS RISK IN OLDER ADULTS
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OBJECTIVES: There is an on-going debate as to whether antithyroid medications and their related gaps in medication adherence have an increased risk of falls. However, adherence gaps in antithyroid medication have never been observed in any large study. This study explores the relationship between antithyroid medication adherence and falls risk in older adults.
METHODS: A questionnaire was conducted with 300 community-dwelling older adults aged ≥65 years. The questionnaire assessed antithyroid medication adherence and falls risk using the Medication Adherence Report Scale (MARS) and the Modified Falls Efficacy Scale International (M-FES-I), respectively.
RESULTS: There were 83% (248/300) of patients taking antithyroid medication who completed the questionnaire. The mean age of study participants was 74.3 ± 5.6 years (range: 65–87 years). The mean M-FES-I score was 27.5 ± 10.8, indicating low falls risk. The median MARS-R score was 0.00 (interquartile range: 0.00–0.00), indicating high adherence.
CONCLUSIONS: There was no association between antithyroid medication adherence and falls risk in older adults. This study highlights the importance of adherence education and support in this population.

PCV73
TREATMENT PATTERNS AND MEDICATION ADHERENCE AND PERSISTENCE AMONG PATIENTS WITH PULMONARY ARTERIAL HYPERTENSION IN REAL-WORLD DATABASE REPRESENTING A LARGE US HEALTH PLAN
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OBJECTIVES: Pulmonary arterial hypertension (PAH) is a chronic and progressive disease characterized by high pressure in the pulmonary arteries, with increased pulmonary vascular resistance that can result in right heart failure and premature mortality. Treatment regimens are complex, with patients requiring multiple medications. This study aimed to assess the prevalence and predictors of medication adherence, persistence, and persistence differences among patients with PAH.
METHODS: This retrospective analysis included patients with PAH from the IQVIA puerto database, a large US health plan. Patients were included if they had at least one claim for a PAH medication between January 2010 and March 2015 and were prescribed a PAH medication of interest (e.g., bosentan, ambrisentan, treprostinil). Adherence was assessed using the medication possession ratio (MPR) and persistence was assessed using the time to discontinuation.
RESULTS: Of the 1637 patients included in the study, 75% were women, and the mean age was 43.6 ± 14.5 years. The most commonly prescribed PAH medications were bosentan (30.1%) and ambrisentan (27.4%). Adherence to PAH medications was high, with a mean MPR of 0.83 ± 0.38. Persistence was also high, with a median time to discontinuation of 8.6 months (95% CI: 7.5–9.8 months). No significant differences in adherence or persistence were observed between different agents or between patients with different levels of adherence.
CONCLUSIONS: Treatment regimens for PAH are complex, requiring multiple medications. However, adherence to these medications is high, and persistence is also high. This suggests that patients with PAH are able to manage their disease effectively.

PCV74
PRESCRIPTION TRENDS AND DRUG ADHERENCE OF NON-VITAMIN K ANTICOAGULANTS IN ELDERLY PATIENTS WITH ATRIAL FIBRILLATION
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OBJECTIVES: To examine prescription trends and drug adherence of non-vitamin K antagonist oral anticoagulants (NOACs) in elderly patients with atrial fibrillation (AF) using a national representative survey data from Japan.
METHODS: This was a cross-sectional study using national representative data from the Japan Health and Long-Term Care Survey (JHCLS) conducted in 2012. Patients aged ≥65 years with AF were included. NOAC adherence was measured using the MPR. NOAC persistence was measured using the time to discontinuation. The primary outcome was NOAC adherence.
RESULTS: Of the 1637 patients included in the study, 75% were women, and the mean age was 73.6 ± 6.7 years. The most commonly prescribed NOACs were rivaroxaban (33.7%) and apixaban (31.9%). Adherence to NOACs was high, with a mean MPR of 0.83 ± 0.38. Persistence was also high, with a median time to discontinuation of 8.6 months (95% CI: 7.5–9.8 months). No significant differences in adherence or persistence were observed between different agents or between patients with different levels of adherence.
CONCLUSIONS: Treatment regimens for PAH are complex, requiring multiple medications. However, adherence to these medications is high, and persistence is also high. This suggests that patients with PAH are able to manage their disease effectively.
with AF. METHODS: Original research articles conducted on patients with AF and using any NOACs (dabigatran, rivaroxaban, and apixaban) reporting adherence for at least 30 days were included. Scientific databases including PubMed, Science, and Google Scholar were searched using MeSH keywords to obtaining literatures researched between 2008 till June, 2016. Study characteristics, patient sociodemographic and clinical characteristics, medication adherence levels and bleeding events reported were recorded. RESULTS: The overall sample size of the six studies is 1,640,157, with CHADS2 scores <2 in 551 patients. CHADS2-VASc >2 in 62,232 AF patients. Three-forth [75.6% (95%CI: 66.5-84.4), p<0.001] are adherent to NOACs. However, a higher rate [72.7% (68.5-77.0), p<0.001] of adherence was observed with Dabigatran than Apixaban [59.3% [3.2-123.1], p=0.063] and Rivaroxaban [59.3% [38.7-80.0], p<0.001]. Sub-group analysis reveals that nearly 57% of the AF patients on NOACs have CHADS2 scores <2 and 20% of these patients were non-adherent to NOACs. Overall bleeding events rate associated with NOACs non-adherent AF patients was found to be 7.5% [0.2-14.8], p=0.045. However, nearly 11.2% of AF patients experienced bleeding events which were adherent to NOAC medications. A higher proportion of bleeding events were noticed with Dabigatran (14%). CONCLUSIONS: Adherence rates, while uniformly suboptimal, nevertheless varied considerably, lowest at 59.3% for CHADS2-VASc score >2 patients. A total of 27 publications described results of studies conducted in 12 different countries. Among these, 16 studies analyzed patient preferences towards OAC treatment. Preferences for different treatments may be particularly relevant for bleeding events associated with NOACs rates were 7.5% However, lower adherence to NOACs was associated with worse outcomes.

PCV78

PATIENT PREFERENCES FOR ORAL ANTICOAGULANT TREATMENT IN ATRIAL FIBRILLATION: A SYSTEMATIC LITERATURE REVIEW

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OBJECTIVES: The objective of this study was to systematically analyze the scientific literature assessing atrial fibrillation (AF) patients’ preferences with regard to oral anticoagulation (OAC) treatment. METHODS: MEDLINE, EMBASE, Lilacs, and additional sources (e.g., conference proceedings) were searched on 10 December 2016. Two researchers independently reviewed titles. Disagreements were resolved by consensus. Study eligibility criteria involved preference studies conducted on patients with AF and in English. Results: A total of 1,001 citations were identified. Of these, 551 met the inclusion criteria. Total number of cited studies was 50 (mainly, lower stroke risk) AF patients would require to tolerate harms (mainly, bridging and frequent blood controls). OAC medication options, namely NOACs versus VKAs. Here, our review showed that AF patients prefer easy-to-administer treatments, such as treatments that are applied once daily without any food/drink interactions and without a need for bridging and frequent blood controls. CONCLUSIONS: Stroke risk reduction and a moderate bleeding risk increase are the most important attributes for an AF patient’s decision for or against OAC treatment. If different anticoagulation options have similar clinical characteristics, convenience attributes matter to patients. Here, AF patients favor attribute levels that describe NOAC treatment.

PCV79

CORONARY DISEASE PREFERENCES: A SYSTEMATIC REVIEW

Migliano CA, Montesinos M

OBJECTIVES: To translate and provide a Malaysian version of HBP-SCP that was conceptually equivalent to the original English version for use in the Malaysian setting. METHODS: The linguistic validation of HBP-SCP was conducted in accordance to the principles of good practice for translation and cultural adaptation process for patient-reported outcomes measures, delineated by the International Society for Pharmacoeconomics and Outcomes Research task force. These steps included preparation, forward translation, reconciliation, back translation, back translation review, harmonisation, cognitive debriefing, review of cognitive debriefing and finalisation. RESULTS: Some words were replaced during the initial translation process to ensure the meanings of the original items were culturally acceptable in Malaysian setting. For instance, the word “lard” was replaced by “margarine” (item 6 and 8) and the phrase “Oodles of Noodles” was replaced by “Instant Noodles” (item 3). In addition, the word “eat” in item 5 (behaviour scale) and item 15 (behaviour scale) was initially translated to “makan (eat)” instead of “makan (eat)” which is a culturally acceptable equivalent in specific, counter and thus, the word “makan” was changed to “makan.” CONCLUSIONS: The translated Malaysian version of HBP-SCP tool was conceptually equivalent and culturally acceptable for use in Malaysia. Future psychometric validation is anticipated.

PCV80

QUALITATIVE STUDY TO IDENTIFY PATIENT PERCEIVED SYMPTOMS OF STAIN TOLERANCE

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OBJECTIVES: Patient perceptions of symptoms related to stain intolerance are not well understood. This study describes patient perceived difficulties with stains and identifies key symptoms to assess when evaluating stain intolerance. METHODS: DDDS: Adults with dyslipidemia and history of physician-reported stain intolerance to ≥2 stains within the past 6-months were recruited from three lipid clinics in the US. Qualitative interviews were conducted to understand patients’ experiences with stains and describe adverse events they attributed to stains. Interview sessions were audio recorded, transcribed and coded for qualitative content analysis. Coded concepts were grouped by similar content for analysis. RESULTS: Twenty patients were interviewed, mean age 65 (range 48-83), 65% male. Sixty percent had tried ≥4 stains and tried lower doses, non-daily doses, pain relievers, and other supplements to reduce symptoms. There were 486 codes for 250 symptoms. Twenty-six percent of symptoms reported were repeated (≥6%) including: aching, cramps, pain, soreness and general discomfort. Other muscle symptoms were mainly related to discomfort (mainly, lower stroke risk) AF patients would require to tolerate harms (mainly, bridging and frequent blood controls). OAC medication options, namely NOACs versus VKAs. Here, our review showed that AF patients prefer easy-to-administer treatments, such as treatments that are applied once daily without any food/drink interactions and without a need for bridging and frequent blood controls. CONCLUSIONS: Stroke risk reduction and a moderate bleeding risk increase are the most important attributes for an AF patient’s decision for or against OAC treatment. If different anticoagulation options have similar clinical characteristics, convenience attributes matter to patients. Here, AF patients favor attribute levels that describe NOAC treatment.

PCV81

LINGUISTIC VALIDATION OF MALAYSIAN VERSION OF HYPERTENSION SELF-CARE PROFILE (HBP-SCP) TOOL

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OBJECTIVES: To translate and provide a Malaysian version of HBP-SCP that was conceptually equivalent to the original English version for use in the Malaysian setting. METHODS: The linguistic validation of HBP-SCP was conducted in accordance to the principles of good practice for translation and cultural adaptation process for patient-reported outcomes measures, delineated by the International Society for Pharmacoeconomics and Outcomes Research task force. These steps included preparation, forward translation, reconciliation, back translation, back translation review, harmonisation, cognitive debriefing, review of cognitive debriefing and finalisation. RESULTS: Some words were replaced during the initial translation process to ensure the meanings of the original items were culturally acceptable in Malaysian setting. For instance, the word “lard” was replaced by “margarine” (item 6 and 8) and the phrase “Oodles of Noodles” was replaced by “Instant Noodles” (item 3). In addition, the word “eat” in item 5 (behaviour scale) and item 15 (behaviour scale) was initially translated to “makan (eat)” instead of “makan (eat)” which is a culturally acceptable equivalent in specific, counter and thus, the word “makan” was changed to “makan.” CONCLUSIONS: The translated Malaysian version of HBP-SCP tool was conceptually equivalent and culturally acceptable for use in Malaysia. Future psychometric validation is anticipated.

PCV82

PSYCHOMETRIC EVALUATION OF CONDITION SPECIFIC HEALTH RELATED QUALITY OF LIFE MEASURES AND RELATED CONSTRUCTS USED IN PERSONS WITH APHASIA

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OBJECTIVES: Aphasia is a neurologically based language disorder caused by damage to the left hemisphere of the brain. Aphasia affects approximately one third of stroke survivors and has a significant impact on their health related quality of life (HRQOL). The objective of this study was to assess the psychometric properties of condition specific HRQOL measures and related constructs used in persons with aphasia (PWA). METHODS: Instruments were identified conducting a web-based search of self-report measures of HRQOL in English used in persons with aphasia. Evaluation
of eight instruments was based on the following criteria: conceptual model, construct validity (eg varying severity of aphasia), practicality (≤ 15 minutes to complete), comprehensive (measures disease and its effects), breadth, generalizability, mental, role, social and communication functioning, reliability (internal consistency and test-retest), and responsiveness. **RESULTS:** The most widely used scales were the Stroke Impact Scale 39 (SIS-39), Quality of Life After Stroke (QoLA-Strokes) and Assessment of Living with Aphasia (ALA). SAQOL-39g and BOSS met most study criteria but neither met the practicality criterion nor did they use a sampling frame to make the results generalizable. **CONCLUSIONS:** We conclude that further investigation is needed to determine the appropriate instrument to use to measure HRQoL in stroke. High barriers to implementation, such as time and training, make it difficult to implement routine HRQoL measurement. **OBJECTIVES:** This study was conducted to assess the health-related quality of life in coronary heart disease (CHD) patients attending different hospitals in Quetta, Pakistan. **METHODS:** This cross sectional study was undertaken in different hospitals of Quetta from January to March 2015. CHD patients with coronary heart disease attending the hospital for follow up were studied to determine the health-related quality of life of CHD patients. **RESULTS:** 200 patients with coronary heart disease were enrolled for the study. The mean age of the patients was 59.7 ± 12.0 years and 61.5% of the patients were male. The mean SAQOL-39g score was 57.4 ± 14.4 which was lower than the healthy population, indicating a lower HRQoL in CHD patients. **CONCLUSIONS:** The results of this study suggest that CHD patients have a lower HRQoL compared to the general population and this should be investigated further in large scale studies.

**PCV85**

**DETERMINATION OF HEALTH RELATED QUALITY OF LIFE IN CORONARY HEART DISEASE (CHD) PATIENTS ATTENDING DIFFERENT HOSPITALS IN QUETTA, PAKISTAN**

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**OBJECTIVES:** This study was conducted to assess the health-related quality of life in coronary heart disease (CHD) patients attending different hospitals in Quetta, Pakistan. **METHODS:** This cross sectional study was undertaken in different hospitals of Quetta from January to March 2015. CHD patients with coronary heart disease attending the hospital for follow up were studied to determine the health-related quality of life of CHD patients. **RESULTS:** 200 patients with coronary heart disease were enrolled for the study. The mean age of the patients was 59.7 ± 12.0 years and 61.5% of the patients were male. The mean SAQOL-39g score was 57.4 ± 14.4 which was lower than the healthy population, indicating a lower HRQoL in CHD patients. **CONCLUSIONS:** The results of this study suggest that CHD patients have a lower HRQoL compared to the general population and this should be investigated further in large scale studies.

**PCV86**

**EVALUATION OF HEALTH-RELATED QOL IN HYPERTENSIVE PATIENTS USING EQ-5D IN SOUTHWEST CHINA**

Long J1,2, Su M1, Bu M1, Bao H1

**OBJECTIVES:** To assess the health-related quality of life in hypertensive patients in southwest China and compare it with other area in China, and identify the factors that influence the QOL of hypertensive patients. **METHODS:** A total of 600 hypertensive patients were recruited from the hypertension clinic of different towns to conduct this study. The EQ-5D score of each sample was calculated using the time tradeoff (TTO) method. **RESULTS:** The mean age of the patients was 56 ± 11 years. The EQ-5D index of patients who did not smoke or drink were 0.822 ± 0.198 and that of patients who smoked or drank were 0.791 ± 0.196 (p = 0.001). The EQ-5D index of patients who had high income were 0.831 ± 0.188 and that of patients who had low income were 0.781 ± 0.204 (p = 0.002). The EQ-5D index of patients who did exercise were 0.821 ± 0.192 and that of patients who did not exercise were 0.809 ± 0.196 (p = 0.009). The EQ-5D index of patients with treatment were 0.815 ± 0.192 and that of patients without treatment were 0.770 ± 0.203 (p = 0.002). **CONCLUSIONS:** The EQ-5D index of hypertensive patients in southwest China is lower than those in other areas, indicating a lower HRQoL in hypertensive patients in southwest China. The factors that influence the QOL of hypertensive patients are smoking or drinking, income and exercise.

**PCV87**

**HEALTH RELATED QUALITY OF LIFE ASSESSMENT WITH MEDICAL OUTCOMES STUDY THE 12-ITEM SHORT- FORM HEALTH SURVEY (MOS SF 12) AND THE 14-ITEM SHORT-FORM HEALTH SURVEY FOR CHRONIC VENOUS INSUFFICIENCY (MOS CIVQ 14) THAI VERSIONS**

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**OBJECTIVES:** High incidence of Chronic venous disease(CVD) was noted meanwhile patients did not seek treatment at an early stage. Relevance leg symptoms reported for primary screening remains clinical challenges. **METHODS:** The medical outcomes study (MOS) with health-related quality of life, a 12-item Short Form Health Survey (SF-12) and a 14-item Short-Form Health Survey for Chronic Venous Insufficiency (CIVQ-14) were employed in hospital-setting together with physical examinations for an interventional study. A cross-sectional analysis was performed to assess reliability and correlation of the questionnaires with specific implication of leg symptoms. **RESULTS:** 120 patients were screened, 48 patients clinically diagnosed with CVD. For the inter-scale correlation and internal consistency reliability interpreting with Cronbach's alpha coefficient (80% reliability). The EQ-5D index of patients were reliable with Cronbach's alpha coefficient of 0.914(for 14-item global score), 0.867(for 7-item physical and pain score) and 0.785(for 7-item psychological score), whereas SF-12 were reliable, with the same of 0.810(for 12-item for global score), 0.930(for 7-item physical and pain score) and 0.664(for 5-item mental score). These two questionnaires were well correlated for physical score, interpreting with bivariate Pearson correlation coefficient, with a 95% CI of 0.713(0.663 to 0.790), p < 0.001 and for global score, 0.745 (0.640 to 0.819), interpreting with bivariate Pearson correlation coefficient, with a 95% CI of 0.713(0.663 to 0.790), p < 0.001 and for global score, 0.745 (0.640 to 0.819).
CVQ90

RISK FOR CARDIOVASCULAR ADMISSIONS IN SGLT2 AND DPP4 THERAPIES

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OBJECTIVES: To estimate the relative risk for cardiovascular admissions in SGLT2 inhibitors (SGLT2i) and DPP4 inhibitors (DPP4i) according to the risk for heart failure admissions after initiating therapy. METHODS: We conducted a retrospective cohort study comparing new users of SGLT2i or DPP4i with a covariate-matched control group in a large US commercial insurance claims database. Patterns of cardiovascular hospitalizations were compared between treatment groups using marginal structural models (MSM). RESULTS: The relative risk for heart failure admissions was significantly lower for patients on SGLT2i (HR = 0.92; 95% CI: 0.86–1.00) compared with new users of DPP4i (HR = 1.03; 95% CI: 0.99–1.07). CONCLUSIONS: SGLT2i were associated with a significantly lower risk for heart failure admissions compared to DPP4i in newly initiated users in this large, multi-year study.

CVQ91

DRG BASED PERFORMANCE INDICATORS OF ANGIOLGICAL ACTIVE INPATIENT CARE

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OBJECTIVES: Angiogical active inpatient care has been a field with a separate professional entity and code since 2012. Our study aimed at analysing the performance indicators of angiological active inpatient care. METHODS: Data analysed were taken from the DRG-based financial database of the National Health Insurance Fund Administration and the year examined was 2015. In our study, we claimed the following indicators: (i) number of total, new and redefined prescription sales; (ii) number of total new prescriptions; (iii) high cholesterol-related outpatient visits; (iv) average intensity of statin ad exposures per household; (v) relative intensity of prescription sales; and (vi) high cholesterol-related outpatient visits. RESULTS: The average intensity of statin ad exposures per household increased across 2012-2015. CONCLUSIONS: The number of statin prescription sales and the number of total new SF-12 was highly correlated for scoring on physical function. The value of direct-to-consumer advertising (DTCA) of prescription drugs is widely debated, as is the effect of DTCA on prescription sales and health care utilization. We examined the association between DTCA intensity for statin medications and cardiovascular health outcomes. We used the US National Prescription Audit (NPA) PMSRI database from 2005 to 2009 using linked data regarding: (1) televised DTCA volume for rosemary and lovastatin derived from Nielsen television ratings; (2) other TV/DTCA marketing and promotion derived from IMS Health Integrated Promotion Services; (3) retail, mail order and long-term care prescription drug sales derived from IMS Health Xponent; (4) prescription drug and ambulatory care health care utilization derived from the Truven MarketScan database; (5) contextual factors such as health care density, and socioeconomic status derived from the Area Resource File. Defined for each month at each DMA and used multi-level negative binomial regression to account for clustering within DMA, we assessed the association between DTCA intensity for statin medications and cardiovascular health outcomes. It is concluded that novel ASD device augment the therapeutic effect of drug and can deliver Salvia miltiorrhiza to the cardiomyocytes significantly as well as provide additional support to the dilated ventricles by the result of heart failure.

CVQ89

EFFECT OF DIRECT-TO-CONSUMER ADVERTISING (DTCA) ON STATIN USE IN THE UNITED STATES

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OBJECTIVES: The value of direct-to-consumer advertising (DTCA) of prescription drugs is widely debated, as is the effect of DTCA on prescription sales and health care utilization. We examined the association between DTCA intensity for statin medications and cardiovascular health outcomes. We used the US National Prescription Audit (NPA) PMSRI database from 2005 to 2009 using linked data regarding: (1) televised DTCA volume for rosemary and lovastatin derived from Nielsen television ratings; (2) other TV/DTCA marketing and promotion derived from IMS Health Integrated Promotion Services; (3) retail, mail order and long-term care prescription drug sales derived from IMS Health Xponent; (4) prescription drug and ambulatory care health care utilization derived from the Truven MarketScan database; (5) contextual factors such as health care density, and socioeconomic status derived from the Area Resource File. Defined for each month at each DMA and used multi-level negative binomial regression to account for clustering within DMA, we assessed the association between DTCA intensity for statin medications and cardiovascular health outcomes. It is concluded that novel ASD device augment the therapeutic effect of drug and can deliver Salvia miltiorrhiza to the cardiomyocytes significantly as well as provide additional support to the dilated ventricles by the result of heart failure.
Among hypertensive patients, 33.4% had hyperlipidemia and at the same time, and 10.5% of diabetes patients had hyperlipidemia. The correlation coefficient between hypertension and hyperlipidemia was 0.15 (p < 0.001), between hyperlipidemia and diabetes was 0.022 (P = 0.003), and between hypertension and diabetes was 0.038 (P = 0.001). CONCLUSIONS: The 10 years CVD risk evaluation app can predict the primary prevention risk of CVD in China. For Chinese patients, the heart-age is 10 years older than actual age. Hyperlipidemia is highly associated with hypertension and diabetes, so it is necessary for Chinese government to include blood lipid management in its national policy.

PC9V3 SIMULTANEOUS ENDOVASCULAR ANEURYSM REPAIR AND CORONARY ARTERY BYPASS GRAFTING

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OBJECTIVES: Simultaneous endovascular aneurysm repair (EVAR) and coronary artery bypass grafting (CABG) includes two different surgical operations done by two teams of operating surgeons during one anaesthetic support. Patients with concomitant aortic aneurysmal disease and coronary artery disease stay in group of high risk, as it is necessary for Chinese government.

METHODS: For algorithms used, predictions of future prevalence were significant with reported prevalence. In the best performing algorithm (Naïve Bayes), the mean percent difference from the actual prevalence for males was 3.8%

RESULTS: In the retrospective analysis with reported prevalence.

CONCLUSIONS: In the best performing algorithm (Naïve Bayes), the mean percent difference from the actual prevalence for males was 3.8%

PC9V4 MEN ARE PREDICTABLE: MODELING CARDIOVASCULAR DISEASE PREVALENCE FROM POPULATION SURVEY DATA

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OBJECTIVES: Calculating the economic burden of disease requires data regarding disease prevalence. National estimates can be derived from surveys of the general population, but may lack access individuals participating in the healthcare system. The Behavioral Risk Factor Surveillance System (BRFSS) is the largest annual country-wide population sampling of health and risk factors. The fidelity of these data, however, may be questionable, relying on accurate self-reporting of disease (2011 to 2013). Consequently, the feasibility of predicting future trends. METHODS: BRFSS data were trimmed to complete cases for 9 CVD risk factors: gender, age, race, overweight, physical activity, diabetes, high blood pressure, smoking and alcohol consumption. From 2011 and 2013 were used to train Bayesian and tree-based algorithms to evaluate predictor performance on unseen data from subsequent years (2013 and 2015). The patient-reported survey data can be used to predict cardiovascular disease prevalence. Accuracy of estimation is better in males versus females. Given that BRFSS data are retrospective, our findings may reflect more substantial lifestyle changes in females or suggest discussion on changes in how survey data from female respondents are collected.

PC9V5 PROJECTED IMPACT OF ADOPTING A MULTIPLEXED PREEMPTIVE GENOTYPING INTERVENTION IN CARDIAC CATHETERIZATION LABORATORY PATIENTS

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OBJECTIVES: To estimate the impact of preemptive genotyping in cardiac catheterization laboratory patients based on the number of clopidogrel, warfarin, and simvastatin prescribing changes recommended by the Clinical Pharmacogenetics Implementation Consortium (CPC2). METHODS: A retrospective analysis was conducted in a cohort of patients referred for coronary angiography at UNC Hospitals from 2012 to 2014 who consented to participate in a single-center study with medication data available at discharge and follow-up (n = 122). Patient DNA samples were sequenced using a custom pull-down method for library preparation and next generation sequencing (22). Bioinformatic tools (i.e. Burrows-Wheeler aligner, Freebayes) were used for the genetic analysis, and a minimum sequencing depth of 20x was required for genotype and haplotype calling. Pharmacogenetic-guided drugs and genes included in the analysis were: clopidogrel, VKORC1, CYP2C19 and CYP2C9. NICE (CYP2C9 *2, *3, VKORC1 rs9923213).

RESULTS: Prescription data for warfarin, clopidogrel, and simvastatin were available for all patients. Haplotype calling was successful for 118 patients (96.1%) with complete sequencing datasets (n = 118). Of these patients, 61.5% of clopidogrel prescriptions (19.5%) were eligible for a change in dose or drug. According to the pharmacogenetic guidelines, at-risk genotype patients prescribed clopidogrel

CONCLUSIONS: Among hypertensive patients, 33.4% had hyperlipidemia at the same time, and 10.5% of diabetes patients had hyperlipidemia. The correlation coefficient between hypertension and hyperlipidemia was 0.15 (p < 0.001), between hyperlipidemia and diabetes was 0.022 (P = 0.003), and between hypertension and diabetes was 0.038 (P = 0.001). CONCLUSIONS: The 10 years CVD risk evaluation app can predict the primary prevention risk of CVD in China. For Chinese patients, the heart-age is 10 years older than actual age. Hyperlipidemia is highly associated with hypertension and diabetes, so it is necessary for Chinese government to include blood lipid management in its national policy.
follow-up (46.2%, 26.7%, 19.8% and 20.6%, respectively). CONCLUSIONS: The use of secondary prevention medications and OMT were suboptimal and decreased over follow-up among NOAC patients, including those with PCI procedure. Further strategies to promote the optimal medical care of ACS are needed.

PCV98 UTILIZATION PATTERNS OF NON-VITAMIN K ANTAGONIST ORAL ANTICOAGULANTS AMONG ELDERLY PATIENTS WITH ATRIAL FIBRILLATION WHO FAILED WARFARIN THERAPY
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OBJECTIVES: To assess drug utilization pattern of non-vitamin K antagonist oral anticoagulants (NOACs), including potentially inappropriate dosing, switching, and concomitant use of contraindicated drugs. METHODS: We used nationally representative Health Insurance Review and Assessment (HIRA) Aged Patient Sample 2014 that contained medical and pharmacy claims of approximately 1 million elderly patients aged 65 or older. We included patients who had at least one diagnosis of atrial fibrillation (AF) and had at least one prescription (apixaban, dabigatran, or rivaroxaban) between January 1, 2014 and December 31, 2014. Switching was defined as initiating another NOAC and using it ≥ 8 days. Contraindicated drugs were defined according to package insert of each NOAC. Logistic regression model was used to assess factors associated with concomitant use of contraindicated drug. RESULTS: We identified 1,234 elderly patients with AF treated with apixaban (n=106), dabigatran (n=593), and rivaroxaban (n=535). The proportion of potentially inappropriate dosing was the highest for rivaroxaban users (16.5%), followed by dabigatran and apixaban users (9.3% and 0.9%, respectively). Switching occurred in 5.4%, 2.6%, and 0.9% of patients treated with dabigatran, rivaroxaban, and apixaban, respectively. Among 1,234 patients, 64% (797 patients) were prescribed contraindicated drugs. Concomitant use of other oral anticoagulants was relatively frequent. Clinic hospital compared with tertiary hospital (odds ratio (OR): 2.434; 95% confidence interval (CI): 1.221-4.876) and outpatient setting compared with inpatient setting (OR: 4.718; 95% CI: 3.692-6.028) were significantly associated with concomitant use of contraindicated drugs. CONCLUSIONS: Among 1,234 elderly AF patients using NOACs in 2014, 11.8% were not treated with appropriate dosing and 19.1% were prescribed contraindicated drugs that could affect bleeding risk and treatment effectiveness. Furthermore, NOACs use in clinic hospital or in outpatient setting was significantly associated with concomitant use of contraindicated drugs. Therefore, careful monitoring is warranted for these patients.

PCV99 COMBINATION THERAPY VERSUS INTENSIFICATION OF STATIN MONOTHERAPY FOR THE PREVENTION OF CORONARY HEART DISEASE: AN ADAPTED REPORT TO FOR THE PREVENTION OF CORONARY HEART DISEASE: AN ADAPTED REPORT TO COMBINATION THERAPY VERSUS INTENSIFICATION OF STATIN MONOTHERAPY
FOR THE PREVENTION OF CORONARY HEART DISEASE: AN ADAPTED REPORT TO COMBINATION THERAPY VERSUS INTENSIFICATION OF STATIN MONOTHERAPY
Jameelali H1, Ben Brahem Touli A1, Zghal K2, Attieh R3, Asua Batarina J1, Gutierrez-Barreiras J1
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OBJECTIVES: Coronary heart disease (CHD) is the most common cause of mortality worldwide. The burden of CHD causes 27.4% of total mortality in Tunisia. Statins are the mainstay of CHD treatment and are substantially underutilized in Tunisia, despite the high percentage of its total drug expenditures in 2015 at 53% in Tunisia. INASante has launched an HTA study aiming to compare the intensification of statin monotherapy versus a combination therapy for the prevention of CHD in patients with moderate to high cardiovascular risk. This study aims to determine the frequency of initiation of statins, the adherence and costs of justifi ed therapies. METHODS: Research was carried out on the basis of HTA on the net from 2006 to 2016. Title, abstract and full text screening, was performed by two independent reviewers, using pre-specified eligibility criteria. A critical appraisal was performed using INAHTA, PReFMA checklists, FLC 2.0 and EUnEHTA adap-tation toolkit. One review from Agency for Healthcare Research and quality (AHRQ) elaborated in 2014 was retained. An adaptation process has been started. We gathered lipid lowering agents' consumption data from key institutions and we started a qualitative study through interviews with cardiologists and general practitioners from public and private sector and representatives from scientific societies. Interviews will be computerized and analyzed using NVIVO. After discussing the results with the working group the report will be synthesized and validated. RESULTS: According to AHRQ report, all evidence for clinical outcomes were graded insufficient when comparing the therapies. Effect on lowering LDL-C depends on the combination agent. In Tunisia, according to the first interviews, the only combination reported is with fibrates, in case of associated hypertriglyceridemia. Ibas are no more prescribed, Ezetimibe has not only obtained the marketing authorization. CONCLUSIONS: There are significant differences among practices in prescription habits. This can be related to the populations' characteristics, availability of molecules and lack of common guidelines.

PCV100 USING GROUP BASED TRAJECTORY MODELS TO CHARACTERIZE STATIN MEDICATION ADHERENCE PATTERNS AMONG PATIENTS ENROLLED IN A MEDICARE ADVANCE PLAN (MAP)
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OBJECTIVES: Despite the well-documented efficacy of statins in primary and secondary prevention of cardiovascular disease, adherence to statins remains suboptimal, compromising potential effectiveness. The Centers for Medicare and Medicaid Services (CMS) utilizes the proportion of days covered (PDC) as a measure for medication adherence in a MAP. PDC provides a single value to represent a follow-up period but cannot fully capture variations in adherence behavior patterns. These patterns should be considered when deciding how to best influence them. The aim of this study was to characterize different adherence patterns using group-based trajectory models among statin users in a MAP. METHODS: This project utilized data from a Texas MAP. Patients enrolled from January 2013 to June 2016 with prescription claims were included. The index date was defined as the first prescription of AF between January 2015 to June 2015, and baseline characteristics were determined from the period 2 years prior to index. Patient adherence was assessed for 1 year after. Monthly PDCs were calculated during the follow-up and defined as: (1) adherent (PDC > 0.8) or not. Twelve monthly PDC values were then modeled as a longitudinal response in logistic group-based trajectory models. Patients were assigned to a trajectory based on those models. We estimated between 2 to 6 groups and evaluated RESULTS: 7,850 patients were included in the trajectory modeling. The model with 4 groups was determined the most clinically relevant for the development of tailored interventions. Trajectory groups included: (1) high decline, (2) rapid decline or discontinuation, (3) induce decline, and (4) a gap or declining adherence that improved later. CONCLUSIONS: Trajectory models can depict varying patient adherence patterns and facilitate the development of tailored interventions. Future research will focus on identifying predictors associated with the identified trajectories and developing trajectory customized interventions to enhance adherence.

PCV101 GEOGRAPHIC VARIATION IN ORAL ANTICOAGULANT PRESCRIBING PATTERNS AMONG US VETERANS
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OBJECTIVES: The objectives of this study are to describe (1) recent trends in TSOC prescriptions, (2) the source of financing for OACs prescriptions, and (3) geographic variation of provider prescribing patterns for TSOCs among VHA and Medicare dual enrolees. METHODS: We identified patients with a first diagnosis of AF (ICD-9-CM code 427.31 and ICD-10 codes I28.2) in the VHA Corporate Data Warehouse (CDW) between 2012 and 2016. We linked the prescriptions for OACs that these patients had in the VHA and in Medicare between 2012 and 2013. RESULTS: We identified 64,763 patients diagnosed with AF who were prescribed OACs during 2012 and 2013. There were 300,659 VHA prescriptions and 106,102 Part D prescriptions during the study period. The proportion of Medicare prescriptions increased from 21.3% among the 28.0% in 2013. Medicare prescription volumes were more likely to be filled by the VHA for warfarin compared to prescriptions within the VHA system. TSOC prescriptions increased substantially across all VISNs during the study period. CONCLUSIONS: The geographic geographic variation in TSOC prescriptions in the adoption of novel anticoagulants within the VHA. Reliance on Medicare Part D has increased during the study period.

PCV102 UTILIZATION AND EFFECTIVENESS OF PCSK9 INHIBITORS IN IMPROVING LIPID PROFILE IN ROUTINE CLINICAL PRACTICE
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OBJECTIVES: Proprotein convertase subtilisin/kexin type 9 inhibitors (PCSK9-i) are a new class of drugs that have been shown to further reduce low-density lipoprotein cholesterol (LDL-C) by 50-70% against various background lipid-lowering therapies. We aimed to assess the use of two PCSK9-i, alirocumab and evolocumab, and compare their effectiveness in improving lipid profile to statins in routine practice. METHODS: Using a large U.S. administrative database, OptumLabs Data Warehouse, with linked laboratory data, we identified 798 patients who initiated PCSK9-i between 8/2015-7/2016. Among patients with lipid measurements at both baseline and follow up, we propensity score matched patients treated with PCSK9-i (alone or with statins) to those treated with statins (alone or with other non-PCSK9-i lipid lowering drugs). Patients were balanced on 40 baseline characteristics, including socio-demographics, lipids, indices of morbidity, prior lipid lowering treatment and other medication use. We used linear regression to compare the absolute change and percentage change of lipid levels. RESULTS: The mean LDL-C of PCSK9-i users was 122 mg/dL at the initiation of PCSK9-i, similar to those observed in the Phase III trials. However, over one third of the patients had LDL-C<100 mg/dL. Most users (72%) used non-PCSK9-i cholesterol lowering drugs (mostly statins) at baseline. In the matched cohort N=635, an average weight loss of 6 kg was noted. In the matched cohort N=635, an average weight loss of 6 kg was noted. In the matched cohort N=635, an average weight loss of 6 kg was noted. There was a greater reduction in LDL-C (>14 mg/dL, p=0.02, 12%, p=0.01) and non-high-density lipoprotein cholesterol (-15.3 mg/dL, p<0.03, 9.6%, p<0.01) in comparison to statins. Neither drugs significantly reduced LDL-C in patients with LDL-C<100 mg/dL. CONCLUSIONS: PCSK9-i were commonly prescribed for patients who...
either had low LDL-C or already achieved low LDL-C on statins, which is a group largely excluded from clinical trials. Consistent with trials, PCSK9 inhibitors demonstrated a greater reduction in LDL-C than with any other clinical practice, but this benefit was not seen in patients with low LDL-C.

PCV103
ANALYSIS OF SECONDARY PREVENTION MEDICATION USE AMONG PATIENTS WITH NON-CARDIOVASCULAR ISCHEMIC STROKE IN BEIJING
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OBJECTIVES: To describe the secondary prevention medication use of patients with non-cardiovascular ischemic stroke in Beijing. METHODS: This was a retrospective cohort study among Beijing Urban Employee Basic Medical Insurance database. Patients (≥18 years old) hospitalized with a primary diagnosis of non-cardiovascular ischemic stroke (index event) between Oct.01 2012 and Dec.31 2014 were included. High-risk patients were further identified by Essen Score ≥3, with at least one of the following in the database. The period from 2 years prior to index date to Dec 31 2015 or death (whichever comes first) was observed to analyse baseline characteristics and secondary prevention medication usage. RESULTS: In total 36320 patients were studied. The objective of this age group was to determine the proportion of patients treated with antplatelet therapy and the proportion of patients that were high-risk patients. The secondary prevention medication usage was summarized in the clinical practice even for high-risk patients. Efficient intervention is needed to improve the adherence to guideline.

PCV104
PRESCRIPTION PATTERNS OF ANTIHYPERTENSIVE MEDICATIONS IN CHINA: A DESCRIPTIVE ANALYSIS IN REAL-WORLD CONDITIONS
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OBJECTIVES: Hypertension is one of the key risk factors for cardiovascular disease, stroke and renal failure. Limited data is available on prescription patterns of the antihypertensive agents and the prescription patterns of antihypertensive medicines for outpatients in the real-world conditions in China. METHODS: A cross-sectional study was conducted to describe the current prescribing practices for outpatients diagnosed with hypertension, in 2011 across four cities in China. Antihypertensive agents were identified, including monotherapy, two-drug combination therapy and three-drug combination therapy. For each pattern, prescriptions of different classes of medications were observed. In addition, difference of patient characteristics for monotherapy. RESULTS: A total of 18,562 outpatients were included in the study, 51% was female, age ranged from 14 to 107 years old. The prescription analysis indicated that monotherapy pattern was the most frequently prescribed (56.6%), followed by two-drug combination therapy (33.3%), and then three-drug combination therapy (3.1%). Calculated prevalence of hypertension was 13.5%. Calcium channel blocker (38.6%), beta-blocker (24.0%), Angiotensin-converting enzyme inhibitors (ACEI) accounted for the highest proportion in two-drug therapy (59.3%). The combination of CCBs, ARBs/ACEIs and beta blockers (BB) was the most frequently prescribed in three-drug therapy (37.7%). Additionally, in monotherapy, Amlodipine was the most prescribed agent in CCBs class (66.5%). In the other classes, Valsartan in ARB or ACEI class (35.0%), Indapamide in Di class (41.1%), Bisoprolol Fumarate in BB class(42.2%), and Terazosin Hydrochloride in the others (57.5%). CONCLUSIONS: The result observed that majority of outpatients in this study was prescribed monotherapy, followed by two-drug combination, in a few required three drugs. It is found that the most frequently used class of antihypertensive drug was CCBs, of which Amlodipine was the most frequently prescribed drug.

PCV105
ANALYSIS OF STATIN PRESCRIPTION FOR DYSLIPIDEMIA WITH THE NATIONAL-WIDE HEALTH INSURANCE CLAIMS DATA IN JAPAN: A REPEATED CROSS-SECTIONAL STUDY
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OBJECTIVES: Although statin therapy for dyslipidemia is recommended widely in Japan, the prevalence of statin prescription for dyslipidemia has increased recently. As new products enter the cholesterol management market, health plans will need to evaluate the cost-effectiveness of statin use in very elderly patients. Further study is needed to evaluate the cost-effectiveness of statin use in very elderly patients.

PCV106
ASSOCIATION BETWEEN PRIMARY CARE ACCESS AND ACUTE CARE UTILIZATION FOR HYPERTENSION: A SYSTEMATIC REVIEW
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OBJECTIVES: Conditions for which hospitalizations can be avoided through timely and effective outpatient care are often referred to as ambulatory care sensitive conditions (ACSC). These conditions can generally be managed effectively in a primary health care setting however the expected inverse association between primary care access and hospitalizations and/or emergency department visits for hypertension, an ambulatory care sensitive condition. METHODS: We searched electronic databases (Medline and Embase) from inception to October 2015 to identify all observational studies evaluating the association between primary care access and hospitalizations and/or emergency department visits for patients diagnosed with hypertension. Study quality was assessed using the Newcastle Ottawa Scale and the Downs and Black Checklist. RESULTS: Our search strategy yielded 4170 articles and of the 42 potentially relevant articles, three met criteria for inclusion within our review. Results and quality of the included studies are shown in the table. CONCLUSIONS: Study quality also varied with few studies adjusting for key patient- and system-level factors and severity of hypertension. CONCLUSIONS: There is limited and inconsistent evidence on the relationship between primary care and acute care utilization for hypertension. Further research adjusting for disease severity and key confounders is required to elucidate this relationship.

PCV108
CHOLESTEROL MANAGEMENT BY US HEALTH PLANS
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OBJECTIVES: Many of the agents for treatment of hypercholesterolemia have become generally available. In recent years, newer targeted therapies have become available with different targets, higher prices and requiring specialist-administration. To understand how managed care (MC) plans were using the various tools available to manage their formularies and members with hypercholesterolemia, hyperlipidemia and high triglycerides. METHODS: Managed care medical directors and pharmacy directors completed an online interactive survey. Topics included: advisor and plan information on drug use and drug quality was assessed using the concepts of medication management (classifying as: Unrestricted,1st tier, 2nd tier, 3rd tier, or requiring prior authorization [PA]). RESULTS: There were 54 responses (66.7%) from forty-nine percent of respondents. Classes with generic options were often the counter. 33.3% of plans were female, age ranged from 14 to 107 years old. The prescription analysis indicated that monotherapy pattern was the most frequently prescribed (56.6%), followed by two-drug combination therapy, in a few required three drugs. It is found that the most frequently used class of antihypertensive drug was CCBs, of which Amlodipine was the most frequently prescribed drug.

PCV109
NON-ADHERENCE TO STATINS AND ANTIHYPERTENSIVE MEDICATIONS AND HOSPITALIZATIONS AMONG ELDERLY FEE-FOR-SERVICE MEDICARE BENEFICIARIES WITH PREVIOUS CORONARY ARTERY DISEASE AND INCIDENT CANCER
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OBJECTIVES: To examine the relationship between adherence to both statins and ACEIs/ARBs/beta-blockers and coronary artery disease (CAD)-related covered over 90% of the domestic patients. The rate of sampling was 1%. We analyzed the prevalence stratified by age and sex to adjust the covariates. After the year, the prevalence was increased (52.4% n=145215, in 2012; 56.6% n=150428, in 2013; 57.6% n=155599, in 2014, p for trend <0.001). In 2014, the prevalence was higher in women than men (68.7% vs 59.2%, p<0.001). Among age groups of 64-year-old and younger, 65 to 74, 75 and 85-year-old and older (51.4%, 75%, 69.4% and 73.4%, respectively, p<0.001). CONCLUSIONS: In Japan, the prevalence of statin prescription for dyslipidemia has increased recently. Most very elderly patients with dyslipidemia used statins.

PCV110
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WIDE HEALTH INSURANCE CLAIMS DATA IN JAPAN: A REPEATED CROSS-SECTIONAL STUDY OF STATIN PRESCRIPTION FOR DYSLIPIDEMIA WITH THE NATIONAL-WIDE HEALTH INSURANCE CLAIMS DATA IN JAPAN: A REPEATED CROSS-SECTIONAL STUDY
A278
VALUE IN HEALTH 20 (2017) A1−A383
hospitals. METHODS: A retrospective observational longitudinal study was conducted using SEER-Medicare data. Elderly Medicare fee-for-service beneficiaries with pre-existing CAD and incident breast, colorectal or prostate cancer (N = 12,096) were observed for a period of 12 months before and 12 months after cancer diagnosis. Hospitalizations measured every 120-days were categorized into three groups: a) non-cardiac hospitalization, b) cardiac hospitalization, or c) other hospitalization.Medication adherence was categorized into five mutually exclusive groups: (1) adherent to both statins and ACEIs/ARBS/beta-blockers (reference group), (2) non-adherent to both statins and ACEIs/ARBS/beta-blockers, (3) adherent to either statins or ACEIs/ARBS/beta-blockers and not adherent to that class; (4) use of one medication class and not adherent to that medication class. The adjusted and unadjusted relationship between medication adherence and hospitalization was assessed using repeated measures multimonial logistic regressions. Inverse probability treatment weights were used to control for observed group differences among medication adherence categories.

RESULTS: Adherence to both statins and ACEIs/ARBS/beta-blockers was estimated in 13.7% were not adherent to both medication classes during the same period; 27.4% had CAD-related hospitalizations immediately after cancer diagnosis and this percentage declined to 10.6% during the last four months of the post-cancer period. In the adjusted analyses, those not adherent to both statins and ACEIs/ARBS/beta-blockers were more likely to have CAD-related hospitalization compared to those who were adherent to both medication classes [AOR = 1.82, 95% CI = 1.72, 1.92; P < 0.0001]. CONCLUSIONS: Given the complexity of interaction between CAD and cancer, it is important to routinely monitor medication adherence in general clinical practice and provide linkages to support services that can increase medication adherence.

PCV110

CLINICAL AND ECONOMIC BURDEN OF TRANSFUSION IN CARDIAC SURGERY: A SYSTEMATIC REVIEW

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OBJECTIVES: We conducted a systematic review to identify published evidence from observational studies on the clinical and economic burden of transfusion in cardiac surgery. METHODS: We searched Embase, Pubmed and the Centre for Reviews and Dissemination (CRD) suite of databases for English language articles and a total of 56 studies were included. The search was limited to evidence published in the last 10 years (2006-2016). RESULTS: The review identified 16 publications and 15 were observational study design. Majority of the studies examined patients undergoing coronary artery bypass graft (CABG) and aortic valve replacement (AVR). The mortality rate ranged from 1.5% to 5.5% and there was a significant difference in units of FFP transfused in patients with post-operative bleeding and re-exploration compared to patients without bleeding events or re-exploration (1.2% to 50%) compared to patients without bleeding events or re-exploration and 4.94% in those with more than one complication. On average 41.6% patients with pre-existing CAD and incident breast, colorectal or prostate cancer (N = 1105 patient medical records 862 fulfilled the inclusion criteria relating to the burden of bleed in a mixed sectional study. Results: The aim of this study is to assess the pattern of cardiovascular diseases among associated with urban residency (<p>0.01). Patients from rural (COR = 1.306 (1.026-2.166), AOR = 1.272(1.017-2.030) and patients with additional illnesses (COR= 1.813(2.797-2.829), AOR = 1.551(1.77-2.705)) were more likely to poor cardiovascular disease outcome by the physician assessment on their last follow-up (p = 0.01, CI 95%). CONCLUSIONS: Hypertension was found to be the most frequent cardiovascular disease followed by heart failure, and hypertensive heart disease was the leading cause of cardiovascular diseases. Most of the patients had cardiovascular disease assessment by their physician on their last follow-up, but patients from rural and with Comorbidity conditions were risks to increase poor cardiovascular outcome.

PCV114

CHRONIC HEART FAILURE TREATMENT IN THE US: CHALLENGING ENVIRONMENT FOR NEW BRANDED AGENTS IN GENERALIZED MARKET

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OBJECTIVES: In chronic heart failure (CHF) the standard of care is comprised of inexpensive evidence-based generic agents. Novel CHF therapies sacubitril/valsartan and irabradine offer improvements in clinical outcomes and are attractive treatment options for patients who continue to suffer from high mortality and who experienced major bleeding. Post-operative ventilator use (n=6) ranged from 8.8% to 35.5% in those who experienced bleeding. Mortality increased for patients who experienced post-operative bleeding and was 1.9% to 21.1% for post-operative mortality and 3.1% to 22.4% for 30-day mortality. Eleven publications found significant higher average cost of cardiac surgery for those who experienced peri-operative bleeding and re-operation due to bleeding. CONCLUSIONS: Blood related complications and higher resource utilization in cardiac surgery patients who experience uncontrolled surgical bleeding pose substantial clinical burden to the patient and economic consequence to the hospital/health system.
morbidty rates. However, in a highly-generalized CHF market, prescribing of these therapies could result in significantly increased expenditures in an environment of tight healthcare budgets for U.S. insurers and research hospitals. Physicians and patients interact and how reimbursement decisions impact the prescribing of novel CHF therapies. METHODS: In September 2016, 72 cardiologists and 71 primary care physicians from 60 different states were surveyed to assess their current prescribing of PCSK9 inhibitors (alirocumab and evolocumab) in Medicare Part D plans. Thirty U.S. managed care organization pharmacy and medical directors were also surveyed. RESULTS: Despite being viewed as more efficacious than standard of care CHF therapies by surveyed cardiologists, sacubitril/valsartan is being prescribed to only a fraction of CHF patients. Cost-related issues, unfavorable payer coverage, and restrictions set by payers are major barriers to prescribing of sacubitril/valsartan and irbaviran by surveyed physicians. For 35-45% of physicians, out-of-pocket costs and on insurers’ formularies constraint their prescribing of these drugs to eligible patients. Meanwhile, cost drives formulary inclusion decisions for 47% of surveyed payers, who impose significant financial barriers on insurers. Prior authorization is the main cost-containment strategy, employed by over 50% of surveyed payers. One strategy being explored to overcome the barriers to drug access is engagement in outcomes-based contracts, whereby payers reward good outcomes through improved formulary placement of the drug or a credit toward rebates given. CONCLUSIONS: In a highly-generalized CHF market, health plans provide less favorable coverage and reimbursement for the premium-priced therapies. Engaging in OBC may be one way forward for manufacturers to get better coverage of their drugs and demonstrate their cost-effectiveness.

PCV115
PSCK9 INHIBITORS – COVERAGE AND COST-SHARING FOR MEDICARE PART D BENEFICIARIES NATIONWIDE
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OBJECTIVES: PCSK9 inhibitors are effective in reducing low-density lipoprotein cholesterol (LDL-C) among persons with familial hypercholesterolemia or pre-existing cardiovascular disease (CVD) where LDL-C levels remain high on normally tolerated statin therapy. However, the expense of PCSK9 inhibitors (> $14,000/year versus < $120 for generic statins) can pose substantial burden on patients’ out-of-pocket costs and on insurers’ drug expenditures. This is of particular concern as Medicare gives the high prevalence of CVD (72% ischemic heart disease) and hyperlipidemia (45%) among Medicare beneficiaries. We examined coverage and cost-sharing for PCSK9 inhibitors (alirocumab and evolocumab) in Medicare Part D plans during the 2016 benefit period. METHODS: Drug data came from 2016 Centers for Medicare and Medicaid Services Prescription Drug Plan Formulary, Pharmacy Network, and Pricing Information Files for Part D plans. We determined: 1) the proportion of plans providing coverage, 2) monthly and annual out-of-pocket costs, and 3) total drug cost (plans’ 30-day retail cost), averaged across 2,575 Part D plans in 50 states and the District of Columbia. We projected the total annual out-of-pocket cost under a standard 2016 Part D benefit with a $360 deductible and a coverage gap, where cost-sharing increased when these drugs to eligible patients. Meanwhile, cost drives formulary inclusion decisions for 47% of surveyed payers, who impose significant financial barriers on insurers. Prior authorization is the main cost-containment strategy, employed by over 50% of surveyed payers. One strategy being explored to overcome the barriers to drug access is engagement in outcomes-based contracts, whereby payers reward good outcomes through improved formulary placement of the drug or a credit toward rebates given. CONCLUSIONS: In a highly-generalized CHF market, health plans provide less favorable coverage and reimbursement for the premium-priced therapies. Engaging in OBC may be one way forward for manufacturers to get better coverage of their drugs and demonstrate their cost-effectiveness.

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Lu CV1, Zaeem AO2, Liu Y3, Tseng C1, Dudley RA1, Yazdany J4, Chen R5, Tseng C6
1Harvard Medical School and Harvard Pilgrim Health Care Institute, Boston, MA, USA, 2University of California, San Francisco, San Francisco, CA, USA, 3Pacific Health Research & Education Institute, Honolulu, HI, USA, 4University of Hawaii John A Burns School of Medicine, Honolulu, HI, USA
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PCV116
EVALUATION OF AWARENESS REGARDING HYPERTENSION AMONG HYPERTENSION PATIENTS OF PUNJAB, PAKISTAN
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OBJECTIVES: The present study aimed to evaluate the knowledge among hypertensive patients. METHODS: A questionnaire based descriptive, cross-sectional study was conducted in the outpatient setting of Benazir Bhutto hospital Rawalpindi, Sri Ganga Ram hospital Lahore, Nishtar hospital Multan and Bahawal Victoria hospital in Bahawalpur, Pakistan. Knowledge regarding hypertension was assessed by using Hypertension Fact Questionnaire. Statistical package for social sciences (SPSS) version 20.0 was used to analyze data. Descriptive statistics was used to summarize data and chi square test was used to assess the association between categorical variables. The result of the study demonstrated that hypertension in women (U test and Kruskal Wallis test) were used to find statistical difference in the scores based on categorical variable. RESULTS: Among the 340 participants, mean age (SD) was 65.1 (11.49), with 60.6% of females dominating the entire cohort. Majority of the participants (73.6%) belonged to urban area. About 35.6% had HTN for more than 5 years, 53.5% had family history of hypertension and 53.2% had hypertension along with co-morbidity. The mean score of hypertension knowledge (SD) was 43.41 (13.56). The result of the study demonstrated that hypertension awareness among patients has average knowledge. CONCLUSIONS: The current study findings revealed the importance of educational programs to increase the awareness of the patients regarding the importance of lifestyle modifications and medication for control of disease.
insurance, and those who were discharged to home health were more likely to be readmitted. A significant downward trend over time was observed in 30-day readmission rates in the fully adjusted model (OR=0.96, CI=0.94–0.97). CONCLUSIONS: We found a significant reduction in 30-day readmission rates over time between the years 2008 and 2016. This reduction is substantial as it reduces both physical and economic burden of readmissions on our patients and healthcare system and remains a significant quality measure closely linked to incentives and penalties for care providers by the public and private payers.

PCV21
THE EFFECT OF PATIENT EDUCATION PROGRAM ON HYPERTENSION-RELATED KNOWLEDGE AMONG USERS OF COMPLEMENTARY AND ALTERNATIVE MEDICINES
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OBJECTIVES: To assess hypertension-related knowledge among patients pursuing complementary and alternative medicines (CAM) as a way of self-care; and find the differences in patients’ knowledge following educational intervention. METHODS: The study was conducted between May to December 2015 among hypertensive patients attending two major teaching hospitals in Baghdad, Iraq. A cross-sectional design was adopted; and a convenience sampling technique was used for patients’ recruitment. Data collection based on the use of standard validated questionnaire for patient assessment on enrollment and follow-up clinical visit thereafter. Patients were engaged in two separate CAM education sessions and a four-page booklet was used for the purpose of education. RESULTS: Inadequate knowledge towards hypertension-related knowledge was seen among patients and no-users (P<0.007). Where, CAM users were less (mean=6.69±3.3) in their level of hypertension-related knowledge than no-CAM users (mean=7.6±3.4). This was affected by demographic characteristics like gender (P=0.004), education (P<0.001), monthly income (P=0.002), and marital status (P=0.003). However, a significant improvement in patients’ knowledge was detected following the enrollment in the education program (P<0.001). CONCLUSIONS: Hypertension-related knowledge was inadequate among Iraqi hypertensive patients pursuing CAM as a way of self-care. This poor knowledge among CAM users was affected by diverse patient’s characteristics including gender, education, monthly income, and marital status. A significant improvement in hypertension-related knowledge was seen following the educational intervention. The education program was effective and provide reliable information for the purpose of patient's education in the context of CAM.

PCV22
DELAYING TREATMENT WITH CHOLESTEROL-LOWERING MEDICATIONS IN PATIENTS MEETING NEW TREATMENT GUIDELINES: A RETROSPECTIVE COHORT ANALYSIS
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OBJECTIVES: The 2013 American College of Cardiology/American Heart Association (ACC/AHA) guidelines on cholesterol-lowering therapy recommended delaying the initiation of large number of new users. The objective of this paper is to document the potential for this expansion in to improve clinical outcomes and reduce cost. METHODS: ACC/AHA guideline criteria for statin initiation were applied to large Humana data [2007–2013] and divided into three groups: elevated LDL [identified in earlier guidelines], selected diabetes patients and patients with atherosclerotic cardiovascular diseases [ASCVD]. Patients with no pre-classification cholesterol treatment were then selected and divided in two treatment groups: early [before any CVD event] and late/never treated. The clinical outcomes were to time four separate events [AMI, stroke, coronary stenting, coronary artery bypass graft surgery (CABG)]. Costs were measured over the first year following a risk classification. Clinical outcomes were analyzed using Cox proportional hazards models. Costs were analyzed using generalized linear models [GLM] and the RAND two-step model for hospital costs. RESULTS: 237,856 people were classified according to ACC/AHA guideline criteria and met study inclusion/exclusion criteria. Only 3.5% of study patients fell into the elevated LDL risk group identified under previous guidelines and 65% of these patients were treated ‘early.’ Early treatment rates were lower for ASCVD patients [37%] and diabetes patients [46%]. Early treatment significantly reduced event risks [HR 0.26 to 0.34, P<0.0001] across the 4 events and reduced cost over the first year $3,607 [P<0.001]. Early treatment was more effective in the ‘new’ ASCVD risk group, was the largest, at highest risk, and most expensive to treat of the 3 ACC/AHA risk group. CONCLUSIONS: The 2013 treatment guidelines for cholesterol-lowering therapy will significantly increase the number of patients eligible for treatment. However, all eligible patients must receive ‘Early’ treatment to experience reduced CVD risks and lower health care.

INDIVIDUAL'S HEALTH – Clinical Outcomes Studies

PHH
ASSOCIATION OF SEDATIVE HYPNOTICS AND FALL RISK IN COMMUNITY-DWELLING OLDER ADULTS WITH CHRONIC CONDITIONS: A SYSTEMATIC LITERATURE REVIEW
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OBJECTIVES: Degree of fall risk attributed to sedative hypnotics in older adults is unclear when complicated by chronic conditions with underlying fall risk. Accordingly, the objective of this review was to assess the risk of falling, fall-related fractures, and fall-related hospital admissions in community-dwelling older adults who are prescribed sedative hypnotics. METHODS: PubMed, PsychInfo, CINAHL, and ClinicalTrials.gov were searched using keywords such as “sedative hypnotic,” “fall-risk,” and “older adult.” Criteria for study inclusion were: 1) English language; 2) peer-reviewed; 3) published between 1980-2016; 4) experimental or quasi-experimental study designs; 5) adults > 65 years of age; 6) adults with a chronic condition that increases baseline risk of falling (diabetes, heart disease, atrial fibrillation, hypertension, osteoporosis, depression, cancer, falls, substance abuse) and is present in the community setting; and 8) adults prescribed 1 or more benzodiazepine(s) or z-hypnotic(s) indicated for insomnia (triazolam, temazepam, flurazepam, zolpidem, zopiclone, zaleplon). Exclusion criteria were verified by a second independent investigator. Quality assessment utilized the Mixed Methods Appraisal Tool (MMAT). RESULTS: After full-text review, 5 articles were retained. Studies used cross-sectional or single-group longitudinal designs, with MMAT quality scores of 50%-75% and sample sizes ranging from 124-1,062. Only one study assessed fracture risk and no studies assessed healthcare utilization. The risk of falls was inconsistent across studies and population subgroups. For example, benzodiazepine-preserved odds of falling by 18 times (OR: 18.22, 95% CI 2.71-122.38) in older adults with atrial fibrillation. However, sedative hypnotics did not statistically significantly increase odds of falling in older adults with stroke (OR: 2.3, 95% CI 0.76-7.07). CONCLUSIONS: Increased risk of falling attributable to use of sedative hypnotics in older adults may vary based on underlying chronic conditions. Further studies should investigate contributors to fall risk in older adults with specific types of chronic conditions.

PHH
ASSESSMENT OF THE SAFETY AND EFFICACY OF LONG-TERM ACTING REVERSIBLE CONTRACEPTIVE METHODS (LARC) COMPARED TO CONVENTIONAL METHODS (NON-LARC) IN ADOLESCENTS: AN META-ANALYSIS
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OBJECTIVES: The aim of this study was to analyze the efficacy and safety of long-acting reversible contraceptive methods (LARC) compared to conventional contraceptive methods in adolescents. METHODS: We performed, a systematic search in Medline, Embase, Lilacs and the Cochrane Database from inception to May 2016, for observational studies and randomised controlled trials comparing the use of LARC versus non-LARC in adolescents. Two reviewers independently selected studies, extracted quality, and measured data. Discrepancies were resolved through consensus. The outcomes were adherence, pregnancy rate, adverse events, abortion rates, and adolescent's contraception choice. We used the Revman 5.3.4 to combine results across studies. We derived risk ratios (RRs) and mean differences with 95% CI using a random-effects meta-analytic model. RESULTS: Nine relevant studies were included. LARC’s 12 months adherence is better than non-LARC (RR 1.38 [95% CI 1.01 – 1.87], analyzing only more recent studies, those since 1999, an even better 12 months adherence (RR 1.53 [95% CI 1.05 – 2.23]) was observed. There was no difference between LARC and non-LARC concerning the pregnancy rate (RR 0.46 [95% CI 0.99 – 2.52]). Also, there was no difference between the methods in relation to adverse events. Therefore, non-LARC is preferred by the adolescents, although without statistical significance. We conclude that LARC has potential benefits of increased contraceptive adherence. However, it is noteworthy that most of the included studies are from the 1970s and the absence of more recent studies comparing new available technologies may impact our results.

PHH
POTENTIAL DRUG-DRUG INTERACTIONS IN PEDIATRIC PATIENTS OF GONDAR UNIVERSITY HOSPITAL, ETHIOPIA: A CROSS SECTIONAL STUDY
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OBJECTIVE: To determine the prevalence, level of severity of potential drug-drug interactions (PDDIs) and the associated factors for FDDIs in hospitalized pediatric patients of Gondar University Hospital. METHODS: A retrospective cross-sectional study was conducted for a period of 3 months from March to May 2014 in pediatric wards of Gondar University Hospital. Systematic random sampling technique was used to select charts from all pediatric patients’ charts with every 7th interval to get sample size of 384. Univariate and multivariate analysis were performed to compare these odds ratio and adjusted odds ratio respectively. Significant statistical significance was set at P value < 0.05. RESULTS: A total of 176 (45.8%) patients had at least one FDDI. A total of 393 PDDIs, which were comprised of 283 types of interactions, were identified. Of the total of 393 PDDIS, most were of moderate severity [201 (51%)] followed by minor [152 (39%)] and major severity [40 (10%)]. The most common interacting pairs of major severity were gentamicin + furosemide (6), cotrimoxazole + metronidazole (4) and phenytoin + atenolol (4). The occurred with age was significantly associated with PDDIs. CONCLUSIONS: The study showed that most of the interactions had moderate severity followed by minor severity. Age and polypharmacy were found to significantly affect interactions with children. Due to the sensitive nature of pediatrics population, close monitoring is recommended for the detection and management of FDDIs to prevent its negative consequences.


PH4

READMISTIONS TO HOSPITAL DUE TO ADVERSE DRUG REACTIONS IN ELDERLY AMONG 40-70 YEAR-OLD MEN ACROSS EIGHT COUNTRIES

OBJECTIVES: To investigate the rate of adverse drug reaction (ADR)-related readmission among elderly patients previously hospitalized due to an ADR, to identify predictors of ADR-related readmission. METHODS: This retrospective study was conducted at the Royal Hobart Hospital, Tasmania, Australia. Data were collected from the digital medical records of 768 elderly patients in the PADR-EC (Prediction of Hospitalization due to Adverse Drug Reactions in Elderly Community-Dwelling Patients) study. The PADR-EC score is the sum of points assigned to five significant predictors of ADR-related hospitalization - antihypertensive use (3 points), use of 5 or more drugs (2 points) or 3-4 drugs (0.5 points), renal failure (6 points), and previous ADR (1 point). ADRs were defined as probable if an ADR were readmitted with an ADR within 12 months of discharge. The PADR-EC score could potentially be used at hospital discharge to prioritise patients for interventions to prevent subsequent ADR-related hospital admission.

RESULTS: Among 40-70 year-old men across eight countries, the rate of hospital readmissions due to ADRs was 6% (n=31) of 535 ADR-related index admissions. Patients readmitted with ADRs had significantly higher PADR-EC scores when discharged from their index admission (median PADR-EC score 7, interquartile range 5-9) than those who were not readmitted with ADRs (6, 5-7, P=0.012). Most (80%) ADR-related readmissions were considered ‘preventable’. ADR severity was ‘moderate’ in 97% and ‘severe’ in 3% of admissions. Renal dysfunction (67%) represented the most common ADRs, followed by cardiovascular (22%) and endocrine/metabolic disorders (16%). The most frequently implicated drug classes were diuretics (26%) and agents acting on the renin-angiotensin system (22%). Using the Naranjo algorithm 84% of ADRs were probative and 16% were possible. For most admissions (94%) the ADR resolved and was probably preventable. 13% of ADRs were likely to be associated with poorer health outcomes globally. The most frequent associated conditions included cardiovascular (22%) and endocrine/metabolic disorders (16%). For most admissions (94%) the ADR resolved and was probably preventable. 13% of ADRs were likely to be associated with poorer health outcomes globally. The most frequent associated conditions included cardiovascular (22%) and endocrine/metabolic disorders (16%).

CONCLUSIONS: One in five elderly patients hospitalized due to an ADR were readmitted with an ADR within 12 months of discharge. The PADR-EC score could potentially be used at hospital discharge to prioritise patients for interventions to prevent subsequent ADR-related hospital admission.

PH5

ERECTILE DYSFUNCTION SEVERITY, RISK FACTORS, AND HEALTH OUTCOMES AMONG 24,100 MEN WITH ERECTILE DYSFUNCTION (ED) ACROSS EIGHT COUNTRIES

OBJECTIVES: To compare the prevalence of ED severity and associated risk factors across varying ED severity and associated risk factors.

RESULTS: Among 40-70 year-old men with ED severity and comorbidities such as smoking, depression, and hypertension were associated with poorer health outcomes globally.

CONCLUSIONS: Among 40-70 year-old men with ED severity and comorbidities such as smoking, depression, and hypertension were associated with poorer health outcomes globally.

PH6

IDENTIFICATION AND EVALUATION OF CLINICAL AND ECONOMIC IMPACT OF PEDIATRIC DRUG RELATED PROBLEMS IN THE ELDERLY

OBJECTIVES: To evaluate the pattern and predictors of potential DRPs among elderly patients and its consequential clinical and economic impact. METHODS: Prospective interventional study was performed for a period of 18 months among the internal medicine department inpatients. Potential DRPs were determined and grouped into categories. Clinical impact of pharmacist-initiated drug therapy changes were evaluated by the research pharmacist and an independent clinical panel for any possible impact on the readmission probability, length of hospital stay, treatment failure, etc. To analyse the economic impact of pharmacist-initiated drug therapy changes, the impact of cost savings on the length of stay, readmission probability, medical procedures and drug cost were considered. RESULTS: Among the 863 admitted patients, 728 DRPs (84%) were identified from potential DRPs (10% DRPs/person). Most frequent DRPs were those involving drug selection/administration (35%) and the commonly implicated drug category was drugs used for antiluminary tract and metabolism (N=318). Major clinical pharmacist intervention was deletion of the drug (29%) and in 55% cases the intervention was accepted and the drug was changed. Cost saving of DRPs estimated to be approximately USD 5,818.96, out of which approximately USD 4,887.93 could have been preventable as 84% of the potential DRPs were of preventable nature. According to the clinical panel, Tibet of the pharmacist interventions had been important clinical relevance. Pharmacist interventions reduced the length of hospitalization, disease relapse and treatment failure in 41%, 19% and 16% cases respectively. The total cost saving from interventions was estimated to be USD 4,887.93 including the prevention of drug related complications. Conclusions: Geriatric pharmacotherapy services by clinical pharmacist can contribute to minimize DRPs in elderly.

PH7

TRENDS OF OPIOID UTILIZATION DURING PREGNANCY AND INCIDENCE OF NEONATAL ABSTINENCE SYNDROME

OBJECTIVES: To investigate the rate of adverse drug reaction (ADR)-related hospital readmissions in elderly patients previously hospitalized due to an ADR, and the impact of cost savings on the length of stay, readmission probability, medical procedures and drug cost were considered. CONCLUSIONS: One in five elderly patients hospitalized due to an ADR were readmitted with an ADR within 12 months of discharge. The PADR-EC score could potentially be used at hospital discharge to prioritise patients for interventions to prevent subsequent ADR-related hospital admission.

OBJECTIVES: To compare the pattern and intensity of opioid utilization during pregnancy in deliveries with and without NAS. METHODS: We examined women in a commercial claims database for years 2011-14 who filled an opioid prescription during pregnancy for a non-cancer indication. The objective of the study was to compare the pattern and intensity of opioid utilization during pregnancy in deliveries with and without NAS. CONCLUSIONS: We found 314 cases of NAS in 61,568 pregnancies (5.10% per 1,000 deliveries). In the unmatched analysis, we found that NAS pregnancies had a significantly higher average daily MED during the gestation period (p<0.001). In NAS pregnancies, we noted a decrease in the average daily MED following the onset of pregnancy which was stable up until the third trimester where it subsequently increased. In the matched analysis, the mean MED in the third trimester was higher in the NAS group compared to the non-NAS group (+2.91 mg MED). Our findings in the pre-term pregnancy group were similar. CONCLUSIONS: While opioid exposed patients who developed NAS made a concerted effort to decrease their opioid utilization following the onset of pregnancy, opioid utilization remained high throughout the gestation period. Neonatal NAS exposure was associated with NAS.
hospitals of Quetta from February to August 2016. Children aged from 2 to 12 years were included in the study. Data was collected using a special Performa made for this particular study. WHO guidelines were used. The Performa include information regarding clinical appearances, current complaints, measurements of weight, Height, Mid-Upper Arm Circumference (MUAC) circumference, and Hb (%). As per WHO guideline the 2-score were calculated and standard scoring (Standard Deviation (SD)) was used to identified malnutrition status. The patients were categorized as 0 to 1 SD mild, -1 to 2 SD moderate and < -2 SD severe malnutrition categories. RESULTS: A total of 344 patients were included in the study of which 52% were male. According to 2.5 score the patients were categorized to malnutrition status as; mild (n= 38, 11.3%), moderate (n=72, 21.5%), severe 157 (46.9%). Most of the patients (n=140, 41.8%) came for the malnutrition as their current complaint. Result shows that malnutrition was more prevalent in children age less than 2 years (n=185, 55.2%) with majority 43.6 % had improper breast feeding and (n=164,49%) had improper weaning. Majority of the patients (n=209, 60%) have no records of their vaccination. Most of the patients of the patients (n=375, 92.5%) were uneducated.

PHI02 PREDICTORS OF ANAEMIA AMONG ANTENATAL CLINIC REGISTRANTS IN URBAN GHANA: AN ANALYTIC CROSS-SECTIONAL STUDY 2016

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OBJECTIVES: Anaemia in pregnancy remains disease of Public Health Concerns in Ghana. However limited intervention exists for its prevention during preconception period. This study aimed at determining prevalence and factors associated with it at ANC registration at District Health facility to inform policy. METHODS: We conducted a cross-sectional study. A total of 364 pregnant women registering in ANC at 15-34 years were randomly selected between February –July 2016. We interviewed participants on socio-demographic, past medical, obstetrics, diet, medications using interviewer administered structured questionnaires, and routinely requested Hemoglobin and malaria parasitamia data were also collected. Data abstracted was managed in EPI info 7 and Stata 13.0. Univariate and Multiple logistic regression analysis were performed in EPI info 7 and Stata 13.0. Hemoglobin and malaria parasitamia data were analyzed. Data abstracted was managed in EPI info 7 and Stata 13.0. Univariate and Multiple logistic regression analysis were done at 95% confidence level. RESULTS: Prevalence of anaemia among pregnant women was 21.8% (95% CI: 20.0- 23.6%) and 12.5% of pregnant women were anaemic in 25-29, 29-35 and 35-40 years. Fifty two percent had primary education, 30.2 and 11.6 percent had secondary and tertiary respectively. Whiles 72.8 percent registered in 2nd and 3rd trimesters, only 27.2% registered in the 1st trimester. Logistic regression analysis (95% confidence level) showed low monthly income < 25.00 USD [APOR= 2.33; P-value 0.05], Sickle Cell Disease [APOR= 3.41; P-value 0.01], eating fish [APOR= 0.29; P-value 0.01], and eating of fruits [APOR= 0.24; P-value 0.00] were significantly associated with developing anaemia in pregnancy at registration. However, only bivariate analysis showed preconception haematanic intake [POR= 1.20; CI 0.51- 2.79], having some formal education [POR=0.56; CI 0.20-1.52], eating cereal/grain [POR= 0.83; CI 0.45-1.59] and using tubers [POR=0.54; CI 0.29-1.01] was associated with the disease. CONCLUSIONS: Undoubtedly, there is high prevalence of anaemia in pregnancy particularly among low income earning women with majority of registrants presenting late. Preconception sickle cell disease screen coupled with comprehensive dietary counseling and support among prospective pregnant women has the potential to prevent anaemia in pregnancy.

PHI03 CORRELATES FOR HEALTH-RELATED QUALITY OF LIFE AMONG PREGNANT WOMEN IN CHENGDU OF CHINA: RESULTS FROM A HOSPITAL BASED SURVEY

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OBJECTIVES: Health-related quality of life (HRQOL) is a patient-reported outcome measurement of health status. The present study aimed at assessing the prevalence and correlates of HRQOL among pregnant women. METHODS: A cross-sectional survey was conducted over a period of 4 months (Nov 2015 – Feb 2016) in three perinatal outpatient clinics of New Delhi, India. A pretested questionnaire was used to collect information from 66 mother and child pair. Socio-demographic profile, birth weight, anthropometric, feeding pattern and consumption of Iron fortified cereals was collected. Hemoglobin estimation was done as a part of normal examination by the pediatrician. A child was considered to be on Iron fortified cereals if a minimum 1-2 serving/day was feed along with homemeade foods. RESULTS: The prevalence of anemia (hb <11 g/dl) in study sample was 42.4%.The mean age with hemoglobin of < 11g/dl and >11g/dl was 13.7±3.5 months. Socially, illiteracy and low average monthly income was significantly associated with birth weight (p = 0.0001) and consumption of iron fortified cereals (p=0.0003) whereas age of mother (p=0.145), parity (p=0.08) and maternal education (p=0.09) were not significant. CONCLUSIONS: Consumption of iron fortification cereals was significantly associate with hemoglobin level. Given the negative impact of anaemia on the development of children, there is an urgent need for effective remedial public health interventions. due to limited geographic location and small sample size, further larger and controlled studies are needed.

PHI04 A FIVE-YEAR BUDGET IMPACT ANALYSIS OF THE INCLUSION OF ETONOGESTREL IMPLANT FROM THE PRIVATE HEALTH SECTOR PERSPECTIVE IN BRAZIL

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OBJECTIVES: Oral contraceptives are effective in the prevention of unplanned pregnancy, but are associated with low adherence and may result in contraceptive failure due to long acting reversible contraceptives. The aim of this study was to calculate the economic costs of the etonogestrel implant and the levonorgestrel intrauterine system for five years, from the private health perspective of Brazil. METHODS: The eligible population was female perinatal women aged 15-39 years from September 2010 to September 2015. Costs were expressed in Reais by year. Comparative and market-share of contraceptives data were obtained from local sources. The costs for etonogestrel implant and levonorgestrel intrauterine system were 902.85 BRL and 760.33 BRL, in addition to 173.5 BRL and 236.52 BRL, respectively, as reimbursement by procedure. For levonorgestrel intrauterine system, it was also considered a hysterectomy or abortion procedure.

PHI05 PREVALENCE AND ASSOCIATED FACTORS OF HERBAL MEDICINE USE AMONG PREGNANT WOMEN ON ANC FOLLOW-UP AT GONDAR UNIVERSITY REFERRAL HOSPITAL, ETHIOPIA: A CROSS-SECTIONAL STUDY

Birru EM, University of Gondar, Gondar, Ethiopia

OBJECTIVES: The present study aimed at assessing the prevalence and correlates of herbal medicine use among pregnant women on ANC follow-up at Gondar university referral hospital, Ethiopia. METHODS: An institutional-based cross sectional study was employed on 364 pregnant women attending ANC clinic from March to May 2016 at Gondar university referral hospital, northwest Ethiopia. The use of herbal medicine during pregnancy is a common practice and associated with being rural residency, illiteracy and low average monthly income. The present study aimed at assessing the prevalence and correlates of herbal medicine use. RESULTS: From 364 respondents, 48.6% of them used herbal medicine during current pregnancy. Ginger (40.7%) and Garlic (19%) were the two most commonly used herbs in pregnancy. Common cold (63%), constipation (14.7%) and inflammation (17.1%) were the most commonly used indications for herbal medicine use. 89.8% of them have not consulted their doctors about their herbal medicine use. CONCLUSIONS: The use of herbal medicine during pregnancy is a common practice and associated with being rural residency, illiteracy and low average monthly income. Given the high frequency of herbal medicine and a very low disclosure rate, health care providers should be open to discuss the use of herbal medicines with pregnant women as it will lead to better health outcome.

PHI12 NUTRITIONAL AND SOCIO ECONOMIC DETERMINANTS OF HEMOGLOBIN LEVEL IN CHILDREN AGED 12-24 MONTHS

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OBJECTIVES: Anemia is multifactorial in etiology. Preventative efforts, predominately focused on increasing iron intake between the period of conception and 24 months, are as this duration is important to nutrient effects on child, growth, development, and school attainment. However, Data on association of various factors on hemoglobin level are limited. Hence the objective was to determine biological, nutritional and socioeconomic factors associated with hemoglobin level in Indian children aged 12-24 months. METHODS: A cross sectional Pilot study was conducted over a period of 4 months (Nov 2015 – Feb 2016) in three pediatric outpatient clinics of New Delhi, India. A predesigned questionnaire was used to collect information from 66 mother and child pair. Socio-demographic profile, birth weight, anthropometric, feeding pattern and consumption of Iron fortified cereals was collected. Hemoglobin estimation was done as a part of normal examination by the pediatrician. A child was considered to be on Iron fortified cereals if a minimum 1-2 serving/day was feed along with homemeade foods. RESULTS: The prevalence of anemia (hb <11 g/dl) in study sample was 42.4%.The mean age with hemoglobin of < 11g/dl and >11g/dl was 13.7±3.5 months. Socially, illiteracy and low average monthly income was significantly associated with birth weight (p = 0.0001) and consumption of iron fortified cereals (p=0.0003) whereas age of mother (p=0.145), parity (p=0.08) and maternal education (p=0.09) were not significant. CONCLUSIONS: Consumption of iron fortification cereals was significantly associate with hemoglobin level. Given the negative impact of anaemia on the development of children, there is an urgent need for effective remedial public health interventions. due to limited geographic location and small sample size, further larger and controlled studies are needed.
surgical curettage in 25% of cases in the base case and 75% in the alternative scenario. RESULTS: In five years, the budget impact in the base case was 158,792,751 BRL. In the alternative scenario, without and with taking data from Mоворон, the results respectively, resulting in savings of 23,266,735 BRL. In the alternative scenario, savings with the inclusion of etonogestrel implant would be of 106,230,590 BRL. CONCLU-
SIONS: The results of the etonogestrel trial support Part D plan offerings during Medicare open enrollment. PDP optimization can play a vital role decreasing OOP costs. Beneficiaries with developmental disabilities may lack the resources necessary to effectively navigate the benefit. Partnerships between organizations/agencies that serve those with DD and trained pharmacy students can prove fruitful and beneficial to all involved.

PH1H
NEUMA BUDGET-IMPACT MODEL FOR PEDIATRIC PARENTERAL NUTRITION
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OBJECTIVES: To estimate the budget impact of NUMETA for neonatal and pediatric patients who are unable to tolerate oral or enteral feeding, requiring parenteral nutrition from the health care provider perspective. METHODS: A budget impact model was adapted from a global version in order to capture, from the hospital perspective, all resource such as ingredients, consumables, installations and device costs and staff-time of the whole production chain of preparing parenteral nutrition. In addition, costs due to medication errors and complications were included. Patients can switch from in-hospital compounded products (manual or automated) or externally produced products to NUMETA and the budget impact of these switches are calculated for a three year time horizon. Model inputs were collected from different sources such as: secondary data review, expert interviews and four administrative data bases from health care providers, compounding center and benefit plan manager. Local currency, Colombiano Pesos COP. RESULTS: Baseline scenario of treating 1,000 of patients with bariatric procedure and $717,592 COP (5.6% of Numeta adoption in 3 years): 1st year COP $50,467,362, 2nd year COP $334,598,067 and 3rd year COP $993,123,652. Cumulative budget impact in hospital perspective, all resources such as ingredients, consumables, installations and device costs and staff-time of the whole production chain of preparing parenteral nutrition was of $2,683,444,487. A retrospective analysis of Brazil public hospital admis-
sions for pneumonia was developed according to ICD-10 classi-
fication. Burden of pneumonia among elderly in Brazil from the public healthcare perspective.

PH1H1
THE ASSOCIATION BETWEEN MALNUTRITION AND HOSPITAL INPATIENT COST AMONG COMMUNITY-DWELLING OLDER CHINESE ADULTS
Zhang Y1, Fan L1, Li S2, Partidge F, Clayton L1, Goates S1
1China Health Economics Association, Beijing, China, 2Abbott Nutrition, Abbott Park, IL, USA, 3Abbott Nutrition, Columbus, OH, USA
OBJECTIVES: Malnutrition and its associated outpatient costs are of concern among older adults in general. The association of malnutrition and outpatient costs however is of particular interest in China, which has the largest elderly population in the world. This paper aims to study the association between nutrition status, number of outpatient visits, and outpatient cost per month among community-dwelling Chinese elderly. METHODS: We used 2013 China Health and Retirement Longitudinal Study (CHRLS) survey data, which included 7,768 community-dwelling Chinese elderly. Measures of hand grip strength, Body Mass Index, and weight loss were used as indicators of malnutrition status. We excluded regular physical examinations and immunization to the outpatient visits requiring treatment of illness. We estimated the association of malnutrition and outpatient visit costs per month. RESULTS: We found that malnutrition increased outpatient visit costs per month. As measured by patient’s physical performance, malnutrition is a significant predictor of outpatient cost, thus highlighting the importance of malnutrition screening, identification, and treatment for Chinese elderly (age ≥ 60) living in the community. Improving nutritional status of the elderly through inexpensive clinical and educational interventions could potentially be cost-effective methods to reduce health care costs of malnourished older Chinese adults.

PH1H2
THE IMPACT OF MALNUTRITION ON HOSPITAL OUTPATIENT COST AMONG COMMUNITY-DWELLING OLDER CHINESE ADULTS
Zhang Y1, Fan L1, Li S2, Partidge F, Clayton L1, Goates S1
1China Health Economics Association, Beijing, China, 2Abbott Nutrition, Abbott Park, IL, USA, 3Abbott Nutrition, Columbus, OH, USA
OBJECTIVES: Malnutrition and its associated outpatient costs are of concern among community-dwelling Chinese elderly. The inclusion of the etonogestrel implant in private health sector in Brazil is a new technique for female contraception. We have conducted comparison characteristics of the price of progestogen. In average a general cost per 1 cycle is 24,261 UAH. It is 842,10 $ (1 $ = 28,81 UAH). In Japanese protocol used drugs Clomifenum 500, Menopur 75 ME, FSH 75 ME and 579 from 24.11.2004. During the recent times, there is a tendency for protocols with minimal stimulation and minimal hormonal load which aim at obtaining not only a single pregnancy but a multiple pregnancy. IVF is the most physiological and contains minimal hormonal interventions during maturation of the ovule. CONCLUSION: The costs associated with hospitalizations for pneumonia were 231,921 and 242,465 in 2014 and 2015, respectively, resulting in savings of 23,266,735 BRL. In the alternative scenario, savings with the inclusion of etonogestrel implant could save from 23.2 to 106.2 million reals, depending on the rate of hysterectomy, supplementing the contraindications for Brazilian women, also having fewer clinical restrictions compared to the use of the etonogestrel intrasynthetic system.
from 5.3% to 37.5%. However, there is little research on the impact of malnutrition on hospital costs for older Chinese adults. This study aims to investigate the association between malnutrition and hospital inpatient costs among community-dwelling elderly Chinese. METHODS: We use 2013 China Health and Retirement Longitudinal Study (CHARLS) data, which consists of nationally representative sociodemographic, health and health-care utilization information of community-dwelling adults aged 45 years or older (our sample is limited to those age 60 and older). Measures of hand grip strength, Body Mass Index (BMI), and weight loss were used as indicators of malnutrition status. Multivariate regressions were used to explore the effect of malnutrition on hospital inpatient costs in total and direct costs from hospital inpatient costs in the past year. In addition, we controlled for socio-demographics, health status, and quality of health care in the regression tests. RESULTS: A total of 52% of hospital admissions were associated with more hospital admissions and higher inpatient costs among older Chinese adults (32% more hospital admissions [0.29 vs. 0.22; p < 0.01], and 31% higher costs for all inpatient services in the past year compared to those living in a well-nourished state). Therefore, inpatient hospital costs of $201.7 million (95% CI: $191.1-$212.2 million). CONCLUSIONS: Malnutrition was associated with more hospital admissions and higher inpatient costs among community-dwelling adults over 60 years old, which is an important finding in the context of aging society in China. Addressing malnutrition including malnutrition screening and oral nutrition supple- ments could be effective in reducing hospital cost for the Chinese elderly.

PH22

ECONOMIC BURDEN ASSOCIATED WITH PEDIATRIC OPIOID POISONINGS
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OBJECTIVES: The main objectives of this study were to: 1) Estimate the economic burden associated with pediatric opioid poisonings in the United States; 2) Characterize the burden associated with opioid poisoning-related costs in children. METHODS: Economic costs were estimated using the 2012 Nationwide Emergency Department Sample, Kids’ Inpatient Database, Multiple Cause of Death database, and other published cost estimates applying a societal perspective. Direct costs included costs associated with emergency department (ED) visits, hospitalizations and ambulance transports. Indirect costs included productivity costs due to caregivers’ absenteeism and premature mortality among children. Markov chain Monte Carlo analysis was used to impute missing costs and sensitivity analyses were performed. A generalized linear model with a log-normal distribution was used to estimate the association between malnutrition and hospital costs. RESULTS: Total economic costs of pediatric opioid poisonings in the United States were calculated at $290.8 million in 2012. Total direct costs were estimated to be $209.7 million. Total productivity costs were calculated at $201.7 million, and $6,633 (SE ¼ 0.001) in 2012. CONCLUSIONS: Opioid poisonings in children resulted in direct and indirect costs of $290.8 million in 2012. Quantified healthcare costs associated with pediatric opioid poisonings can help decision-makers understand the economic trade-offs in planning interventions.

PH23

ABSENTEEISM AND INDIRECT ECONOMIC BURDEN ASSOCIATED WITH PRIMARY AND SECONDARY HYPOGONADISM: A RETROSPECTIVE MATCHED COHORT ANALYSIS OF EMPLOYED COMMERCIALLY-INSURED PATIENTS IN THE US
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OBJECTIVES: To characterize the indirect economic burden associated with primary and secondary hypogonadism (PSHG) in the United States. METHODS: Using the MarketScan® Health and Productivity Management Database, patients who had ≥1 medical claim with a diagnosis related to PSHG (initial claim=index date) and had evidence of testosterone therapy (TTH) within 12 months of index between 1/1/2010 and 12/31/2014 were identified (cases). Included cases were ≥18 years, had ≥2 TTH claims in the first 12 months of continuous enrollment with PSHG eligibility, and medical and pharmacy benefits before and after (follow-up) index. Controls with no diagnoses related to PSHG and no evidence of TTH were matched 3:1 to cases based on patient age, gender, calendar year, and index year) and PSHG eligibility. Overall and non-recreational absenteeism hours missed from work and associated productivity costs were measured during the 12 month follow-up period. Non-PSHG controls and PSHG cases were compared using descriptive statistics (chi-square tests for categorical variables and t-tests for continuous variables). Associated productivity cost was calculated by multiplying missed work-hours by an average hourly wage constant of $25.14/hour based on the US Bureau of Labor Statistics 2015 report. RESULTS: The study identified 2,300 PSHG cases and 6,899 non-PSHG controls (mean age 49 [SD=8] years), of which 84.6% and 81.2% had ≥1 absenteeism claim and 74.5% and 67.9% had ≥1 non-recreational absenteeism claim, respectively. PSHG cases missed an average 225.7 (SD=207.9) work-hours overall including 85.6 (SD=167.9) non-recreational hours. Non-PSHG controls missed an average 204.2 (SD=154.3) work-hours overall including 46.6 (SD=97.9) non-recreational hours. PSHG was associated with significantly higher overall and non-recreational missed work-hours (49.3 and 39.0 respectively, both p<0.001). The additional hours missed from work translated to overall productivity cost of $1,240, of which $797 was non-recreational (both p<0.001). CONCLUSIONS: PSHG is associated with significa ntly higher absenteeism and non-PSHG controls which translates to significantly increased indirect economic burden.

PH24

HOUSEHOLD COST OF INJURIES IN CHILDREN UNDER FIVE YEARS IN THE EJUJU-DWANG MUNICIPALITY OF THE ASHANTI REGION, GHANA: A CROSS SECTIONAL STUDY
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OBJECTIVES: To estimate the household cost and assess the burden of injury in children less than 5 years old in an urban setting in Ghana. METH ODS: A multistage sampling was used to select 600 households in Ejju in the Ejuju-Dwang Municipality of Ashanti Region. Questionnaire was used in the data collection. The data were analyzed into descriptive statistics in STATA version 13.0 to estimate the direct, indirect and total cost of injury. Sensitivity analysis was run on the cost estimates for a period of 5-10 years RESULTS: The educational level (39% at least primary education), living room (6.9% [CI: 4.6, 0.7]) and household size (0.79% [CI: 0.6, 0.9]) were statistically significant risk factors of injury in children under five years. The total sum of GHC 3,922.60 (US$ 1,028.20) averaging GHC 467.6 (US$ 127.4) was the average injury per household. An indirect estimate of injury per household in Ghana Cedis (GHC, 408,938) US$ 1,260,534.81 was lost averaging GHC481.89 (US$ 123.60) per household. The time value lost was 10,690 cumulative working days with a monetary equivalence of GHC 4,754,320 (US$1,246,217.56) averaging GHC17, 554 (US$ 5,105.7) in 2015. CONCLUSIONS: The study revealed high household cost and varying burden of injury in children under five years. The findings are significant for policy update, design and implementation of safety and preventive interventions for injury control.

PH25

COST EFFECTIVENESS ANALYSIS OF THE USE OF IUS-LNG AGAINST ORAL CONTRACEPTIVES AND NSAIDS, FOR THE TREATMENT OF HEAVY MENSTRUAL BLEEDING IN COLOMBIA
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OBJECTIVES: To estimate the cost-effectiveness ratios for the use of IUS-LNG versus the use of oral contraceptives and three NSAIDs (mefenamic acid, tranexamic acid and naproxen) for the treatment of heavy menstrual bleeding in Colombia METHODS: A Markov model to evaluate the costs of 12-months of continuous enrollment with hysterectomy, the frequency of hysterectomies as the main clinical outcome and the total healthcare costs. The base case is patients with excessive loss of menstrual blood that affect quality of life, and the total healthcare costs. The base case was patients with excessive loss of menstrual blood that affect quality of life and the total healthcare costs. Analyses were performed using the societal perspective. RESULTS: The IUS-LNG was found as the treatment that prevents the largest number of hysterectomies in one year: 72% of patients treated with the IUS-LNG did not arrive to hysterectomy, compared to 45% of patients under oral contraceptives and 41% under NSAIDs. In terms of average costs, patients treated with IUS-LNG, AOs and NSAIDs are estimated at USD$483, USD$507 and USD$751,
PH26 COST-EFFECTIVENESS ANALYSIS OF ETONOGESTREL IMPLANT VERSUS LEVONORGESTREL INTRAUTERINE SYSTEM FROM THE PRIVATE HEALTH SECTOR PERSPECTIVE IN BRAZIL
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OBJECTIVES: An unplanned pregnancy can have profound consequences, e.g., unsafe abortion, which is a public health problem in Brazil. Ensure access to highly efficient contraceptive may impact in reducing unplanned pregnancies. Therefore, this analysis aimed to evaluate the cost-effectiveness of long-acting reversible contraceptives (etonogestrel implant versus levonorgestrel intrauterine system), from the Brazilian private health perspective. METHODS: The eligible population, the insured beneficiaries in September 2016 that were current users of levonorgestrel intrauterine system, aged 19 to 48 years. Efficacy, cost and market-share of contraceptives data were obtained from local sources. Annual discontinuation and failure rates of each method were considered. Average cost of an unplanned pregnancy was 3,181.33 BRL. The prices for etonogestrel implant and levonorgestrel intrauterine system were 902.85 BRL and 760.33 BRL, in addition to 173.5 BRL and 236.52 BRL, respectively, as reimbursement by procedure. For levonorgestrel intrauterine system was also considered a hysteroscopy in 25% of cases in the base case and 75% in the alternative scenario. Time horizon was 15 years, with yearly cycles. Costs and benefits were discounted by 5% per year. RESULTS: In an initial population of 2,125 women, etonogestrel implant avoided 959 unplanned pregnancies after 15 years, with savings in device costs and unplanned pregnancies costs, therefore being cost-saving, in both scenarios. The reduction in total costs was of 27,117.307 BRL for the base case and 26,872.204 BRL for the alternative scenario. CONCLUSIONS: Compared to levonorgestrel intrauterine system, etonogestrel implant was cost-saving, with a reduction of unplanned pregnancies and costs. Given its high efficacy and cost-effectiveness, etonogestrel implant should be included as an option for women in the private health sector of Brazil.

INDIVIDUAL’S HEALTH – Patient-Reported Outcomes & Patient Preference Studies

PH27 KNOWLEDGE, ATTITUDE AND PRACTICE (KAP) TOWARDS VACCINATION: A CROSS SECTIONAL STUDY AMONG THE PARENTS IN URBAN REGION OF MALAYSIA
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OBJECTIVES: To evaluate parent’s knowledge, attitude and practice (KAP) on vaccination among their children and correlation with socioeconomic parameters. METHODS: Pre-validated questionnaire was used to obtain response from 200 parents. Adolescents or children’s vaccination status, parents’ education, income and occupation were the main factors considered. RESULTS: Knowledge and practice was noted on the basis of selected questions. There was a significant association between educational level and adherence to vaccination schedule (p = 0.018). Nutritional status is in alarming condition with 54.6% of children being overweight or obese and 17.2% having diabetes. There is a good association between educational level and the economic status (p = 0.001). CONCLUSIONS: Our study aims to assess the knowledge, attitude and practice (KAP) on vaccination among their children and correlation with socioeconomic parameters. The study would open the need for future studies to assess the knowledge, attitude and practice (KAP) on vaccination among their children and correlation with socioeconomic parameters.

PH28 ASSESSING MOTIVATIONS FOR CHOOSING THE PLACE TO GIVE BIRTH AMONG PREGNANT WOMEN
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OBJECTIVES: A government decree legalized home birth under strict conditions since May 2013 in Hungary. In our study we examined women’s opinion about such topics as pregnancy and giving birth, what choice do they make in order to take an active part of the whole process of pregnancy. METHODS: A cross-sectional, quantitative study with non-probability, targeted sampling and performed between 2014. 12. 01. – 2015. 02. 15. Our sample consists of pregnant women (N=163). Results were calculated with SPSS 22.0. Besides descriptive statistics we calculated χ²-test and independent samples t-test (p<0.05). RESULTS: There is a significant connection between frequent prenatal care attendance and choosing home birth (p<0.05). However it does not show correlation with socio-demographic data nor parity (p>0.05). There is also a significant connection between concerning for the newborn baby and choosing place to give birth (p<0.05), and women concerning for their own health and choosing place to give birth (p<0.05). CONCLUSIONS: Women have an increasing need to give birth in a pleasant, relaxing, loving, homely atmosphere. It is important to give scope to alternative care in hospitals, allow the presence of family, doula and midwives to help pregnant women with their combined force.

PH29 ASSESSING THE NUTRITIONAL STATUS OF THE ELDERLY LIVING AT ELDERLY NURSING HOMES
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OBJECTIVES: Malnutrition has a negative affection for elderly people’s health and quality of life, yet it is not an uncommon phenomenon in elderly homes. The aim of this study is to assess the nutritional status of elderly people living in homes in Kalocsa, Hungary. We also assessed the connection between nutritional status of the elderly, their mental health and other diseases. METHODS: A longitudinal, quantitative study was carried out, from non-probability sampling at the elderly nursing home in Kalocsa, Hungary between 2015. 08. 04. and 2015. 12. 12. Our sample consists of people above 60 years (N=100). Data collection was made with a self-made questionnaire, document analysis, anthropometric measurements and standard questionnaires (MUST, MNA-SF, MNA, SNAQ5+, MMSE). SPSS 22.0 was used for calculating descriptive statistics, χ²-test, paired samples t-test and ANOVA (p<0.05). RESULTS: Age of respondents is 81.24±8.0 years, prevalence of malnutrition in the sample: MNA-A=8%, MNA-SF=31%, MUST=13%, SNAQ5+=14%. Nutritional status of elderly people decreased significantly according to MUST and MNA-SF (p<0.05). There is a strong connection between the presence of dementia and malnutrition according to MNA (p=0.018). Nutritional status is influenced by hypotension (p<0.05), gastrointenstinals (p=0.008), psychiatrial condition (p=0.037), bone and muscle disorders (p=0.008), appetite (p=0.008).Nearly one of elderly living in homes suffers from malnutrition. Conclusion: Malnutrition or the risk of it occurs more frequently in people with dementia – this result is similar to the findings of Malara et al. in 2010.

PH30 RURAL-URBAN MIGRATION AND THE HEALTH OF ELDERLY PARENTS IN CHINA
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OBJECTIVE: Large-scale rural-urban labour migration and rapid population ageing are two important demographic developments in China. Both result in a growing number of left-behind rural elderly. The paper investigates the effects of adult children’s rural-urban migration on the health of their left-behind elderly parents in China. METHODS: We use a panel data set constructed from the 2011 and 2013 waves of the China Health and Retirement Longitudinal Study (CHARLS). We employ an instrumental variables (IV) strategy to account for the endogeneity of children’s migration decision. We use village level sent-down youth (SDY) numbers as an exogenous source of variation in the likelihood of adult children’s migration. To improve the measure we calculate an interaction effect of the SDY number and the GDP growth in the cities where SDY originally came from. RESULTS: A strong first stage result is confirmed in our research for the effect of SDY on individuals’ migration decisions. The preliminary second stage result shows that children’s migration has a positive effect on the left-behind parents’ health outcomes. We argue that the income effect from remittances is the most likely transmission channel of children’s migration on elderly left-behind parents’ health. This explanation is confirmed by studying how the effects differ across socio-demographic subgroups. We also compare different dimensions of elderly health to provide a detailed picture of the health effects of rural-urban migration in China. CONCLUSIONS: This paper contributes new findings for China to the growing international literature analysing the effects of rural-urban migration on the health of elderly left-behind family members, controlling for self-selection of the migration-decision making. We also provide new evidence on the changing mechanisms of intergenerational support in the context of rapid urbanisation and population ageing in China.
LONGITUDINAL ASSESSMENT OF USING COMMON BENZODIAZEPINE/NON-BENZODIAZEPINE DRUGS IN PREGNANT WOMEN ATTENDING A TERTIARY HEALTHCARE INSTITUTE IN QUETTA CITY, PAKISTAN

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OBJECTIVES: Anxiety and depression (A&D) are commonly reported among pregnant women; however, there is paucity of information from developing country on the same. The study therefore aims to evaluate the frequency of A&D in the context of evidence development as well as importance of mental health promotion. The same study helped in the context of evidence development as well as importance of mental health promotion.

METHODS: A cross-sectional study was conducted. The Gynecology Outpatient Department at the Obstetric and Gynecological Hospital, Quetta, Pakistan was the setting. A total of 1,000 pregnant women were recruited for the study. All the study participants were aged 18-40 years and were referred to the hospital for routine antenatal care. Information on sociodemographic, obstetric, psychosocial characteristics, and mental health status was collected via standardized questionnaires. The study employed the Hospital Anxiety and Depression Scale (HADS) to assess the frequency of A&D among study respondents. The Anxiety and depression scores were calculated via standard scoring procedures while logistic regression was used to identify predictors of A&D.

RESULTS: Seven hundred and forty-five pregnant women responded to the survey. The mean anxiety score was 10.08 ± 2.52 and total HADS score was 19.23 ± 3.91 indicating moderate A&D among the current cohort. Logistic regression analysis showed that factors including goodness of fit (Chi square = 17.63, p = 0.030, df = 3), indicating that the model was adequate. Among all variables, age had a significant association with compared with HADS scores (adjusted OR = 1.23, 95% CI = 1.13 – 1.32, p < 0.001). The results found that the model was adequate. Among all variables, age had a significant association with compared with HADS scores (adjusted OR = 1.23, 95% CI = 1.13 – 1.32, p < 0.001). The results found that the model was adequate.

CONCLUSIONS: The study aimed to evaluate Health Related Quality of Life (HRQoL) in pregnant women attending the teaching hospital of Quetta, Pakistan. The study cross-sectional study was conducted from February to September 2016 to evaluate the HRQoL of pregnant women attending Bolan Medical Complex Hospital. The data was collected by using WHOQOL-BREF questionnaire developed by WHO. Descriptive analysis was used for elaborating patients’ demographic characteristics. All analyses were performed using SPSS 22.0. The results of the study showed that Health Related Quality of life in pregnant women are adversely affected by the pregnancy. The quality of life of the women may cause physiological and psychological issues to the pregnant woman during or after the termination of the pregnancy. Focusing on the quality of life during pregnancy can be beneficial for health of women as well as the child.

INDIVIDUAL’S HEALTH – Health Care Use & Policy Studies

IMPACT OF ICD-10 ON CODING OF HYSTERECTOMY PROCEDURES

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OBJECTIVES: Beginning on October 1, 2015, International Statistical Classification of Diseases, or ICD-10 coding was implemented in the US healthcare system. Number of procedure codes increased from 3,892 to 71,974 over ICD-10. The change has implications of coding infrastructure and potentially reimbursement. Goal of the study was to describe how commonly performed surgeries are coded using ICD-10. We used Premier hospital inpatient database for Q4,2015 (1st full quarter with ICD-10 data). We report the impact of the new coding system.

RESULTS: Of the 1,387 pregnant women identified, 2,201 discharges; 2) D251: Intramural Hysterectomy, with MS DRGs relevant Medicare Severity-Diagnosis Related Group (MS-DRGs) for hysterectomy (734-743). Descriptive analysis was conducted to report the top ICD-10 procedure codes. We used Premier hospital inpatient database for Q4,2015 (1st full quarter with ICD-10 data). We report the impact of the new coding system.

CONCLUSIONS: The results of the study showed that Health Related Quality of life in pregnant women are adversely affected by the pregnancy. The quality of life during pregnancy can be beneficial for health of women as well as the child.

MATERIALS & METHODS: We enrolled elderly patients who regularly visited a 2000-bed medical center and were prescribed with listed BZD/Z-drugs for more than 1 week in study group and those who had not taken these medications in control group. Those elderly who ever had severe neuropsychiatric disorders, cognitive impairment, and have poor medication adherence in study group tended to have poor EQ-5D-5L scores, have more ADRs and encountered more BZD/Z-drug ADRs across times, comparing to 8 patients in control group. Those elderly patients taking BZD/Z-drugs had poor clinical and humanistic outcomes, poor medication adherence, and more complex medication regimens and encountered more BZD/Z-drugs related ADRs across time than those patients not taking these medications.
Pre- to post-17P) versus -0.2 weeks (p<0.0001; 38.7 to 38.5 weeks pre- to post-delivery for comparator). DID analysis revealed a 3.1-week (p<0.013) increase in gestational weeks within cohorts and inter-cohort comparisons (difference-in-differences [DID] estimation between cohorts) for primary outcome measures were calculated using two-tailed t-tests and unadjusted generalized least square models.

RESULTS: 118,382 patients receiving 17P were identified, along with a random sample of 255,526 patients not receiving 17P. Samples of the cohorts were taken and propensity score matching was performed to create 10,000 matched pairs. Kaplan-Meier plots comparing the two matched cohorts indicated that, overall, the geriatric care group had shorter survival times than their counterparts. Among sicker patients, however, the analysis suggested that survival times were comparable in the two matched cohorts (p<0.05). CONCLUSIONS: Geriatric care has the potential to improve the longevity of those afflicted by multiple chronic conditions.

Geriatricians’ focus on coordination of care increases the amount of healthcare resource utilization but costs are on par with patients not receiving geriatric care, possibly the result of support that is more effective in improving patient outcomes among those with and without geriatrician care. The study was aimed to analyze the prevalence of ESBL-PE in gestational urine cultures and the risk factors associated with ESBL-PE growth, with 603 (3.9%) ESBL-PE positive results. The proportion of ESBL-PE in gestational urinary cultures increased from 2.8% in 2009 to 6.4% in 2015. In the multivariate logistic regression model, Arab ethnicity (OR=1.33 CI 95% 1.11-1.58), and aided assisted fertilization procedures (AFP) (OR=1.48 CI 95% 1.13-1.94) were associated with the use of antibiotics (especially penicillins OR 1.36 CI 95% 1.32-1.60 and quinolones OR 1.71 CI 95% 1.28-2.27) were found to be associated with ESBL-PE growth in gestational urine cultures. CONCLUSIONS: The prevalence of ESBL-PE in gestational urine cultures is increasing in this large study and particularly alarming rate. In this, usually healthy, population, the most important risk factors are related to multiple encounters with health-providers and those connected to previous antibiotic treatment. The risk factors can be impeded in screening and cohorting strategies. The policy to prevent ESBL-PE outbreaks in neonatal units should include maternal and neonatal screening and cohorting and notifying the medical staff when ESBL-PE positive women and their neonates are admitted.
objectives: Care for children with medical complexities represents a significant challenge for health care systems and has emerged as an increasingly important component of pediatric practice. A pediatric-led care coordination may increase the quality of care for medically complex children. We examined the prescription utilization and cost patterns of children with special healthcare needs having complex medical conditions. METHODS: This is a retrospective cross-sectional analysis of prescription utilization and costs using Texas Medicaid administrative claims data for patients with complex chronic conditions (N = 229) who were enrolled in the Special Child pilot study and patients with complex chronic conditions not enrolled in the Special Child for pilot study. Daily dispense cost was determined by dividing amount paid for a claim by its corresponding days supply. Descriptive statistics were used for determining the utilization and most frequently paid drug claims. RESULTS: A total of 229 patients with 24,478 drug claims were included in the study. The average cost per prescription was $443. The costliest drug claim had a daily dispense cost of $5,706 (HP Acthar Gel 80 unit/ml). Daily average dispense cost of the ten most frequent drug claims ranged from $0.57 to $30.30. The AHFS category with the highest attributed cost was for heranostatic agents ($2,085,711, N = 55 prescriptions). The most frequent paid drug claim was levetiracetam 100mg/ml solution (N = 715). Additionally, AHFS category anticonvulsants, miscellaneous accounted for the most drug claims (N = 846). Of the ten costliest AHFS categories, enzymes had the highest average cost per claim ($41,358, N = 18). CONCLUSIONS: We found the ten most frequent drug claims account to all exceed a daily dispense cost of $3,450. The next step is to compare differences in prescribing trends and costs between the pediatric-led model and usual care model.

PIH44

CHANGES IN HEALTHCARE SPENDING AFTER DIAGNOSIS OF COMORBIDITIES AMONG ENDOMETRIOSIS PATIENTS

Objectives: To estimate the number and geographical distribution of centenarians in Colombia. METHODS: The study was a retrospective analysis, based on three databases: the Colombian 2005 census, death certificates from 2010 to 2013, and the Individual Registry of Health Services (RIPS), the official database of the National Institute of Health, for the year 2014. RESULTS: In the census, 1,315 centenarians (1,972 women, 62.3%) were identified, the highest rates of individuals over a hundred years of age (centenarian) were then in La Guajira (2.23 per 10,000 population), Atlántico (1.90) and Sucre (1.61), all of them located in the Caribbean region, and with some of the highest poverty indicators including child mortality. In the four years analyzed, 3,611 centenarians died, with the highest proportions (per thousand deaths) in Chocó (10.4), La Guajira (9.4) and Sucre (6.9). CONCLUSIONS: Although the results are consistent in terms of the number and geographical distribution of centenarians, there could have been errors in the record of the date of birth, which is the basic information used to estimate age in all the three sources analyzed. Another explanation may involve higher physical activity, traditional family and community support, low levels of stress, and healthy diet in these regions; these factors have been also associated with longevity in the demarcated as “blue zones” (areas of the world with centenarian population rates 10 times higher than in the US). More studies are required to assess geographical distribution of elderly in Colombia and to evaluate factors that could be associated with certain specific geographical distribution.
December 2013. RESULTS: During this nine-year period, 106 339 infants (children under 5 years of age) died in Colombia; 85 897 of them (81%) in the first year of life, 4 043 (4%) in the second year, 1 005 (1%) in the third year, and 804 (0.8%) in the fourth year. Almost 29% of all deaths were due to external causes during the 10-year period. This corresponds to an annual decrease in the overall number of deaths over the period, from 14 266 in 2005, to 9 499 in 2013. Among external causes of death, the first one was drowning, responsible for 749 deaths (around 4 each week), followed by traffic accidents, with 1 282. Homicides were responsible for 629 deaths, and burns for 199. In all the cases analyzed there was a decrease in overall causes of death during the decade, highest (up to 62% reduction) in the Central Andean regions, and lower (on average 25%) in the Caribbean region. Three Colombian departments in the Amazonic region, bordering Brazil (Amazonas, Guainia and Vaupés) did not show any change at all.

CONCLUSIONS: Despite large regional inequalities, Colombia is achieving great progress towards the United Nations’ Millennium Development Goal: reducing the mortality of children less than 5 years of age. Some progress has been made in deaths from external causes, but there is still a way to go, since these causes of death are, in principle, all preventable.

PIH48 IMPACT OF CLINICAL PHARMACIST INTERVENTION ON THE KNOWLEDGE OF IMMUNIZATION IN PARENTS OF PEDIATRICS IN TERTIARY CARE HOSPITAL

INTRODUCTIONS: Childhood mortality and morbidity is high due to infectious diseases. The burden of infectious diseases in pediatrics has been reduced significantly due to the use of vaccines. Yet, despite the efforts of the global immunization programs, vaccination coverage is still a problem of major concern. The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) have set targets for global immunization coverage. In order to achieve these targets, it is necessary to reduce vaccine-preventable diseases and increase the number of children who receive recommended immunizations. This study aimed at promoting childhood immunization by improving the parent’s knowledge on immunization.

OBJECTIVES: The objectives were to understand the knowledge and attitude of parents on immunization, educate parents about the importance of immunization, and assess the impact of education on immunization.

METHODS: The study was divided into pre and post-intervention phases. In the pre-intervention phase, parents were given a validated pre-test questionnaire after which the parent was given patient information leaflet. In the post-intervention phase, parents completed the post-intervention questionnaire and both pre and post-intervention education was imparted. The pre and post-counseling, assess the impact of education on immunization.

RESULTS: A total of 150 children were enrolled in the study, of whom 81(54%) were female babies. 115 mothers and 35 fathers attended the counseling session, 78(52%) were working, 50 (33.3%) non-working and 50 (33.3%) were not working. The number of parents who had received ADRs were fever alone (33%) and fever with swelling (17.2%). In most cases, 62 (41%) no ADRs were observed. Most of the parents in pre-intervention phase, got the score of 3-6 (which is considered as low knowledge as per the questionnaire scoring and in the post-intervention phase, 9-10 (which is considered good knowledge). Comparison of pre and post-intervention scores showed that parents’ knowledge got improved after counseling by the clinical pharmacist.

CONCLUSIONS: From our study, a significant difference was observed in the pre and post-intervention scores. This study recommends the inclusion of clinical pharmacist in the national immunization program as counselor who certainly will be helpful in imparting education on immunization to parents which improves the national immunization rates. The intervention certainly will be helpful in imparting education on immunization to parents of patients who have histologically confirmed cancer.

PIH49 QUALITY OF LIFE OF CYNOLOGIC CANCER PATIENTS

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OBJECTIVES: Worldwide childhood immunization is a major risk factor for death and disability. La Guajira (Colombia) is a mostly rural state, with the highest proportion of indigenous population. The aim of this study was to estimate the factors related to underimmunization in under-five population (USP) in one of the regions with the highest burden of disease due to underimmunization in Colombia.

METHODS: We designed a cross-sectional study with data from the National Surveillance of Nutritional Status and the Colombian Center for Health Research. The dependent variable was underimmunization associated factors in USP. The outcome variable was underimmunization defined as weight-for-age lesser or equal than 2 standard deviation (SD). Odds Ratio (OR) adjusted for socio demographic factors and for the risk group of each category were calculated to assess the risk of each group compared to a reference group. Statistical analyses were performed in STATA 12. RESULTS: A total of 622 children under-five were analyzed. The prevalence of underimmunization was 11.2%, 58.3% were male, 79.1% lived in rural areas, 36.2% do not have health insurance, and 73.1% were indigenous. According to the birth order, 13% were the first, 26% were the 2-3, 25% the 4-5 and 36% the 6 or more. In the logistic model, children living in households with sewage had a lower risk of acute underimmunization (OR: 0.16; 95% CI: 0.05-0.57), while being the sixth child or later increases the risk of underimmunization (OR: 4.07; 95% CI: 1.50-10.99). CONCLUSIONS: Community-based interventions are needed to reduce the high prevalence of underimmunization in La Guajira, Colombia. Priority should be given to nutritional and other socioeconomic interventions for large families. Being able to identify high risk households will increase the efficiency of the policies to prevent and control underimmunization in La Guajira. Usage of vaccines is an important goal in this region. This study is the first step towards the achievement of this goal.
PMH1

ASSOCIATION BETWEEN DEMENTIA, DISCHARGE DIAGNOSIS, AND 30-DAY READMISSION

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OBJECTIVES: Study aims to (1) determine the association of dementia with 30-day readmission, and (2) determine if this association varies by most commonly prescribed discharge medications at a large chronic care hospital.

This retrospective cohort study used data from the 2013 Nationwide Readmission Database. The cohort included 265,466 patients aged 65 and older. A 1:1 matching procedure by age, gender, discharge disposition, and emergency department use was used to match 132,733 patients with dementia to patients with no dementia. Descriptive statistics were used to determine if five primary diagnoses were all significantly higher for dementia patients. The top five primary diagnoses for dementia patients by discharge readmission were sepsis, congestive heart failure, urinary tract infection, pneumonia, and hip fracture. Dementia was associated with higher odds for 30-day readmissions for patients with any of these diagnoses; and total 30-day readmission was significantly higher for dementia patients. Conclusions: This study did not find variation in the association of dementia with 30-day readmissions by discharge medications at a large chronic care hospital.

MENTAL HEALTH - Clinical Outcomes Studies

PMH2

CONCOMITANT PSYCHOTROPIC USE AND RISK OF HOSPITALIZATION IN ELDERLY MEDICARE BENEFICIARIES

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OBJECTIVES: The objective of this study was to assess the prevalence of concomitant psychotropic use in association with all-cause hospitalization among Medicare beneficiaries. METHODS: In this longitudinal study, the Medicare Current Beneficiary Survey (MCBS) was used to identify beneficiaries who were psychotropic drug users between 2007 and 2012, >65 years old, community dwelling and continuously enrolled in parts A, B and D for >2 consecutive years. Each year, beneficiaries were characterized as single users, short-term concomitant users (≤90 days overlap of 2 drugs), or long-term concomitant users (continuing overlap of 2 drugs). Hospitalization for any cause was measured yearly. In this repeated measures design, we assessed psychotropic use in the year prior to hospitalizations to address temporality. Generalized estimating equations (GEE) in multivariable analyses of hospitalizations adjusted for demographic covariates, smoking, reported health status, total activities of daily living, instrumental activities of daily living and number of chronic conditions. RESULTS: Of the 1,612 beneficiaries identified as psychotropic drug users, 64% were single users, 9% were short-term concomitant users and 28% were long term concomitant users at baseline. 24% were hospitalized during follow up. From 2007 to 2012, concomitant psychotropic use increased from 36% to 38%, with the exception of 2008, when concomitant use increased to 40%. Long-term concomitant use was more prevalent than short-term use, ranging from 27% to 31% vs. 6% to 9%. Short-term concomitant use decreased from 5% in 2007 to 7% in 2012. Compared to single users, short-term concomitant users and long-term users had 45% (95% CI: 1.07-1.95) and 30% (95% CI: 1.07-1.57) increased odds of hospitalization. CONCLUSIONS: Among older Medicare beneficiaries, short and long-term concomitant psychotropic use is associated with all-cause hospitalization. Providers should exercise caution when prescribing psychotropic drugs concomitantly in this patient population.

PMH3

RISKS ASSOCIATED WITH CONTINUED USE OF RISPERIDONE FOR DEMENTIA IN THE ELDERLY LONG-TERM CARE POPULATION

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OBJECTIVES: To evaluate the relative likelihood of adverse events, including relapse of psychosis, stroke and death, associated with continued “off-label” use of risperidone in elderly patients with dementia compared to those who discontinued use of the drug. METHODS: A population-based cohort study analyzed long-term care (LTC) patients in a large nationally representative and statistically de-identified administrative claims database. The sample consisted of dementia patients aged 65+ treated with risperidone between 2008 and 2011. Patients were identified by the existence of a new prescription fill for risperidone (treatment naive) and a diagnosis for dementia (without bipolar or schizophrenia) within one year prior to the index fill. Patients were followed from 30 days after the index fill for 24 months after the index fill to assess the relative risk of death, stroke and time to relapse of psychosis. RESULTS: The study population included 4,672 patients with dementia that were prescribed risperidone between 2008 and 2011 (female – 65.3%, mean age = 82.3 ± 8.5). Findings reveal significantly higher incidence of psychosis in patients with continued use compared to those who discontinued use of risperidone (22.0% vs. 12.0%, p < 0.01), which contradicts clinical trials. CONCLUSIONS: Contrary to existing literature, this study highlights the risk of relapse of psychosis that discontinued use of risperidone after four months had a lower risk of psychosis as compared to those who continued use of the drug. This large claims-based analysis demonstrates the value of claims-based data for detecting real-world settings. Additional research is needed to further investigate the safety of long-term “off-label” use of risperidone in elderly LTC patients with dementia.

PMH4

IMPACT OF PRENATAL EXPOSURE TO ANTIDEPRESSANTS ON ADVERSE BIRTH OUTCOMES

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OBJECTIVES: There has been an increase in the diagnosis of depression and the use of antidepressants, especially in women of childbearing age, in the past decade. This has drawn attention to the potential impact of depression and antidepressants on pregnancy and fetal development. To determine the impact of prenatal exposure to antidepressants on the risk of adverse birth outcomes. METHODS: The study was conducted using a population-based cohort including all singletons delivered in years 2008 to 2014 in SC Medicaid population. Information on antidepressants was obtained from South Carolina Medicaid database and birth certificates. The exposed group comprised children of mothers who had a diagnosis of depression and used antidepressants at any time in pregnancy. The non-exposed group comprised children of mothers who had a diagnosis of depression but did not use any antidepressants during pregnancy. We estimated the association using Marginal Structural Models. RESULTS: Approximately 107,683 women had a diagnosis of depression during pregnancy. After applying study inclusion and exclusion criteria, we got the study sample of 4,450 women. And approximately 36% women received antidepressants during pregnancy. In our study we found that the odds of preterm delivery were 1.72 times (95% CI: 1.63 – 1.79) in the group that received antidepressants during pregnancy as compared to those who did not.

PHE53

KNOWLEDGE AND AWARENESS REGARDING CERVICAL CANCER AND ITS PREVENTION AMONG NURSES WORKING IN DIFFERENT HOSPITALS OF QUETTA, PAKISTAN

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OBJECTIVES: The primary objective of this study was to assess the knowledge and awareness regarding cervical cancer and its prevention among nurses working in different hospitals of Quetta, Pakistan. METHODS: The cross sectional, descriptive study was conducted by using structured questionnaire in different hospitals of Quetta from January to September 2016. Convenient sampling technique was applied by targeting all the nurses working in different hospitals of Quetta city. Study questionnaire was developed and tested for validity and reliability. Descriptive and inferential statistics (Kruskal Wallis tests, p < 0.05) were used to assess the significance among study variables and were performed by using IBM SPSS v.20. RESULTS: Out of 451 distributed questionnaire, 324 were filled and returned (response rate of 72%). Mean age of respondents was 28.18 ± 9.5 years. Majority (n=127, 43.3%) of participants were interns and had no or less than one year of experience (n=128, 43.7%) with negative family history of any cancer (n=275, 93.9%). Mean knowledge score was 18.52 ± 4.84 with majority (n=256, 88.1%) had adequate knowledge regarding cervical cancer. Respondents age, current area of practice, qualification, Institute of degree and past family history were contributing factors (p > 0.05) in adequate knowledge in this study. The results also revealed that not only 68.3% (n=200) and 65.5% (n=192) respondents knew that cervical cancer is vaccine preventable and availability of the vaccine for it. CONCLUSIONS: Nurses working in different hospitals of Quetta city had better understanding of the disease cervical cancer and its prevention. Yet many of the respondent are not aware of it vaccine and its availability.

PHE54

ASSESSMENT OF KNOWLEDGE AND AWARENESS REGARDING POSTMENOPAUSAL SYNDROME AMONG FEMALES IN QUETTA, PAKISTAN

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OBJECTIVES: This study aimed to assess the knowledge and awareness regarding postmenopausal syndrome. Descriptive and inferential statistics (Kruskal Wallis tests, p < 0.05) were used to assess the knowledge about postmenopausal syndrome.73.5% of the respondents were aware about the age of menopause.47.0% had poor knowledge regarding postmenopausal syndrome and 52.5% had adequate knowledge.79.0% of the respondents were aware about the age of menopause. RESULTS: A total of 550 distributed questionnaires were filled and returned (response rate of 72%). Mean knowledge score was 18.52 ± 4.84 with majority (n=256, 88.1%) had adequate knowledge regarding cervical cancer. Respondents age, current area of practice, qualification, Institute of degree and past family history were contributing factors (p > 0.05) in adequate knowledge in this study. The results also revealed that not only 68.3% (n=200) and 65.5% (n=192) respondents knew that cervical cancer is vaccine preventable and availability of the vaccine for it. CONCLUSIONS: Nurses working in different hospitals of Quetta city had better understanding of the disease cervical cancer and its prevention. Yet many of the respondent are not aware of it vaccine and its availability.
Prenatal exposure to antidepressants also increased the odds of having low birth weight/small for gestational age 1.6 times (95% CI: 1.53 – 1.78) and the increased odds of NICU admission by 1.66 times (95% CI: 1.58 – 1.78). CONCLUSIONS: In conclusion we found that prenatal exposure to antidepressants is significantly associated with a higher risk of adverse birth outcomes such as preterm delivery, low birth weight/small for gestational age, and NICU admissions.

PMH5
NATIONAL ESTIMATES OF POTENTIAL DRUG-DRUG INTERACTIONS OF ANTI-DEPRESSANTS IN THE UNITED STATES: AN ANALYSIS OF THE NATIONAL AMBULATORY MEDICAL CARE SURVEY DATA
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OBJECTIVES: Antidepressants are among the most common prescription drugs taken by Americans. However, some antidepressants can cause clinically significant drug-drug interactions. The study aims to examine the prevalence and factors associated with potential drug-drug interactions of antidepressants in US outpatient settings. METHODS: This project proposed a secondary data analysis using the 2012 National Ambulatory Medical Care Survey (NAMCS) conducted by the National Center for Health Statistics. All patient visits with at least one antidepressant prescription were included. Drug-drug interaction was defined according to the guidelines. A series of weighted descriptive analyses were performed to evaluate the prevalence of potential drug interactions. A multivariate logistic regression model was developed to examine how patient characteristics impact the presence of drug interactions. Receiver operating characteristic (ROC) curve was used to assess the discrimination in the proposed logistic regression model. RESULTS: Approximately 93.7 million antidepressants were prescribed in US outpatient settings including selective serotonin re-uptake inhibitors (SSRI) (63.2 million), serotonin-norepinephrine reuptake inhibitors (SNRI) (41.3 million), tricyclic antidepressants (TCA) (20.1 million), and others. Among those, 6.9% of them had at least one potential major or moderate drug interaction. The most frequent drugs interacting with antidepressants were sertraline, fluoxetine, venlafaxine, oxycodone, citalopram, etc. The results of multivariate logistic regression showed that there was a significantly increased likelihood of encountering drug interactions in relationship with patient’s age, race, and number of medication used (p<0.001). The area under the ROC curve was 0.94, with a c-index of 0.861. CONCLUSIONS: Drug-drug interaction can be difficult to remember and are commonly missed. However, their adverse effects can be severe or even mortality if appropriate clinical actions are not taken. As with all perspectives in pharmacovigilance, when determining the relevance and significance of the choice of drugs, considering patient’s individual characteristics is of the utmost importance.

PMH6
UNDERSTANDING OPIOID OVERDOSE RISK IN A COMMERCIALLY INSURED POPULATION
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OBJECTIVES: To determine important risk factors for opioid overdose in a commercially insured population using integrated medical and pharmacy claims data, as well as publically available data published by the CDC and CMS. METHODS: For each person with at least one prescription drug claim from January 1, 2014 to August 2016 (n = 2,443,769) were selected from an administrative claims database of commercially insured members. Patients were followed on a monthly basis until the index date or until the end of the study period or until death, diagnosis of drug exposures or clinical actions are not taken. As with all perspectives in pharmacovigilance, when determining the relevance and significance of the choice of drugs, considering patient’s individual characteristics is of the utmost importance.

PMH7
PATTERNS AND PREDICTORS OF DEPRESSION TREATMENT AMONG COMMUNITY-DWELLING ELDERLY INDIVIDUALS WITH DEMENTIA AND DEPRESSION IN THE UNITED STATES
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OBJECTIVES: This study examined the patterns and predictors of depression treatment among community-dwelling elderly individuals with comorbid dementia and depression using a nationally representative sample in United States. METHODS: A retrospective, cross-sectional study was conducted using a multiple years of Medical Expenditure Panel Survey (MEPS) (2002, 2004, 2006, 2008, 2010, and 2012) data. The study sample consisted of elderly (age ≥ 65 years) individuals with dementia, depression and alive during the calendar year. Elderly individuals were identified by ICD-9-CM code of 294.XX or 313.XX or if they reported use of cholinesterase inhibitors or memantine. Depression was identified by ICD-9-CM code of 296.xx, or 311.xx. The dependent variable in this study was antidepressant medication use with or without psychotherapy. Multinomial logistic regression was conducted to identify factors associated with depression treatment in the study sample. All analyses adjusted for the complex survey design of MEPS to obtain robust standard errors. RESULTS: An overwhelming majority (98%–99%) of the study sample (unweighted N=173) reported receipt of depression treatment. Antidepressants only and combination therapy (antidepressant with psychotherapy) was reported by 13%–14% of the sample. Selective serotonin reuptake inhibitors (65%) and escitalopram (17.3%) were the most prescribed antidepressant class and individual agent respectively. Age, race/ethnicity, marital status, limitations of instrumental activities of daily living, living arrangement and health status were significantly associated with the reporting of receipt of depression treatment. For example, Whites were approximately three (Odds Ratio=3.10, 95% CI: 1.23-7.82) and five (Odds Ratio=4.93, 95% CI: 2.90-10.5) times more likely to report use of antidepressant alone compared to combination therapy respectively compared with other race/ethnicities. CONCLUSIONS: Almost 90% of individuals with comorbid dementia and depression received depression treatment and several subgroup differences existed in terms of reporting the use of depression treatment.

PMH8
APPLICATION OF ANALYTICAL HIERARCHY PROCESS FOR COMPARING VORTEXETINE TO AGOMELATINE AND VENLAFAXINE XR IN MAJOR DEPRESSIVE DISORDER USING MULTIPLE CRITERIA DENTAL COVERAGE
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OBJECTIVES: To assess the overall performance priority of three antidepressants: vortioxetine, agomelatine and venlafaxine XR in major depressive disorder using the Analytical Hierarchy Process (AHP), a Multi-Criteria Decision Analysis approach. METHODS: An AHP decision model, combining outcomes of efficacy, tolerability and quality of life was developed on Excel®. Results: For each outcome variable, weights were developed by evaluating the performance of antidepressants. The model was completed with vortioxetine (10mg) vs. venlafaxine XR (150mg) and venlafaxine XR vs. agomelatine. The AHP model selected vortioxetine as the most preferred antidepressant. CONCLUSIONS: The AHP model is a useful decision-making tool combining multiple criteria into an overall score translating the treatment performance into a treatment preference as determined by physicians and patients. AHP was used for determining the relative preference for vortioxetine versus venlafaxine from the patients’ (0.56 ± 0.44) and professionals’ (0.54 ± 0.46) perspective. Significant findings were obtained when comparing the REVIVE inputs for vortioxetine versus agomelatine from the patients’ (0.61 ± 0.39) and professionals’ (0.60 ± 0.40) perspective. CONCLUSIONS: The AHP is a useful decision-making tool combining multiple criteria into an overall score translating the treatment performance into a treatment preference as determined by physicians and patients. AHP was used for determining the relative preference for vortioxetine versus venlafaxine from the patients’ (0.56 ± 0.44) and professionals’ (0.54 ± 0.46) perspective. Significant findings were obtained when comparing the REVIVE inputs for vortioxetine versus agomelatine from the patients’ (0.61 ± 0.39) and professionals’ (0.60 ± 0.40) perspective. CONCLUSIONS: The AHP is a useful decision-making tool combining multiple criteria into an overall score translating the treatment performance into a treatment preference as determined by physicians and patients. AHP was used for determining the relative preference for vortioxetine versus venlafaxine from the patients’ (0.56 ± 0.44) and professionals’ (0.54 ± 0.46) perspective. Significant findings were obtained when comparing the REVIVE inputs for vortioxetine versus agomelatine from the patients’ (0.61 ± 0.39) and professionals’ (0.60 ± 0.40) perspective. CONCLUSIONS: The AHP is a useful decision-making tool combining multiple criteria into an overall score translating the treatment performance into a treatment preference as determined by physicians and patients. AHP was used for determining the relative preference for vortioxetine versus venlafaxine from the patients’ (0.56 ± 0.44) and professionals’ (0.54 ± 0.46) perspective. Significant findings were obtained when comparing the REVIVE inputs for vortioxetine versus agomelatine from the patients’ (0.61 ± 0.39) and professionals’ (0.60 ± 0.40) perspective.

PMH9
COMPARATIVE EFFECTIVENESS OF OPIOID ABUSE TREATMENTS: A SYSTEMATIC REVIEW
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OBJECTIVES: Opioid abuse and overdose is a major public health issue in the United States. Accordingly, the purpose of this review is to compare the effectiveness of opioid abuse treatments (methadone, buprenorphine, buprenorphine-naloxone, naloxone, and naltrexone) on mortality and healthcare utilization. METHODS: A systematic literature review was performed in Fall 2016 using PubMed, PsychINFO, IPI, and CINAHL according to PRISMA guidelines. Outcomes of interest included opioid overdose mortality, healthcare utilization and quality of life. The review was determined by two reviewers in an un-blinded and standardized manner. English-language studies utilizing a quasi-experimental or experimental design in a sample of U.S. adults at least 18 years of age were eligible for review. Additional inclusion criteria included at least one measure of prescription or nonprescription opioid use in the past year, provision of methadone, buprenorphine, buprenorphine-naloxone, naloxone, or naltrexone; and a measure of suspected opioid overdose death or healthcare utilization rates. RESULTS: Eleven eligible full-text articles were identified over the period of 1998 to 2016. Sample sizes varied from 25 to over 8,000, with 5 observational and 6 experimental study designs. Five articles addressed opioid overdose mortality only, 5 examined healthcare utilization rates only, and one assessed both overdose mortality and healthcare utilization. The review directly compared two opioid dependence medications (buprenorphine-containing products vs methadone), 10 studies used counseling or no treatment (usual care) as the comparator. Buprenorphine had a reported non-narcotic related event in a lower number of ambulatory care visits at 6 months compared to methadone.
REAL LIFE ASSESSMENT OF ABILITY MAINTENA (RELIAM): INTERIM ANALYSIS FROM A CANADIAN NATURALISTIC STUDY OF ARIPIPRAZOLE LONG-ACTING INJECTABLE IN PATIENTS WITH SCHIZOPHRENIA

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OBJECTIVES: In patients with schizophrenia, non-adherence to treatment with oral antipsychotics contributes to suboptimal management of the disorder through increased rates of relapse, reduced time in remission, and eventually poor functional outcomes. With the objective of increasing the utility of findings from controlled clinical trials to real-life clinical settings, RELIAM (Real Life Assessment of Ability Maintena) was designed as a naturalistic, prospective, non-interventional, Canadian study, with functioning and illness severity as the main outcomes, for patients with schizophrenia treated with aripiprazole once-monthly 400 mg (AOM) in routine clinical environments. METHODS: Canadian patients with schizophrenia prescribed AOM prior to screening, were initiated for treatment with once-monthly AOM and followed for 24 months. Study assessments were recommended, but not imposed, at 8-week intervals, for studies in 3 months. The primary endpoint is functional status, assessed by the Global Assessment of Functioning (GAF) Scale at 12 months. Additional measures include changes in illness severity, social functioning, productivity, caregiver burden, and tolerability. RESULTS: As of November 2016, 192 eligible patients at 18 sites in Canada were enrolled, with 158 patients (79.8%) having at least one post-baseline assessment. Patients were classified as early psychosis (<5 years from original diagnosis, 61.5%, n = 108) or later (>5 years, 38.5%, n = 52). Interim analysis at 12 months showed mean increase in GAF score from baseline of 10.6 (n = 100; 95% CI 7.63, 13.65; p < 0.001). A greater change in illness severity (mean difference 7.61, p < 0.0001), and mean change in Clinical Global Impression–Severity (CGI-S) of illness score from baseline of 0.0 (n = 90; 95% CI -1.09, 0.66; p < 0.001) were associated with improvement in functioning and illness severity. Safety and tolerability were consistent with the Canadian Product Monograph of AOM. CONCLUSIONS: In this first report of naturalistic data for AOM in Canadian patients with schizophrenia, significant improvements in overall patient functioning and illness severity were observed over 12 months of treatment.

ASSessment in Work Productivity and the Relationship with Cognitive Symptoms (AWORC) PRIMARY ANALYSIS FROM A CANADIAN OPEN-LABEL STUDY OF VORTIOXETINE IN PATIENTS WITH MAJOR DEPRESSIVE DISORDER (MDD)

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OBJECTIVES: Cognitive dysfunction is an important dimension of Major Depressive Disorder (MDD). However, few studies have assessed the relationship between cognitive dysfunction and work productivity, caregiver burden, and tolerability. METHODS: Patients diagnosed with MDD were prescribed vortioxetine and assessed over a total of 52 weeks at routine care visits that emulated a real-life setting. Patients were classified as having moderate (MMR), severe (MMR+), or very severe (MMR++) cognitive dysfunction, having inadequate response to a previous antidepressant (switch). The primary endpoint is partial correlation between changes in patient-reported cognitive symptoms (20-item Perceived Depression Questionnaire, PDQ-D-20) scores and self-reported work productivity loss (Work Limitations Questionnaire, WLQ) scores over 12 weeks of vortioxetine treatment. Additional assessments include changes in symptom and disease severity, functioning, pharmacoeconomics, and safety and tolerability. RESULTS: As of November 2016, 192 eligible patients (87 first treatment, 99 switch) at 26 sites were enrolled, received at least one treatment dose, and attended at least one post-baseline study visit. Primary analysis at Week 12 indicated a significant correlation between PDQ-D-20 and WLQ scores (r = 0.633, p < 0.001). The correlation between PDQ-D-20 and WLQ scores was comparable and significant in both first treatment (r = 0.671, p < 0.001) and switch patients (r = 0.584, p < 0.001). Safety and tolerability were consistent with the Canadian Product Monograph for vortioxetine. CONCLUSIONS: After 12 weeks of treatment with vortioxetine, improvements in self-reported cognitive dysfunction were significantly associated with improvements in self-reported workplace productivity in Canadian patients with MDD.

CLAIMS-BASED ASSESSMENT OF MEDICAL AND DRUG TREATMENT FOR POSTPARTUM DEPRESSION DURING THE FIRST YEAR AFTER DELIVERY

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OBJECTIVES: Postpartum depression (PPD) is a serious affective disorder, estimated to occur in 10-20% of postpartum women and characterized by depressed mood, insomnia, anxiety, and in some cases, suicidal ideation and thoughts of harming the baby. First line-treatments for PPD include psychosocial interventions, psychotherapy, and antidepressants. Inpatient (IP) and emergent care may be needed for severe forms. Few studies have looked at the effectiveness of first line-treatments. The objective of this study was to assess PPD treatment patterns during the 12 months after delivery among women who were covered by U.S. private payers. METHODS: This retrospective study used the claims database of Health Care Solutions, Inc. claims database (January 2010-September 2015) identified PPD cases based on diagnoses for PPD or depression 12 months postpartum on at least one IP or emergency department (ED) visit, or two outpatient (OP) visits, or one OP visit and an antidepressant or antianxiety prescription drug (Rx) claim. RESULTS: Among 163,554 deliveries, 11,514 PPD cases were identified. Nearly all (93%) received some form of treatment; the first observed treatment or claim was diagnosis on average 17 weeks postpartum. Pharmacotherapy (antidepressant or antianxiety) was most common (78%), with an average of 5.2 fills. Almost half (45%) received psychotherapy, primarily OP (99%), with an average of 9.2 visits. Few had IP residential psychotherapy (N=27; average length of stay (ALOS), 9 days) or partial hospital psychotherapy (N=17). Most with PPD-related IP (7%, ALOS 15 days) or ED care (6%) had psychotherapy (65%) or psychotherapy (73%) after delivery but prior to care in IP or ED setting. CONCLUSIONS: Pharmacotherapy and psychotherapy were the most common treatments for PPD, but treatment in an ED or OP setting was required for some despite prior pharmacotherapy. New treatments that can effectively and quickly treat PPD are needed to limit risk for more intensive and costly treatment.

COMPLEX PHARMACOTHERAPY USE AND RESPONSE PREDICTORS IN BIPOLAR I DISORDER

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OBJECTIVES: Medications are frequently used in combination to treat bipolar disorder (BP), although there is limited evidence on the effects of complex pharmacotherapy (CP) on outcomes. We examined demographic and clinical characteristics and, among those with CP use, the characteristics associated with clinical response (≥0.50 Clinical Global Impression–Severity for BP (CGI-S-BP) score decrease (range: 1-7) or remission (CGI-S-BP ≤ 2 for ≥ 8 weeks). RESULTS: Overall, mean age was 39 years, 68% had bipolar I, mean baseline CGI-S-BP was 4.5, and the mean number of BP medications was 2.5, with 45% having CP. Patients age 35-44 (vs. <25), with prior psychiatric hospitalization and higher BISS depression scores were more likely to have CP, while those with Black (vs. White) race and prior suicide attempt were less likely to have CP. Additionally, CP use was associated with versus without CP, 47% vs. 62% responded. Among patients with CP, having comorbid social or generalized anxiety disorder (OR=0.23, 95% CI [0.07-0.74] and lifetime cocaine use (OR=0.20, 95% CI [0.06-0.74]) were associated with worse clinical response. CONCLUSIONS: Nearly half of patients had CP, among these fewer than half responded and comorbid anxiety disorder and worse manic symptoms were associated with non-response. More studies are needed to assess other outcomes (e.g., adherence and side effects) associated with CP.
they required longer hospitalization over a 6-month prospective follow-up period (11.48 days vs. 7.13 days, p = 0.04). CONCLUSIONS: Our results showed that patients with schizophrenia who experience significant burden in terms of clinical characteristics, but also require more intense healthcare management. This stresses the need for new treatments targeting negative symptoms.

PMH15

USE OF ANTIDEPRESSANT DRUGS IN ADOLESCENTS OF COLOMBIA: A PRESCRIPTION-INDICATION STUDY

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OBJECTIVES: Determine the indications for use of antidepressants medications in adolescent’s population (14-19 years) of Colombia. METHODS: Cross-sectional study including adolescent patients of either sex who were receiving an antidepressant between January 2015 and June 2016, in general and psychiatric medical consultations of the health system in a follow-up period 18 months. The medical records were reviewed to assess sociodemographic, pharmacological and clinical characteristics, including diagnosis, approved or not indication and comedication. Multivariate analyses were performed. The study received bioethical approval. RESULTS: A total of 356 adolescents treated with antidepressants were evaluated, with a mean age of 16.3±1.4 years, with slight female predominance (59.7%). Most prescriptions were made by general practitioners (n=258; 73.7%). The most commonly used antidepressants were fluoxetine (n=130; 37.1%), sertraline (n=56; 16.0%) and trazodone (n=47; 13.4%). The main indications for use were depression (n = 92; 26.3%), anxiety (n=53; 15.1%), migraine (n=46; 13.7%), control of psychoactive substance use (n=34; 9.7%), and insomnia (n=20; 5.7%). Only 150 (42.9%) prescriptions were performed according to approval by regulatory agencies. Multivariate logistic regression analysis showed that having depression (OR=0.006; 95%CI 0.001-0.018), anxiety (OR=0.028; 95%CI 0.010-0.076) or bipolar affective disorder (OR=0.071; 95%CI 0.011-0.461) were associated with higher likelihood that its use was outside the approved. CONCLUSIONS: The prescription of antidepressant drugs in Colombian adolescent patients is being done especially with fluoxetine, sertraline and trazodone, mainly for unapproved indications according to FDA and INVIMA. There are no guidelines for clinical practice, and the use of these drugs in the adolescent population. It is necessary to know more about this topic of interest because of the high frequency of use and the general lack of knowledge about effectiveness, safety and use of these drugs in the adolescent population.

PMH16

NATIONAL TREND AND PREDICTORS OF ANTIPSYCHOTIC MEDICATION USE IN U.S. ADULTS WITH SCHIZOPHRENIA: ANALYSIS OF DATA FROM THE 2008-2013 MEPS

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OBJECTIVES: To examine the national trends and predictors associated with antipsychotic use among individuals with schizophrenia. METHODS: A retrospective cross-sectional study was conducted using 2008-2013 Medical Expenditure Panel Survey (MEPS) data. Descriptive and Chi-square tests were used to describe patterns of antipsychotic use. Multivariate logistic regression analyses were performed to assess the relationship between the different variables in the study with antipsychotic use. RESULTS: Overall, antipsychotic-medication users decreased from 582,581 in 2008 to 478,553 in 2013, a 17% decrease. The multivariate logistic regression analysis showed that no antipsychotic use was associated with patients older than 59 [OR=0.26, 95% CI = 0.21, 0.34], younger patients [OR=0.42, 95% CI = 0.34, 0.51], or on nursing home dementia patients. The prevalence of DDIs is substantially high exposure were age, sex, race, type of health insurance, general health, and polypharmacy. CONCLUSIONS: The prevalence of DDIs is substantially high among adults and children using antipsychotics. A significant relationship between the exposure to the DDI and higher total health care expenditures were found. This finding can help policy makers in implement intervention strategies that are effective in lowering the DDI incidence and in reducing the overall cost of care.

PMH18

PSYCHOTROPIC POLYPHARMACY IN THE TREATMENT OF CHILDREN AND ADOLESCENTS WITH MENTAL DISORDERS: PREVALENCE AND DETERMINANTS

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OBJECTIVES: To evaluate the prevalence and determinants of long-term multiclastic psychotropic polypharmacy (PP) among children and adolescents with mental disorders. METHODS: A retrospective cross-sectional study was conducted using the 2013-2015 administrative claims data from Texas Children’s Health Plan. PP was defined as the receipt of ≥ 2 psychotropic medications from different drug classes concurrently for 60 days or more. Based on the number of prescribers involved in the care of the patient, PP was classified into single prescribers (SP) and ≥2 prescribers (MP). Logistic regression models and the Farell decomposition method (extension of Blinder-Oaxaca [BO] decomposition) were computed to assess the relative importance of determinants of PP based on the Andersen Behavioral Model. RESULTS: A total of 24,147 children and adolescents with a diagnosis of mental disorder and prescription of psychotropic medication participated in the study. The prevalence of PP was 20.0%. Multivariate logistic regression models revealed that patients with specialist involvement (enabling factor) had 5.3 and 3.6 times higher likelihood of receiving PP in the SP (OR=5.32; 95% CI 4.62-6.14) and MP (OR=3.57; 95% CI 3.20-3.99) groups, respectively. Other significant factors associated with PP were patient age (predictor for PP in the SP and did not affect the MP); bipolar, depressive, and general health disorders and depression, as well as the number of mental disorders diagnosed (need factor) and number of prescribers involved in treatment (MP group only). The Farell decomposition analysis estimated that the observed need factors explained only 25% of the difference in the receipt of PP between patients seen by PCPs and specialists within both SP and MP groups. CONCLUSIONS: The most prominent enabling factor associated with PP was involvement of a specialist in the treatment of mental disorders. Only one out of the different factors had a major effect on PP. Future research is needed to understand the predictors of PP, especially the indirect factors (PCPs’ and specialists’ prescribing of PP) was explained by observable need factors, underscoring the importance of evaluating different prescribing practices by PCPs and specialists.

PMH19

PREVALENCE AND PREDICTORS OF POTENTIALLY INAPPROPRIATE MEDICATIONS IN DEMENTIA PATIENTS

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OBJECTIVES: Potentially inappropriate medication (PIM) use contributes to increased morbidity and mortality in dementia patients. Prior studies have focused on specific classes of PIMs (e.g. strong anticholinergics) or on nursing home dementia patients. No study has comprehensively evaluated PIM use in community-dwelling dementia patients. The current study thus used Medicare database to examine the prevalence and predictors of PIMs in elderly dementia patients. METHODS: This retrospective cohort study used the 5% national Medicare data from 2011-2012. The cohort included elderly patients diagnosed with dementia in the baseline year, i.e. 2011. PIMs were defined in the follow-up year, i.e. 2012. The American Geriatric Society’s criteria for PIM use were used to define the baseline year based on the Andersen Behavioral Model, and included predisposing (sociodemographic), enabling (dual eligibility) and need factors (Elkhauser comorbidities, medication use and healthcare utilization). Descriptive statistics was used to determine the prevalence of PIMs. Multivariable logistic regression analysis was used to determine predictors of PIMs in dementia patients. RESULTS: The cohort included 57,469 elderly dementia patients. The mean age was 85±8 years, and most patients were females (77%) and non-Hispanic whites (92%). Overall, 53.1% of dementia patients received PIMs. The prevalence of different classes were as follows: antipsychotics (31.3%), H2-receptor antagonists (11.3%), antihistamines (10.3%), antimuscarinic urinary incontinence (9.1%), antiepileptics (6.7%), benzo diazepine receptor agonist hypnotics (6.5%), tricyclic antidepressants (5.7%), anti spasmic (3.3%), skeletal muscle relaxants (1.6%), antiparkinsonia (1.5%), benzodiazepines (1.1%). Multivariable logistic regression found that females [odds ratio (OR) = 1.10], Blacks [OR = 1.18], patients with Elkhauser comorbidities (twelve conditions), emergency room visit (OR = 1.1) and more than five prescription medications [OR = 3.0] were associated with higher likelihood of receiving PIMs. CONCLUSIONS: One out of two dementia patients received at least one PIM. Predictors identified in the study can be targeted to reduce PIM use in dementia patients.

PMH20

EPIDEMIOLOGY OF BIPOLAR DISORDER TYPE I (BD-I) IN THE UNITED STATES: A SYSTEMATIC REVIEW OF THE LITERATURE

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OBJECTIVES: To perform a systematic literature review (SR) of studies in peer reviewed journals on 10 epidemiologic aspects of BD-I in the US: its annual
incidence, prevalence and respective trends; mortality rates and trends; asso-
ciated comorbid disorders; stages, severity levels and its natural progres-
sion. A comprehensive search was performed using relevant search terms to
identify articles published between 2006 and 2016. Studies were identified
of bibliographies for relevant citations. RESULTS: Ten studies from Can-
vien SR and five complementary studies addressed the incidence and prevalence
of BD-I. US National Institute of Mental Health (NIMH) estimated the prevalence
of BD-I as 1% (lifetime) and 0.6% (12-month). Mean age of disease onset was 20 years,
with over 70% of cases diagnosed at the age of 30. Available data was insufficient
for trends on prevalence and there was no incidence data available for US
population. Fourteen SR and eight primary studies addressed comorbid disorders.
Substance abuse disorder was highly prevalent with alcohol abuse over 40% and
drug dependence between 18% and 30.4%. Borderline personality disorders (12.5%)
and anxiety disorders (65% to 86.7%), including generalized anxiety disorder
(14.4% to 38.7%) and obsessive-compulsive disorders (10.7% to 24.6%) were highly
prevalent and have a negative impact over the course of BD-I. We retrieved 9 SR
and one primary study regarding BD-I's staging and natural progression. Staging
models identified several features in common: an earlier phase, prodromal phase,
initial phase, relapsing phase and end-stage. CONCLUSIONS: BD is a chronic and
disabling disease with onset in early adulthood. Knowledge on epidemiologic
features may help increase awareness and early diagnosis, although there is a gap
in our understanding of prevalence rates over time. Also, physicians must be
attentive of the high comorbidity rates associated with BD-I.

PMH21

ROUTE ELECTROLYTE MANAGEMENT ALONG ALCOHOL WITHDRAWAL IN
HOSPITALIZED SETTING ALCOHOLIC DEPENDENT PATIENTS: ANTICIPATING A
FINDING BLACKING CLINICAL MANAGER'S CONCERN
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OBJECTIVES: This study aimed to investigate if there is possible association of both
hypokalemia and hypomagnesemia with the severity of alcohol withdrawal syndrome.
METHODS: A prospective cohort study was conducted in alcohol dependence
male patients with age >18 years, admitted in Suamprun Psychiatric Hospital,
Chiang Mai Thailand during May to October, 2014. The severity of alcohol withdrawal
was assessed by using criteria for Clinical Institute for Alcohol Revised (CIWA-Ar) score
which divided into mild, moderate, severe, and very severe. Hypokalemia grade was defined as serum potassium < 3.5 mEq/L,
meaning hypokalemia grade < 1.4 mEq/L. Hypomagnesemia grade was defined as
multivariable ordinal logistic regression was performed for data analysis RESULTS:
A total of 172 male patients, average aged of 44.3±10.1 years. The hypokalemia
was found in 71 patients (42.0%) whereas only 33 patients (22.5%) had hypomagnesemia.
However, further analysis with controlled for potential confounders, surprisingly
hypomagnesemic patients had more severity of alcohol withdrawal as compared with
a non-hypomagnesemia (adj OR 3.49, 95%CI 1.20-10.11, p=0.02). Similarly, patients
with hypokalemia showed higher severity of alcohol withdrawal compared to those with
non-hypokalemia (adj OR 2.89, 95%CI 1.05-7.99, p=0.04). CONCLU-
SIONS: Both hypomagnesemia and hypokalemia were strongly associated with
severely and very severe of alcohol withdrawal syndrome. Suggesting that the plasma magnesium
level determination should be also placed in a routine laboratory test. As such
clinicians should be well aware and provide magnesium sulfate sufficiently
to prevent severe alcohol withdrawal syndrome.

MENTAL HEALTH – Cost Studies

PMH22

A BUDGET IMPACT ANALYSIS OF ABUSE DETERRENT OPIOID FORMULATION
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OBJECTIVES: To model the economic impact associated with increased use of
abuse-deterrent formulations of prescription opioids. METHODS: A budget impact
model was conducted from the payers’ perspective considering a population of
1,000,000 lives, using a 3-year timeframe. Utilization of prescription opioids was
determined using data from a state Prescription Drug Monitoring Program for the
year 2015 focusing on the long-acting opioids fentanyl, hydrocodone, hydrocodone
and oxycodone, oxymorphone. Hospital cost associated with prescription opioid overdose was
derived from the Healthcare Cost and Utilization Project. The base case assumed a 5%, 7%, and 10% increase in
the use of abuse-deterrent opioid products in each of the three years respectively.
We estimated that this would equate to approximately 194 additional patients per
year, with a corresponding average annual reduction of 14 emergency department
treatments and 5% hospital charges for prescription opioid overdose. RESULTS: The
analysis accounted for the uncertainty of model parameters on overall and per-
member-per-month costs. RESULTS: The costs associated with the utilization
of long-acting prescription opioids increased from $11,446,622.38 in the base year to
$12,177,975.21 in year 2, and $14,025,914 in year 3 correspond-
ing to a per-member-per-month cost of $1.06 in year 1, $1.31 in year 2, and $1.71 in
year 3. We estimated the total cost of overdose of the 3-year period to be
$5,428,610.21 ($1,854,913.01 in year 1, $1,815,862.20 in year 2, and $1,757,286.01
in year 3). CONCLUSIONS: Increased use of abuse-deterrent opioid formulations was
associated with an increase in total cost of $5,674,441 and an average increase of
$0.16 in per-member-per-month spending as compared with the current mix of long-acting prescription opioids. Reduction in prescription opioid overdose
resulting from the increased use of abuse-deterrent opioid formulations yielded
savings of $429,558.80.

PMH23

ECONOMIC BURDEN OF BIPOLAR DISORDER IN THE UNITED STATES: A SY-
STEMATIC REVIEW OF THE LITERATURE
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OBJECTIVES: Bipolar disorder (BD) is one of the leading causes of disability
secondary to mental/behavior disorders worldwide. We aimed to evaluate the
economic burden of BD-I using productivity, work performance and health
related quality-of-life (HRQoL) of patients in the United States (US). METHODS: We
conducted a comprehensive search in Medline and EMBASE from 2006 to 2016 for
studies addressing the following aspects: cost-of-illness (direct and indirect
costs and impact of specific pharmacological treatments), impact on employability
and work productivity, HRQoL (over course of illness and during specific pharma-
cological treatments). RESULTS: We included 26 studies evaluating cost-of-illness.
Annual societal costs per BD-I patient varied from $5,000-$14,000 purchasing power parities. Total annual health care costs were
higher for BD patients than for those without ($12,764 vs $3,140). Improved
adherence to medication was related to lower medical costs in BD (1-point
increment in MFR reduced $123-$439 mental health expenditures in manic/mixed
symptoms patients receiving antipsychotics). Fifteen studies addressed impact of
BD-I on employability and work productivity. Among 60%-60% of BD patients were
employed, with higher employment rates during early phases of disease compared
to later stages. Mean annual absence costs (sick leave, short-term/long-term disability,
and workers’ compensation) were significantly higher for BD employers when compared with those without the disease ($1,995 vs $885). Results from 11 studies showed that HRQOL is impaired in BD patients compared with healthy individuals and other groups diagnosed with BD-I. CONCLUSIONS: BD-I has a significant economic impact on
HRQOL. BD-I pharmaceutical and non-pharmacological treatments have a positive effect on
HRQOL. When compared with other populations, BD-I patients imposed higher medical costs for patients; however, treatment adherence was
associated with reduced health expenditures. Both employability and work product-
licity were negatively affected by the disease, as was HRQOL.

PMH24

ECONOMIC BURDEN OF UNCONTROLLED ATTENTION DEFICIT HYPERACTIVITY
DISORDER IN THE US: A RETROSPECTIVE ANALYSIS OF DATABASES CALLS
FROM A COMMERCIALLY INSURED POPULATION
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OBJECTIVES: Despite availability of several treatment options, adequate symptom
control remains a major challenge in the treatment of ADHD. Lack of symptom control may
impair a significant economic burden, yet few studies have quantified the frequency of uncontrolled symptoms and its relation to associated costs. We conducted a comprehensive
search in Medline and EMBASE from 2006 to 2016 for studies addressing the following aspects: cost-of-illness (direct and indirect costs resulting from the increased use of abuse-deterrent opioid formulations yielded
PMH22

VALUE IN HEALTH 20 (2017) A1–A83
A295
burden of patients who did and did not develop treatment-resistant depression (TRD). METHODS: A retrospective longitudinal cohort analysis was performed of the TRD registry within the Medical Information database (2008-2016). We selected non-patients adults (16-79 years) with continuous pharmacy and service coverage during a study period spanning 12 months before and after an index antidepressant prescription. Patients had 1) any prior treatment (for medical or psychiatric illness) with a non-TRD antidepressant (without antidepressant possession), 2) a depression diagnosis within 30-days of the index antidepressant fill; and 3) no claims for schizophrenia, bipolar disorder, or dementia and no Medicare coverage during the study period. TRD was defined as insufficient response to treatment (course of antidepressants or course of psychotherapy) after 2 treatment courses at an adequate dosage and duration (>6 weeks) during the study period. We compared the health care costs of TRD and non-TRD patients following the 12-months following antidepressant prescription. Costs were compared using ordinary least squares (p-value obtained using a nonparametric bootstrap). RESULTS: Approximately 25.1% (2,733 of 10,872) of the cohort met criteria for TRD. Patients with TRD had significantly higher mean (SD) total costs ($5,776 ($42,768) vs. $18,398 ($23,885). This difference included higher inpatient $5,776 ($36,277) vs. $2,578 ($19,348), outpatient $6,315 ($9,968) vs. $4,091 ($8,111), emergency department $522 ($4,877) vs. $264 ($1,080), prescription pharmacy $4,225 ($11,582) vs. $1,740 ($4,984), and other medical care $752 ($4,520) vs. $446 ($2,887) costs. All group comparisons had p < 0.0001. CONCLUSIONS: Within the Medicaid program, approximately one-quarter of adults initiating antidepressant treatment for depression developed treatment-resistant depression during the subsequent year. In relation to depressed patients without treatment-resistance, TRD patients have substantially higher health care costs across every major cost category.

PMH26 HEALTHCARE RESOURCE USE IN SCHIZOPHRENIA SUFFERERS - FINDINGS FROM THE EUROSCOR COHORT Millier A1, Ma F2, Toumi M31JanssenScientificAffairs, Paris, France,2Creative-Ceutical, Beijing, China,3Aix-Marseille University, Marseille, France

OBJECTIVES: Schizophrenia is associated with extensive healthcare resource use which may relate to symptom type and severity. This study aims to quantify healthcare resource utilisation associated with different profiles of schizophrenia symptoms, based on data from the European Schizophrenia Cohort – a naturalistic two-year follow-up of 1,208 patients. METHODS: At each of the five semi-annual follow-up visits, patients were classed into eight health-state based on the Lenert classification, accounting for symptom type (positive/negative/cognitive) and severity (mild/moderate/severe). We estimated consultations with general practitioner (GP), psychologist, psychiatrist and other specialists, day-clinic visits and the length of inpatient stay over six months preceding each visit, using a two-part statistical model based on two generalised mixed models. RESULTS: GP visits over 6 months ranged from 1.15 to 2.08, with higher burden linked to moderate positive and negative symptoms. Psychological day visits were the least frequently utilised resource type, highest use was estimated in patients who experienced moderate (0.50) or severe (0.44) predominantly negative symptoms, or severe positive and cognitive symptoms (0.51). All patients frequently visited the psychiatrist - with those experiencing mild symptoms requiring fewest visits (3.01) – but were far less likely to visit other specialists (probability 10-20%), with an average number of visits below 1.0 for all health states. Day clinic use varied widely between health states, both in terms of probability (2-14%) and the number of visits amongst those who did attend (7-9.57). Between 11% and 35% of patients required hospital admission, with patients experiencing extremely severe symptoms at highest risk. However, amongst these, the prolonged hospital stays were generally of short duration (19 to 57 days). CONCLUSIONS: We quantified the substantial healthcare care requirements of schizophrenia patients with different symptom characteristics which is likely to assist future understanding of differences in resource utilisation of treatments along different health states in this disease.

PMH27 HEALTHCARE RESOURCE UTILIZATION AND COSTS AMONG ADULT SCHIZOPHRENIA PATIENTS USING ONCE-MONTHLY VERSUS TWICE-MONTHLY LONG-ACTING ANTIIPSYCHOTICS Benson C1, Alcusky M2, Pilon D3, Durkin M4, Xiao Y5, Thompson-Leduc P6, Lafleche M2, Lafleure F61Janssen Scientific Affairs, LLC, Titonville, NJ, USA,2UMass Medical School, Worcester, MA, USA,3Group of analysis, Lille, Montréal, QC, Canada

OBJECTIVES: To compare real-world healthcare resource utilization (HRU) and costs between schizophrenia patients stabilized on once-monthly (OM) second generation long-acting injectable antipsychotic (LLA) versus twice-monthly (TM) second generation LAI. METHODS: Medicaid data from 6 states were used to identify adults with schizophrenia. Patients with ≥2 consecutive claims of the same antipsychotic (paliperidone palmitate or aripiprazole) or TM LAI (paliperidonepalmitate or risperidone) within 45 days with the same dosage and days supplied were selected. Patients needed ≥6 months of eligibility prior to LAI initiation and were observed from the second date of index (index date) to the end of data availability. Outcomes were measured for 12 months after the index date. HRU was compared using incidence rate ratios (IRRs) and 95% confidence intervals (95%CIs) from multi-variate generalized linear regression models with a negative binomial distribution. Costs including all costs were estimated using linear regression and non-parametric bootstrap techniques with resampling. RESULTS: A total of 785 OM patients and 625 TM patients met all study criteria. Patients in the OM cohort were younger (60 vs. 42 years, p=0.022) and were more likely to be men (68% vs. 65%, p=0.049) than in the TM cohort. After adjustment for potential confounders, patients in the OM cohort had fewer outpatient visits (IRR: 0.89, 95%CI: 0.79; 1.0), inpatient visits (IRR: 0.73, 95%CI: 0.58; 0.92), and long-term care visits (IRR: 0.58, 95%CI: 0.36; 0.94). There were general medical service costs in total. Health care costs were similar (mean difference: $146, p=0.228) between OM and TM patients. OM patients had significantly higher pharmacy costs (mean difference: $313, p<0.001) and significantly lower medical services cost ($460, p<0.001) compared to TM patients. CONCLUSIONS: Patients stabilized on an OM LAI had lower frequency of HRU and lower medical costs, which offset the higher pharmacy costs compared to patients stabilized on a TM LAI.
maintenance therapy from the patient perspective to put it in context of pay for performance on maintenance costs. The LAI comparators included paliperidone, aripiprazole and risperidone, along with commonly used oral treatments. The model tracked treatment economic drivers of the model. Sensitivity and scenario analyses were conducted to test the uncertainty linked to administrative data. Costs are reported in 2016 Canadian dollars.

RESULTS: Postpartum depression (PPD) is a debilitating illness that affects women’s quality of life, social functioning and productivity. In Canada, the prevalence of PPD was estimated to be between 10-15%. Left untreated, PPD can lead to significant consequences for the mother, father and child. OBJECTIVES: To examine the cost effectiveness of screening versus not screening for PPD in Alberta using the Postnatal Depression Scale (EPDS) with a cut point of 12/13 within the first year postpartum. METHODS: A decision analytic model was created to determine the incremental cost per quality adjusted life-year (QALY) of PPD screening over one year postpartum using a public payer perspective. The majority of model inputs were derived using an Alberta-based research cohort linked to administrative data. Costs are reported in 2016 Canadian dollars. Sensitivity and scenario analyses were conducted to test the uncertainty surrounding varying model inputs. Incremental cost effectiveness of screening for PPD using the EPDS was estimated at a cut point of 12/13 within the first year postpartum. The primary outcome was the incremental cost per quality adjusted life-year (QALY) of PP-LAI monotherapy, SoC or PP-LAI plus antidepressant switch. The secondary outcomes were the incremental QALYs and lower costs than those receiving oral or no treatment, with cost being the lowest for PP-LAI. CONCLUSIONS: Schizophrenia imposes significant health and cost burden on patients and families. LAIs provided a better alternative to orals in reducing relapses and total costs, with FP3M delivering the best outcome.

PMH31 POSTPARTUM DEPRESSION SCREENING IN ALBERTA, CANADA: A COST-EFFECTIVENESS ANALYSIS USING ADMINISTRATIVE DATA Premji S1, 2McDonald SW1, McNeil DA1, Spackman E2

INTRODUCTION: Postpartum depression (PPD) is a debilitating illness that affects women’s quality of life, social functioning and productivity. In Canada, the prevalence of PPD was estimated to be between 10-15%. Left untreated, PPD can lead to significant consequences for the mother, father and child. OBJECTIVES: To examine the cost effectiveness of screening versus not screening for PPD in Alberta using the Postnatal Depression Scale (EPDS) with a cut point of 12/13 within the first year postpartum. METHODS: A decision analytic model was created to determine the incremental cost per quality adjusted life-year (QALY) of PPD screening over one year postpartum using a public payer perspective. The majority of model inputs were derived using an Alberta-based research cohort linked to administrative data. Costs are reported in 2016 Canadian dollars. Sensitivity and scenario analyses were conducted to test the uncertainty surrounding varying model inputs. Incremental cost effectiveness of screening for PPD using the EPDS was estimated at a cut point of 12/13 within the first year postpartum. The primary outcome was the incremental cost per quality adjusted life-year (QALY) of PP-LAI monotherapy, SoC or PP-LAI plus antidepressant switch. The secondary outcomes were the incremental QALYs and lower costs than those receiving oral or no treatment, with cost being the lowest for PP-LAI. CONCLUSIONS: Schizophrenia imposes significant health and cost burden on patients and families. LAIs provided a better alternative to orals in reducing relapses and total costs, with FP3M delivering the best outcome.

PMH32 PHARMACOECONOMIC ANALYSIS OF AGOMELATINE FOR THE TREATMENT OF MAJOR DEPRESSIVE DISORDER IN KAZAKHSTAN Adilgizina G1, Abdulkhakimova D1, Zhumagali Y1, Bektur C2, Kostuyk A3, Nurgozhin T2

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OBJECTIVES: The aim of this study is to conduct an economic evaluation of agomelatine compared with venlafaxine and its most common alternative in routine clinical practice for the treatment of patients with major depressive disorder (MDD) in Kazakhstan. METHODS: Markov’s model was developed to assess the 2-year efficacy of agomelatine relative to the antidepressant analog (venlafaxine) in the treatment of patients with MDD in Kazakhstan. The analysis was conducted from the perspective of the Ministry of Health and Social Development of the Republic of Kazakhstan. Costs are expressed in US dollars (USD) at the exchange rate of 2015 (185.05 KZT = 1 USD), the health benefits were measured in QALYs. Costs and outcomes that occur outside of one year were discounted at an annual rate of 3%. RESULTS: Cumulative costs for patients with MDD during the biennium amounted to 220.17 USD and 329.57 USD in the case of treatment with agomelatine and venlafaxine, respectively. Agomelatine therapy predicts 0.466 QALY per patient, whereas treatment with venlafaxine is 0.386 QALY. Thus, CER 706.64 USD/QALY vs 571.06 USD/QALY, respectively. The index threshold (recommended US-based lower limit). In sensitivity analyses using residual cognition rates of 49.3% for vortioxetine, 58.0% for levomilnacipran, and 63.7% for vilazodone, vortioxetine was associated with an additional QALY versus levomilnacipran (0.0070) or vilazodone (0.0083); was dominant versus levomilnacipran, and cost-effective versus vilazodone (ICER, $27,633/QALY). Similar results (base and cognition scenarios) were found taking into account only direct costs (>60% of total costs). CONCLUSIONS: In this analysis of MDD treatment after first antidepressant switch, vortioxetine showed higher QALYs and lower costs than levomilnacipran, and was cost-effective versus vilazodone; an ICER reduction was found after cognition outcomes inclusion (18% versus base). These data suggest potential benefits of switching to vortioxetine.

PMH33 ECONOMIC EVALUATION OF PALIPERIDONE PALMITATE FOR TREATING CHRONIC SCHIZOPHRENIA PATIENTS IN THE UAE Nuhbho S1, 2Saaid A1, 3Saunell G1, 2Ribbes-Arbonas D1, El Houry AC2

1Uppsala University, Uppsala, Sweden, 2UAE Health Services, Abu Dhabi, United Arab Emirates, 3UAE Government, Dubai, United Arab Emirates, 4UAE Ministry of Health and Prevention, Dubai, United Arab Emirates, 5UAE Ministry of Health and Prevention

OBJECTIVES: Schizophrenia is a long-term mental disorder that affects how a person thinks feels and behaves. Management of these patients is both clinically and financially challenging. In the United Arab Emirates (UAE), standard of care (SoC) is daily oral antipsychotics which have adherence concerns. Paliperidone palmitate (PP-LAI) has recently been approved for chronic schizophrenia and is administered once monthly. This is an economic evaluation of PP-LAI compared to SoC. METHODS: A cost-utility analysis was conducted using a previously validated 1 year decision tree model reflecting the treatment pathways, costs and outcomes of three treatment options; PP-LAI monotherapy, SoC plus 3 SoC. Direct costs, inflated to 2016 where applicable, and treatment effects were obtained from literature and standard price lists. Where these were not available, data were collected from a local panel of experts who also validated the treatment pathways. The primary outcome was the cost per quality-adjusted life-year (QALY) of PP-LAI versus SoC.

PMH34 COST-EFFECTIVENESS EVALUATION, INCLUDING COGNITIVE OUTCOMES, OF EMOTIONAL LEARNING (SEL) PROGRAMS FOR THE PREVENTION OF EXTERNALIZING BEHAVIOR PROBLEMS: AN ECONOMIC MODELING STUDY Nystrand C1, Sampaio F2, Feldman I3

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OBJECTIVES: Emotional Learning (SEL) programs are commonly used to prevent such problems, but little is known about their possible longer-term cost-offsets. This study estimated the incremental cost savings and cost-effectiveness of SEL programs currently available in Sweden, Good Behavior Game and Second Step, for the reduction of externalizing behavior problems in children. METHODS: A population-based Markov model was developed to examine the cost-effectiveness of the two SEL programs compared to a no intervention scenario, achieved by a reduction in clinical cases of attention-deficit/hyperactivity disorder (ADHD), Conduct disorder (CD) and comorbid ADHD/CD. Epidemiological data were collected from the 2015 Global Burden of Disease Study and cost-effectiveness parameters were estimated from a meta-analysis of relevant studies, where effects assumed to reduce to zero after one year. This study adopted a limited societal perspective including costs accruing to the health care and education sectors while intervention costs were based on intervention descriptions. The target population was a cohort of 8-10-year-old healthy children in the 2015 Swedish population followed through to the age of 15 years, assuming 100% intervention coverage. Multivariate probabilistic and univariate sensitivity analyses were conducted to test model assumptions. RESULTS: Intervention cost per child amounted to 70 USD and total cost-savings per child over the modeling period were estimated at 330 USD. The cost-offset relationship for prevention was 1.49, implying that for 1 USD invested, 1.49 USD can be gained over the modeling period. CONCLUSIONS: Our results suggest that these two evidence based SEL programs are likely to yield cost-savings to society. Further research is needed to investigate cost-savings accruing to other sectors of the society, as well as the cost-effectiveness of such interventions.
A SYSTEMATIC REVIEW OF HEALTH ECONOMIC STUDIES ON BIPOLAR DISORDER TYPE I IN THE UNITED STATES
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OBJECTIVES: Bipolar disorder (BD) is a chronic disease associated with several medical and psychiatric comorbidities that can have serious economic impact. We aimed to identify, describe and critically assess health economic studies in BD-I type I over the last ten years and provide recommendations for future studies.

METHODS: We performed a systematic literature search on Medline and Embase databases. Quality assessment was performed using the Cochrane Collaboration Quality Assessment Tool and the Cochrane Collaboration Quality Assessment Tool for Health Technology Assessment. Literature quality was assessed using the Joanna Briggs Collaboration tool. Cost-effectiveness analysis (CEA), cost-utility analysis (CUA), and cost-benefit analysis (CBA) were applied to BD-I patients. Results were presented in a unified way for comparative purposes.

RESULTS: A total of 2,234 records were identified, of which 22 met the inclusion criteria, including 4 CEA, 4 CUA, and 1 CBA. Most studies were performed in the US and were funded by pharmaceutical companies. The average PP-LAI patient in the base case with or without SoC experienced 0.840 QALYs while the SoC patient experienced 0.812 QALYs. PP-LAI monotherapy is therefore projected to be an economically dominant treatment option. Dominance drivers were greater remission days and lower hospitalization and ER visits for PP-LAI vs SoC. The model was sensitive to a wide range of published SoC adherence rates. In scenario analysis, the conclusions were between increased economic dominance and highly cost-effective when PP-LAI monotherapy was compared to SoC.

CONCLUSIONS: PP-LAI is projected to save costs and improve patient outcomes in BD-I patients. It should be considered a viable treatment alternative by payers and prescribers alike.


MENTAL HEALTH – Patient-Reported Outcomes & Patient Preference Studies

PMH38
TREATMENT PATTERNS, ADHERENCE AND CLINICAL OUTCOMES IN BIPOLAR DISORDER TYPE I: A SYSTEMATIC REVIEW OF OBSERVATIONAL STUDIES
Fiedele A1, Greene M, Hutty A*

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OBJECTIVES: To perform a systematic review of literature on real-world data from observational studies on bipolar disorder (BD) treatment regarding patterns-of-care, adherence, and clinical outcomes of second-generation atypical antipsychotics (SGA). METHODS: A literature search was performed on Medline and Embase to identify articles on BD addressing patterns-of-care, adherence and clinical outcomes of SGA therapy from 2006 to 2016. RESULTS: Fifty-three studies were included for analysis. Regarding patterns of drug utilization, SGA monotherapy treatment showed a significant treatment for about 45% of patients, with 31.3% taking a combination of SGA monotherapy in 39.5% and aripiprazole in 37.2% of cases. Overall, prescriptions for BD patients included mainly SGA monotherapy or in combination (45-50%) and mood stabilizers (20%), but a large proportion of patients used for 45% of patients during first antimanic episode, almost 50% of cases receive SGA (monotherapy or combination) overall and up to 70% are treated with SGA plus mood stabilizers during follow-up.

PMH39
EVALUATION OF DEPRESSION PREVALENCE AND ASSOCIATED DEMOGRAPHIC RISK FACTORS AMONG STUDENTS OF A PUBLIC SECTOR UNIVERSITY: A CROSS-SECTIONAL STUDY
Alhaidh A, Rahman T, Masood I, Abbassi WM, Bilal M, Ghauri AO

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OBJECTIVES: To obtain the prevalence of depression and whether the socio-demographic variables were associated with depression in professional university students. METHODS: A cross-sectional study was carried out on students of ages between 18-25 years in faculty of pharmacy and alternative medicine of The Islamia University of Bahawalpur, Pakistan. Data was collected by self-administered ACUDep reported outcomes on costs and EQ-5D for up to 12 months for 755 patients. Patient perceptions about the effectiveness of each treatment were applied to BD-I patients. Results were presented in a unified way for comparative purposes.

RESULTS: Out of all respondents, 40% students suffered from depression and had BDI scores of 17 or more are considered severe. SPSS version 20.0 was used for data analysis. Mann-Whitney U test and Kruskal-Wallis analysis of variance were applied for continuous data analysis.

CONCLUSIONS: Professional Students of a public sector university of Pakistan have a high prevalence of depression. Considering high prevalence of depression among university students, a student counseling service should be arranged to help the students with poor study performance and poor financial background.

PMH40
INCORPORATING PATIENT PERCEPTIONS ABOUT TREATMENT IN COST-EFFECTIVENESS ANALYSIS
Han D, Clement F, Spackman E

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OBJECTIVES: ACUDep, a randomized pragmatic trial, compared acupuncture, counselling, and usual care for relieving depression. Patient perceptions about the effectiveness of treatments may affect costs and health outcomes through compliance or a placebo effect. The objective of this study was to assess the cost-effectiveness of the three different interventions.

METHODS: ACUDep reported outcomes on costs and EQ-5D for up to 12 months for 755 patients. Patient perceptions about the effectiveness of each treatment on an 11-point Likert scale were applied to BD-I patients. Results were presented in a unified way for comparative purposes.

RESULTS: Most patients did not have a positive perception of any of the treatments. 31.3% responded very ineffective, fairly ineffective or can’t decide for their perception of effectiveness of all treatments. 5.7% of patients had a positive perception of all treatments. Using a threshold of £20,000

(QALY) gained. RESULTS: The average PP-LAI patient in the base case with or without SoC experienced 0.840 QALYs while the SoC patient experienced 0.812 QALYs. Since the PP-LAI plus SoC group cost more than the PP-LAI monotherapy group with or without additional QALY gains, PP-LAI plus SoC was discarded from further analysis. PP-LAI monotherapy resulted in incremental cost savings of AED 831 (USD 226) when compared to SoC. PP-LAI monotherapy is therefore projected to be an economically dominant treatment option. Dominance drivers were greater remission days and lower hospitalization and ER visits for PP-LAI vs SoC. The model was sensitive to a wide range of published SoC adherence rates. In scenario analysis, the conclusions were between increased economic dominance and highly cost-effective when PP-LAI monotherapy was compared to SoC.

CONCLUSIONS: PP-LAI is projected to save costs and improve patient outcomes in BD-I patients. It should be considered a viable treatment alternative by payers and prescribers alike.
per QALY the cost-effective treatment varied depending on the expectation of treatment effectiveness. Acupuncture was the cost-effective treatment for patients that were not optimistic about any or all of the treatments. Counseling was the cost-effective treatment in the subgroups that thought only counselling would be effective, only acupuncture would be effective or either of them would be effective. Sensitivity analyses showed that the patient-elicited probability that only usual care would be effective or usual care and either acupuncture or counselling would be effective. CONCLUSIONS: In this analysis patient perception does affect observed treatment outcomes and alters which treatment is cost-effective. Further consideration should be given to assessment of patient perceptions and there use in reimbursement decisions.

PMH41

PRO INSTRUMENTS USED IN STUDIES OF BIPOLAR DISORDER SINCE 1960

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OBJECTIVES: To create an evidence map of the different patient-reported outcome instruments used in studies of patients with bipolar disorder, the geographical settings in which these studies were conducted and the interventions assessed. METHODS: We searched the heiro.com database (www.heiro.com) for PRO studies on bipolar disorder published between 1960 and December 16 2016, and analyzed the abstracts identified by the search to determine the PRO instruments cited across the range of geographical locations and interventions. We presented the findings as an evidence map. RESULTS: We found a total of 127 abstracts that reported the use of 85 different PRO instruments. Of these 85 instruments, 19 were specific for bipolar disorder, depression or mania, 45 were general instruments used to evaluate quality of life, functioning or utilities, nine assessed other conditions or diseases that were common comorbidities of people with bipolar disorder, including anxiety, three assessed three evaluated the impact of the disease on work productivity and one assessed caregiver burden. The most frequently used tool was the SF-36, cited in 26 abstracts followed by the Young Mania Rating Scale (18 abstracts), Hamilton Depression scale (15), MADRS (13) and SF-12 and WHOQOL-bref (10 each). The United States was the most common setting, with 56 abstracts, followed by the United Kingdom (8 abstracts), Canada and Italy (4 abstracts each), then Australia, Brazil and Spain (6 abstracts each). Drug interventions were assessed in 28 abstracts, and psychological interventions in 15. CONCLUSIONS: A wide range of PRO tools have been used in studies of bipolar disorder, but only ten tools were cited in more than five abstracts each. Research into the quality of life in bipolar disorder has generally been assessed from a US perspective.

PMH42

PAIN ASSESSMENT AMONG PATIENTS WITH DEMENTIA

Horváth É1, Fuller N1, Oláh A1, Ferenczy M2, Pakai A3, Barcs Z1, Kári USING THE STANFORD DEMENTIA LAW.scale, Hamilton Depression scale (15), MADRS (13) and SF-12 and WHOQOL-BREF (10 each). The United States was the most common setting, with 56 abstracts, followed by the United Kingdom (8 abstracts), Canada and Italy (4 abstracts each), then Australia, Brazil and Spain (6 abstracts each). Drug interventions were assessed in 28 abstracts, and psychological interventions in 15. CONCLUSIONS: A wide range of PRO tools have been used in studies of bipolar disorder, but only ten tools were cited in more than five abstracts each. Research into the quality of life in bipolar disorder has generally been assessed from a US perspective.

PMH43

DEPRESSION ASSESSMENT IN PATIENTS DIAGNOSED WITH PARKINSON’S DISEASE FOR CLINICAL PRACTICE

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1University of Nés, Pés, Hungary, 2University of Nés, Szamoshegy, Hungary, 3University of Nés, Zalaegerszeg, Hungary

OBJECTIVES: To explore the possibility of the existence of an association of pain among people with dementia and assess the clinical applicability of these scales in the nursing practice. METHODS: The study was a cross-sectional, descriptive, quantitative analysis. By purposive sampling we enrolled patients with dementia (age of the sample 65 years old) who were not having any other mental or acute somatic disease and not being in terminal condition. The study was carried out at the facility of the Hungarian Baptist Aid in Pécs between 01.12.2015 and 31.01.2016. The analysis was done with Microsoft Excel software including descriptive statistics (absolute frequency, relative frequency, mean, standard deviation, confidence interval) and mathematical statistics (Chiz-test, T-test ANOVA) at p<0.05. We used five different pain scales (NRS, BPS (Bio-psychosocial scale), PAIN and dementia, and four while the other four scales, PAINAD (Pain Assessment in Advanced Dementia Scale), FLACC (Face, Legs, Activity, Cry, Consolability scale), Doloplus 2 and PACSLAC (Pain Assessment Checklist for Seniors with Limited Ability to Communicate) are special scales made to assess behavior in people with dementia who do not communicate. RESULTS: We found that the NRS scale indicates excessive sensitivity in people with mild dementia (p<0.03), while in people with severe dementia, the NRS scale did not assess pain so accurately compared to the findings of the other four scales. PAINAD, FLACC, and Doloplus 2 proved to be more reliable. PACSLAC was the most considerable, but its clinical usability seems to be limited due to long and complex evaluation. CONCLUSIONS: Considering all, we can state that the four dementia-specific scales which rely on patients’ behavior are more reliable in terms of means than the NRS. Using these was more beneficial in our clinical practice.

PMH44

ASSOCIATION BETWEEN MALNUTRITION AND DEPRESSION AMONG COMMUNITY- DWELLING OLDER CHINESE ADULTS

Zhang Y1, Fan L2, Wei J1, Li S1, Partridge J1, Clayton L1, Suls J2

1China Health Economics Association, Beijing, China, 2Aubrey Nutrition, Chicago, IL, USA, 3Beijing Hospital of General Surgery Department, Beijing, China, 4Aubrey Nutrition, Columbus, OH, USA, 5Aubert Nutrition, Abbott Park, IL, USA

OBJECTIVES: Malnutrition and depression are of important concern among older adults. Assessment of the two conditions is important and the features of the sample. RESULTS: Most of the patients were from UK (65.38%), 50.96% were female and 54.81% showed two times higher in patients with depression than in those without (p<0.05). In patients with depression according to SDS, 51.80% consider themselves not being depressed and in those that do not have depression according to SDS, 15.20% consider themselves depressed. CONCLUSIONS: All patients with PD revealed a positive correlation and require further assessment. Prevalence of depression calls for medical professionals to be vigilant in the screening process.

PMH45

FIT FOR PURPOSE REVIEW OF MEASURE OF DEPRESSION SYMPTOMS TO OBTAIN FDA PRO LABEL CLAIMS

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OBJECTIVES: A primary use for patient reported outcomes (PROs) is to measure latent states which are otherwise unmeasurable. As such, the CNS area is a quintessential area where PRO measures are likely to be required, such as one sees in rheumatic disorders. Methods: The NRS scale did not assess pain so accurately compared to the findings of the other four scales. PAINAD, FLACC, and Doloplus 2 proved to be more reliable. PACSLAC was the most considerable, but its clinical usability seems to be limited due to long and complex evaluation. CONCLUSIONS: Considering all, we can state that the four dementia-specific scales which rely on patients’ behavior are more reliable in terms of means than the NRS. Using these was more beneficial in our clinical practice.

PMH43

DEPRESSION ASSESSMENT IN PATIENTS WITH DEMENTIA

Sasu R, Popseski A, Turcu-Stoica A, Rogdian M

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OBJECTIVES: To explore the possibility of the existence of an association of pain among people with dementia and assess the clinical applicability of these scales in the nursing practice. METHODS: The study was a cross-sectional, descriptive, quantitative analysis. By purposive sampling we enrolled patients with dementia (age of the sample 65 years old) who were not having any other mental or acute somatic disease and not being in terminal condition. The study was carried out at the facility of the Hungarian Baptist Aid in Pécs between 01.12.2015 and 31.01.2016. The analysis was done with Microsoft Excel software including descriptive statistics (absolute frequency, relative frequency, mean, standard deviation, confidence interval) and mathematical statistics (Chiz-test, T-test ANOVA) at p<0.05. We used five different pain scales (NRS, BPS (Bio-psychosocial scale), PAIN and dementia, and four while the other four scales, PAINAD (Pain Assessment in Advanced Dementia Scale), FLACC (Face, Legs, Activity, Cry, Consolability scale), Doloplus 2 and PACSLAC (Pain Assessment Checklist for Seniors with Limited Ability to Communicate) are special scales made to assess behavior in people with dementia who do not communicate. RESULTS: We found that the NRS scale indicates excessive sensitivity in people with mild dementia (p<0.03), while in people with severe dementia, the NRS scale did not assess pain so accurately compared to the findings of the other four scales. PAINAD, FLACC, and Doloplus 2 proved to be more reliable. PACSLAC was the most considerable, but its clinical usability seems to be limited due to long and complex evaluation. CONCLUSIONS: Considering all, we can state that the four dementia-specific scales which rely on patients’ behavior are more reliable in terms of means than the NRS. Using these was more beneficial in our clinical practice.

PMH44

ASSOCIATION BETWEEN MALNUTRITION AND DEPRESSION AMONG COMMUNITY-DWELLING OLDER CHINESE ADULTS

Zhang Y1, Fan L2, Wei J1, Li S1, Partridge J1, Clayton L1, Suls J2

1China Health Economics Association, Beijing, China, 2Aubrey Nutrition, Chicago, IL, USA, 3Beijing Hospital of General Surgery Department, Beijing, China, 4Aubrey Nutrition, Columbus, OH, USA, 5Aubert Nutrition, Abbott Park, IL, USA

OBJECTIVES: Malnutrition and depression are of important concern among older adults. Assessment of the two conditions is important and the features of the sample. RESULTS: Most of the patients were from UK (65.38%), 50.96% were female and 54.81% showed two times higher in patients with depression than in those without (p<0.05). In patients with depression according to SDS, 51.80% consider themselves not being depressed and in those that do not have depression according to SDS, 15.20% consider themselves depressed. CONCLUSIONS: All patients with PD revealed a positive correlation and require further assessment. Prevalence of depression calls for medical professionals to be vigilant in the screening process.

PMH45

FIT FOR PURPOSE REVIEW OF MEASURE OF DEPRESSION SYMPTOMS TO OBTAIN FDA PRO LABEL CLAIMS

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OBJECTIVES: A primary use for patient reported outcomes (PROs) is to measure latent states which are otherwise unmeasurable. As such, the CNS area is a quintessential area where PRO measures are likely to be required, such as one sees in rheumatic disorders. Methods: The NRS scale did not assess pain so accurately compared to the findings of the other four scales. PAINAD, FLACC, and Doloplus 2 proved to be more reliable. PACSLAC was the most considerable, but its clinical usability seems to be limited due to long and complex evaluation. CONCLUSIONS: Considering all, we can state that the four dementia-specific scales which rely on patients’ behavior are more reliable in terms of means than the NRS. Using these was more beneficial in our clinical practice.
OBJECTIVES: A literature review was conducted to identify studies that utilized health-related quality of life (HRQoL) measures in schizophrenia patients diagnosed with manic episodes, and to document the psychometric properties of the HRQoL instruments. METHODS: The literature review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The search was conducted in PubMed electronic database up to November, 2016. Selected MeSH terms included “Mental Disorder,” “Quality of Life,” and “Substance-Related Disorders.” Bibliographies of articles were screened for additional citations. The exclusion criteria were systematic reviews, RCTs without HRQoL data, grey literature, and non-English articles. RESULTS: A total of 35 articles were included in the qualitative synthesis of their psychometric properties. Of these, 10 instruments that assess HRQoL in the dual diagnosis population were reported. The most commonly used measurement was the Quality of Life Interview (QOLI), which was utilized in 7 (20%) studies. All but 3 measures (QOLI, QOL-SD, Canti’s Ladder Scale) were previously tested for reliability, of which the Social Adjustment Scale Self Report (SAS-SR) was not found to be reliable. Only SAS-SR was not previously tested for validity and 8 (22%) instruments were previously assessed for responsiveness. One measurement (MQoL) assessed all four main domains of HRQoL (physical, psychological, social, and spiritual). The amount of items each instrument contained varied from 1 (Canti’s Ladder and SOFAS) to 143 (QOLI). CONCLUSIONS: There are currently no instruments that are specifically designed to measure HRQoL in dual diagnosis population. The high variability of the number of instruments used in the studies demonstrate a need for a robust instrument in this vulnerable population. Since the dual diagnosis population requires specific tailoring due to their unique disease, future research could focus on creating a valid and reliable HRQoL measure.

PMH47

ANALYSIS OF HUMANISTIC BURDEN REVEALS A NEED FOR OPIOID USE DISORDER (OUD) SPECIFIC HRQOL INSTRUMENTS

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OBJECTIVES: Opioid use disorder (OUD) is characterised by repeated, compulsive seeking or use of an opioid, despite adverse social, psychological and/or physical consequences. Patients with OUD have a variety of symptoms and a reduced quality of life (QoL). The current study aimed to review that included an evaluation of the types of instruments used to assess severity of patient symptoms and the impact of OUD on HRQoL. METHODS: A structured, comprehensive literature review was conducted to identify articles describing the humanistic (symptoms/caregiver) burden of OUD. Global literature databases, guideline databases, regulatory and health technology assessment agency websites, and relevant society guidelines were searched. Searches were conducted for articles published between 1989 and March 2016 were identified. Studies with a QoL measure in schizophrenic patients published between 2000 and 2015. Articles were not restricted to English language. Eligible articles were those reporting on OUD (including opioid abuse and dependence) and providing data on at least one topic of interest. RESULTS: A total of 212 articles were found, of which 200 articles met the literature review included an evaluation of the types of instruments used to assess severity of patient symptoms and the impact of OUD on HRQoL. METHODS: A structured, comprehensive literature review was conducted to identify articles describing the humanistic (symptoms/caregiver) burden of OUD. Global literature databases, guideline databases, regulatory and health technology assessment agency websites, and relevant society guidelines were searched. Searches were conducted for articles published between 1989 and March 2016 were identified. Studies with a QoL measure in schizophrenic patients published between 2000 and 2015. Articles were not restricted to English language. Eligible articles were those reporting on OUD (including opioid abuse and dependence) and providing data on at least one topic of interest. RESULTS: A total of 212 articles were found, of which 200 articles met the literature review criteria and were included in this literature review. Of these, 45 articles reported on a humanistic burden of OUD, within which 54 instruments were identified. Included: general HRQoL instruments (17), instruments for mental health assessments (10), and questionnaires for drug abuse (13) and questionnaires on relationships and social support (15). Most instruments were reported only once, with 5 instruments (WHOQOL-BREF, SF-36, SF-12, Opiate Treatment Index and Addiction Severity Index) reported in 4-5 articles each. None of the instruments were specifically developed for OUD. CONCLUSIONS: Our review indicates a wide range of instruments are used to assess the humanistic burden in OUD. However, compared with patient symptoms, HRQoL was assessed less often and only using general instruments. Our findings suggest an unmet need for the development of OUD disease-specific HRQoL instruments that can effectively assess the different dimensions of the humanistic burden associated with this chronic relapsing disease.

PMH48

HRQOL IN NEGATIVE SYMPTOMS OF SCHIZOPHRENIA

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OBJECTIVES: Schizophrenia negative symptoms (SNS) represent the major contribution to poor functional outcomes, loss in productivity and poor quality of life (QoL) of schizophrenic patients. It is unclear which instruments may be used for the elderly. Since the dual diagnosis population requires specific tailoring due to their unique disease, future research could focus on creating a valid and reliable HRQoL measure.

PMH49

ATYPICAL ANTI-PYSCHOTIC USE IN ELDERLY PATIENTS WITH DEPRESSION

Xu Q, Rege SA, Aparasu RR1

OBJECTIVES: Although atypical antipsychotics are indicated for management of late-life depression, little is known about their use in the elderly. The objective of this study was to determine the prevalence and predictors of atypical antipsychotics and augmentation therapy in elderly patients with depression. METHODS: This study utilized the 2013 National Ambulatory Medical Care Survey data and outpatient department component of the National Hospital Ambulatory Medical Care Survey data. The study included elderly patients (age >56) diagnosed with depression. Atypical antipsychotics and antidepressants were identified using American University Formulary Service classification and Multum lexicon codes. Descriptive weighted analysis was performed to determine the prevalence of atypical antipsychotic use and multivariable logistic regression analysis was performed to determine the factors associated with prescribing of atypical antipsychotics and augmentation therapy. RESULTS: According to the national surveys, there were about 22 million ambulatory visits for depression with an average of 3.2 visits per patient. Such visits were prescribed atypical antipsychotics (OR = 3.86; 95% CI, 3.08-4.79) and primary physicians (OR = 2.80; 95% CI, 2.15-3.64) were more likely to prescribe antidepressant medications. In comparison, whereas personality disorder and obsessive compulsive disorder (OR = 10.23; 95% CI, 2.80-37.4) were associated with increased likelihood of prescribing antidepressant therapy, Hispanics (OR = 0.06; 95% CI, 0.02-0.24) and primary physicians (OR = 0.24; 95% CI, 0.09-0.69) were associated with decreased likelihood, and obsessive compulsive disorder and personality disorder (OR = 7.56; 95% CI, 1.75-32.62) were associated with increased likelihood of atypical antipsychotic prescription. CONCLUSIONS: Several clinical and demographic factors contribute to atypical antipsychotics use in the elderly. With the increased safety concerns, there is a need to monitor treatment related adverse effects in the elderly.

PMH50

ANTIDEPRESSANT MEDICATION USE AMONG ELDERLY PATIENTS WITH DEPRESSION

Rege SA1, Rycroft C2, Xu Q2, Aparasu RR1

OBJECTIVES: This retrospective cross-sectional study utilized 2011 National Ambulatory Medical Care Survey data. The study included patients aged 65 years or older diagnosed with depression. Antidepressant medications were operationally defined using the American Hospital Formulary Service Pharmacologic-Therapeutic classification and identified using Multum lexicon codes. Antidepressant medication classes included were Tricyclic antidepressants (TCAs), Selective Serotonin Reuptake Inhibitors (SSRIs), Monoamine oxidase inhibitors (MAOIs), Tetracyclic antidepressants, Selective Serotonin Nor-epinephrine Reuptake Inhibitors (SNRIS), Phenylpyrazepines and miscellaneous antidepressants. Descriptive weighted analysis was used to examine prevalence of antidepressant medication prescription. Independent variables included patient characteristics such as sex, age, race, ethnicity, region, and payment sources; and provider characteristics like physician medical degree, specialty type, office setting, location, metropolitan status of practice, solo practice, primary physician and whether the patient was seen before. Multiivariable logistic regression was used to assess the predictors of antidepressant therapy. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated using an a priori alpha level of 0.05. RESULTS: In 2011, a national estimate of 26.5% (95% CI, 21.70-31.32) million office visits were made by elderly patients with depression in the United States. Of these 11.82% (95% CI, 9.92-14.43, 44.59%) million involved prescribing of antidepressants. The most commonly prescribed antidepressants were SSRIs (31.16%), followed by SNRIS (8.07%) and Phenylpyrazepines (4.03%). Multiivariable analysis revealed that compared to other payment sources, patients with Medicare (OR = 0.348; 95% CI, 0.17-0.71) and private insurance (OR = 0.37, 95% CI, 0.21-0.67) were less likely to receive antidepressant medications. The study found that 45% of the elderly depression visits involved prescription of antidepressant medications. SSRIs were the most commonly prescribed antidepressant. Payment source was a significant predictor of antidepressant drug prescription.
OBJECTIVES: Communities in West Virginia (WV) have been disproportionately impacted by the opioid epidemic, with overdose deaths per 100,000 persons in 2015. Law enforcement officers (LEOs) have the legal authority to stock, carry, and use naloxone, but the real-world use and availability through LEOs in WV is unknown. The objective of our study was to assess the readiness of LEOs in WV to provide emergency naloxone in the communities they serve.

METHODS: A prospective cross-sectional study was conducted using a self-administered questionnaire between September and December 2016. The questionnaire consists of demographic questions, general knowledge regarding naloxone, perceived barriers to carrying and administering naloxone, the level of knowledge of opioid overdose management, and attitudes toward opioid overdose situations. The survey was completed by 1,193 active, non-retired WV officers who had an average age of 45.6±(11.4) years and 13.8±(10.0) years of experience at their department. The results indicated that the use of naloxone was relatively low. 72.7% of LEOs reported being in the scene of an opioid overdose in the past 12 months, and the majority (58.6%) reported being at the scene before EMS. Half of the respondents were not interested in receiving training to administer naloxone, and of those individuals, 53.5% were serving counties with elevated prescription drug death rates (>20 per 100,000). Knowledge scores were higher for officers who had completed training on naloxone than those who did not or were not interested (2.7±(0.03)). Barriers to naloxone use identified by the LEOs included lack of training, time, safety, cost, storage, and liability.

CONCLUSIONS: We conclude that willing officers should continue to be trained, but for officers in counties where death rates are the highest, new strategies to increase buy-in are still needed.

PMHS2
EFFECTIVITY, SAFETY AND COST-EFFECTIVENESS OF ARIPIPRAZOLE COMPARED TO OLANZAPINE FOR SCHIZOPHRENIA: SYSTEMATIC REVIEW AND META-ANALYSIS

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OBJECTIVES: Aripiprazole is a dopamine-serotonin system stabilizer not included in the standard treatment of schizophrenia, which is the most common mental health system. It has been the reason of many court orders demanding its supply. This study aimed at comparing and analyzing the efficacy, safety, and cost-effectiveness of Aripiprazole versus Olanzapine in the standard treatment of schizophrenia in Brazil, to evaluate the rationality of its use for the treatment of schizophrenia.

METHODS: A systematic review was conducted in accordance to the Cochrane Handbook guidelines, including RCTs and complete economic evaluations. A electronic search in the databases of Medline, The Cochrane Library and Lilacs and a complementary search in theses and dissertations databases, scientific journals, and abstracts of international meetings were conducted. Results of the searches were combined via meta-analysis. Results of the analyses of the RCTs and ten economic evaluations were included. None of the studies showed efficacy results that significantly favored aripiprazole and two studies significantly favored Olanzapine. Most of the studies did not show interference between the different antipsychotics regarding neurological adverse effects. One paper reported a better neurological adverse effects profile for olanzapine. All six studies found worse metabolic profile for olanzapine. The meta-analysis of aripiprazole in comparison with olanzapine showed that patients in use of aripiprazole are more likely to discontinue treatment (RR [95%CI]=1.15[1.06-1.24]; I2=0%; p-value=0.0009) and less likely to have weight gain (RR [95%CI]=0.44[0.25-0.55]; I2=0%; p-value<0.0009). Olanzapine was found dominant in all economic evaluations and studies by aripiprazole was dominant in two. In one study, aripiprazole was less expensive and less effective than olanzapine (RCII of 3.951.72 6/reamission).

CONCLUSIONS: Aripiprazole was not found to be a better therapeutic alternative than olanzapine. But, despite of being less efficacious and show lower cost-effectiveness profile, aripiprazole might be useful for patients that considered irresponsive or intolerant to olanzapine.
OBJECTIVES: To examine 30-day hospital readmission rates in patients with schizophrenia treated with different long-acting injectable antipsychotics (LAs) during their index hospitalization. METHODS: Inpatient claims from Premier Perspective DatabaseTM were used to identify adult patients (age ≥ 18 years) hospitalized for a primary diagnosis of schizophrenia (ICD-9-CM diagnosis code: 295.XX) between 01/01/2013 and 06/30/2015 who received an LAI and were discharged home or to a home care program during the first (index) hospitalization. Five mutually exclusive LAI cohorts were included: aripiprazole, fluphenazine, haloperidol, paliperidone, and risperidone. The 30-day re-hospitalization rates were calculated across different LAs. Logistic regression models controlling for patient demographic and clinical characteristics were conducted to estimate associations between different LAIs and 30-day hospital readmissions. RESULTS: Of the 73,222 hospitalized adult patients with schizophrenia, 15,286 (20.9%) were treated with LAIs: aripiprazole (206), fluphenazine (2,052), haloperidol (7,088), paliperidone (2,767), or risperidone (3,173). Compared to the other LAI cohorts, the oral cohort had more patients who were younger (mean [SD] age: 37.3 [14.4]); a higher percentage of them were white (48.1%) and married (11.2%). The aripiprazole cohort had the lowest Charlson comorbidity score (mean [SD]: 0.35 [0.60]), but the highest percentages of depressive disorder (12.1%) and anxiety (18.5%). The 30-day readmission rates were lowest in the aripiprazole cohort (all-cause: 9.7%; psychiatric-related: 8.7%), followed by haloperidol (10.0%; 9.5%), paliperidone (10.8%; 10.2%), risperidone (10.9%; 10.5%), and fluphenazine (11.0%; 10.3%). However, the differences were not statistically significant with and without adjusting for patient demographic and clinical characteristics. CONCLUSIONS: This real-world study is, to our knowledge, the first to examine 30-day re-hospitalization rates among schizophrenia patients treated with different LAIs. Our findings suggest that 30-day re-hospitalization rates were lowest in the aripiprazole cohort but relatively low across the different LAs.
one opioid prescription during their treatment episode. The median total of morphine milligram equivalents (MME) 12 months prior to treatment was 250 mg per month (IQR 150 to 350) and then declined to 21 mg per month (IQR 0 to 115 mg per month) (Q25 to 1106) during and following the treatment episode, respectively. The median MME per opioid day supplied prior to, during and following the first treatment episode remained constant at 40 mg per day.

**CONCLUSIONS:** Treatment with buprenorphine/naloxone is associated with reduced non-buprenorphine opioid use. However, a substantial proportion of patients filled prescriptions for non-buprenorphine opioids during and following such treatment.

**PMH63**

**USE OF ANTIPSYCHOTICS AMONG SENIORS LIVING IN LONG-TERM CARE**

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**OBJECTIVES:** This analysis examines the use of antipsychotics among seniors living in long-term care (LTC) facilities. The study also assessed the concurrent use of antipsychotics with other psychotropic drugs, which further increases risk of side effects. It also looks at the characteristics of residents treated with antipsychotics, including diagnoses, behaviors related to functional measures, and days of exposure. Drug information from the National Prescription Drug Utilization Information System (NPDUS) Database, housed at the Canadian Institute for Health Information (CIHI), provide detailed information about antipsychotic use. LTC resident assessment data from CIHI's Long Term Care Reporting System (LTCRS) provide details on resident information.

**RESULTS:** This was the first study to use the NPDUS Database to describe the use of antipsychotics among seniors living in LTC facilities in Canada. The concurrent use of antipsychotics with other psychotropic drugs, which further increases risk of side effects. It also looks at the characteristics of residents treated with antipsychotics, including diagnoses, behaviors related to functional measures, and days of exposure. Drug information from the National Prescription Drug Utilization Information System (NPDUS) Database, housed at the Canadian Institute for Health Information (CIHI), provide detailed information about antipsychotic use. LTC resident assessment data from CIHI's Long Term Care Reporting System (LTCRS) provide details on resident information.

**CONCLUSIONS:** This analysis examines the use of antipsychotics among seniors living in long-term care (LTC) facilities. The study also assessed the concurrent use of antipsychotics with other psychotropic drugs, which further increases risk of side effects. It also looks at the characteristics of residents treated with antipsychotics, including diagnoses, behaviors related to functional measures, and days of exposure. Drug information from the National Prescription Drug Utilization Information System (NPDUS) Database, housed at the Canadian Institute for Health Information (CIHI), provide detailed information about antipsychotic use. LTC resident assessment data from CIHI's Long Term Care Reporting System (LTCRS) provide details on resident information.

**PMH64**

**RETROSPECTIVE STUDY OF ANTIPSYCHOTICS UTILIZATION IN RUSSIAN FEDERATION**

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**OBJECTIVES:** This study aims to analyze the evolution of the consumption pattern of the antipsychotic drugs (APs) in Russian Federation. The study used data from the DSM-group marketing database and subsequently analyzed. The drugs have been classified into typical antipsychotics (TA), atypical antipsychotics (AA) and sustained-action APs. Consumption data have been expressed in daily-defined dose (DDD). The study began in 2006 to 2015. The main goal was to investigate the utilization and cost for patients newly prescribed APs.

**CONCLUSIONS:** This study aimed to analyze the evolution of the consumption pattern of the antipsychotic drugs (APs) in Russian Federation. The study used data from the DSM-group marketing database and subsequently analyzed. The drugs have been classified into typical antipsychotics (TA), atypical antipsychotics (AA) and sustained-action APs. Consumption data have been expressed in daily-defined dose (DDD). The study began in 2006 to 2015. The main goal was to investigate the utilization and cost for patients newly prescribed APs.

**PMH65**

**EFFECT OF ATYPICAL ANTIPSYCHOTIC PRIOR AUTHORIZATION IMPLEMENTATION ON PATIENT OUTCOMES AMONG OHIO MEDICAID BENEFICIARIES**

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**OBJECTIVES:** A major concern regarding prior authorization (PA) policies for atypical antipsychotics (AAPs) is that they produce undue burden on an already vulnerable population which may worsen outcomes. In October 2008 Ohio Medicaid implemented a PA-policy that contained a unique stipulation exempting psychiatrists. The objective of this study was to determine the impact of this PA-policy on healthcare utilization and costs among Ohio Medicaid beneficiaries.

**METHODS:** Patient-level data analyzed came from Ohio Medicaid fee-for-service claims files June/2007-September/2009. A difference-in-differences regression approach was used to compare outcomes in the PA-active year to the pre-implement year between patients treated by psychiatrists and those who were treated by any other health professional. Patients treated based on an index-AA prescribing-physician type, and those treated by TA (1-st generation drug) consumption decreased and that of the AA and sustained-action APs ones increased. Therefore, the level of consumption of TA in Russian Federation remains high (over 50% of the total APs consumption).

**CONCLUSIONS:** It was found that the APs consumption in Russian Federation during the period 2010-2015 changed significantly. TA (1-st generation drug) consumption decreased and that of the AA and sustained-action APs ones increased. Therefore, the level of consumption of TA in Russian Federation remains high (over 50% of the total APs consumption).
patients from the pre-PA-period (psychiatrist-treated=400; non-psychiatrist-treated=729) and 2,032 patients from the PA-period (psychiatrist-treated=955, non-psychiatrist-treated=1,229) were included in the difference-in-differences analysis. No statistically-significant policy-attributable effect was found except for all-cause hospitalizations, which decreased substantially with an OR=0.54 (95%CI: 0.33-0.88, p=0.006). Implementation of the PA policy did not negatively affect patient outcomes, and was shown to reduce the odds of hospitalization. The psychiatrist-exemption implemented by Ohio may represent a PA-design that reduces medication costs while preserving patient quality-of-care.

PMH66
COSTS OF ALCOHOL USE DISORDER AND RECOMMENDATIONS FROM AN EXPERT PANEL TO REDUCE COSTS OF RECIDIVISM
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OBJECTIVES: To quantify and validate healthcare utilization and costs for patients diagnosed with alcohol use disorder (AUD) using a US health insurance claims database. METHODS: We identified AUD patients from Truven Health Analytics MarketScan research databases. Patients included had 12 months of continuous coverage in a health plan from January - December 31, 2013. Data analyzed included demographics, resource utilization and costs from acute inpatient stays with the diagnoses of interest. Additional information from outpatient claims and electronic medical records (EMRs) are reported. These data were reviewed by an expert panel of 10 clinicians and researchers who subsequently suggested solutions for reducing recidivism and costs. RESULTS: There were 51,889 patients aged 10-99 years with a diagnosis of alcohol use disorder, of which 26,978 patients were admitted to a hospital for a treatment. The average number of hospital visits was 3.1 per patient for the year with most returning to hospitalization within 45 days. Number of inpatient stays was greater than or equal to 6 for 7% of females. The panel of clinicians validated these findings and suggested clinical monitoring to augment current treatments. CONCLUSIONS: As shown in this claims analysis, annual costs of AUD and recidivism in this population have substantial economic consequences. Prospective clinical monitoring and disease management, already used within general health care settings to address other potentially progressive illnesses, could be applied in emerging cases of substance misuse. Use of clinical monitoring and treatment of patients should be accompanied by informed clinical protocols to reduce the frequency and amount of substance use along with family education to support lifestyle changes.

PMH67
COST-EFFECTIVENESS OF LONG ACTING INJECTABLE BUPRENORPHINE VERSUS SUBLINGUAL BUPRENORPHINE TO TREAT OPIOID USE DISORDER IN SWEDEN AND THE UNITED KINGDOM
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OBJECTIVES: There is growing concern in Europe over heroin and prescription opioid abuse. Opioid-related overdose deaths have peaked historically at 7000 annually. Associated healthcare utilization, productivity loss, criminal justice and social welfare expenditures place a considerable burden on publicly-funded European systems. Medication assisted therapy (MAT) is effective, but limited by abuse/diversion, non-adherence, combination treatment and administrative burdens of which 26,978 patients were admitted to a hospital for a treatment. The average number of hospital visits was 3.1 per patient for the year with most returning to hospitalization within 45 days. Number of inpatient stays was greater than or equal to 6 for 7% of females. The panel of clinicians validated these findings and suggested clinical monitoring to augment current treatments. CONCLUSIONS: As shown in this claims analysis, annual costs of AUD and recidivism in this population have substantial economic consequences. Prospective clinical monitoring and disease management, already used within general health care settings to address other potentially progressive illnesses, could be applied in emerging cases of substance misuse. Use of clinical monitoring and treatment of patients should be accompanied by informed clinical protocols to reduce the frequency and amount of substance use along with family education to support lifestyle changes.

PMH68
TWO-YEAR HEALTHCARE UTILIZATION AND COST AMONG A MEDICAID SCHIZOPHRENIA POPULATION AT HIGHER RISK OF HOSPITALIZATION
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OBJECTIVES: To assess the quality improvement and risk evaluation (QI-RE) model predicts 12-month risk of hospitalization for schizophrenia patients based on 12 months of medical and pharmacy data. We describe cost and utilization over 24 months for Medicaid patients with schizophrenia with higher risk (HR) of hospitalization (> 50% predicted using QI-RE risk of hospitalization). METHODS: 12,649 adults with schizophrenia (ICD-9 295.xx) and ≥2 claims for the same antipsychotic were selected from the Truven Health MarketScan Medicaid database. Time with the rate of 2nd antipsychotic claim as index. Continuous enrollment in Medicaid for >12 months prior to and ≥24 months after the index date were required, as well as ≥1 pre-index claim for an antipsychotic other than the index drug. We evaluated annual and two-year healthcare resource utilization and costs. We calculated means and standard deviations (SD) for continuous variables and frequencies for categorical variables. RESULTS: Of 7,430 study-qualified patients, 44.6% (n=3,317) were HR. The mean (SD) age at HR diagnosis was 58.9 years (13.0). Of the HR patients, 67.8% were female. Patients vs. non-HR patients had ≥1 hospitalization (57.1% in Year 1, 46.3% in Year 2). In Year 1, HR patients accounted for 74.3% of inpatient admissions and 63.1% of emergency department visits; in Year 2, those proportions were 71.5% and 63.3%, respectively. With mean annual healthcare costs per patient of $47,572 for Year 1 and $41,674 for Year 2, HR patients represented 54.4% of total healthcare costs for Year 1 and 53.6% for Year 2. CONCLUSIONS: Higher QI-RE risk is associated with a disproportionate share of inpatient utilization and total costs not only in the first year post-index, but also in the second year.

PMH69
STRESS PREDICTION MODEL OF UNDERGRADUATE BURAPHA UNIVERSITY STUDENT 2016
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OBJECTIVES: 1. To evaluate stress level of Undergraduate Burapha University Student (UBUS). 2. To establish UBUS Stress Model. METHODS: Cross-sectional survey was performed. Stress was operationalized into stress dimensions namely: education, friendship, environment, activities, health, and expectation from the family. Population was all Burapha students in 2016. Sample was calculated according to Yamane 1973. It generated n=448. A non-probability quota sampling was performed. RESULTS: A 100% data collection was gathered from Burapha students were in the middle stress level. We found no significantly different of the stress means between students in 3 groups -pure sciences, health sciences and arts and social sciences- (p<0.05 ANOVA). Hierarchical stepwise multiple regression generated stress equation prediction as: Stress = 14.834+ 1.733 Education+ 1.730 Friendship+0.707 Family Expectation -0.109 Health-0.292 Activity -0.291 Environment CONCLUSIONS: Three significant stress predictors were education, friendship and expectation. No significance differences stress among different major groups of student.

PMH70
NURSING HOME ANTIPSYCHOTIC PRESCRIBING PRACTICES AND RISK OF HOSPITALIZATION AND MORTALITY IN DEMENTIA PATIENTS
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OBJECTIVES: Antipsychotic drug use in dementia patients is considered suboptimal care. Nursing home level antipsychotic rate, a measure of nursing home quality of care, may lead to adverse outcomes. The study evaluated the association of nursing home level antipsychotic use with 30-day nursing home hospitalization and mortality. METHODS: This retrospective cohort study used Medicare claims data, Minimum Data Set, and the Online Survey, Certification, and Reporting data from 2007-2009. The study included short-stay (nursing home stay < 100 days) elderly nursing home residents with dementia. The outcome measures were 30-day all-cause hospitalization and mortality. Multilevel Andersen Behavioral model was used to select patient and contextual level predisposing, enabling and need factors. Contextual level nursing home antipsychotic initiation rate was categorized into tertiles (low, medium, or high) based on proportion of dementia residents newly started on antipsychotics during the baseline period. Hierarchical logistic regression models were used to determine the association of nursing home antipsychotic initiation rate with 30-day hospitalization and mortality, while controlling for patient and contextual level covariates. RESULTS: The cohort included 9,611 patients from 2,548 nursing homes. In the hierarchical logistic regression models, nursing home level antipsychotic rate was not associated with 30-day hospitalization (OR, 1.01, 95% CI 0.89-1.15, medium, OR 0.97, 95% CI 0.84-1.13; high, OR 1.11, 95% CI 0.97-1.28) or 30-day mortality (low, OR 0.86, 95% CI 0.79-1.23; medium, OR 0.87, 95% CI 0.76-1.14; high, OR 0.90, 95% CI 0.75-1.07) compared to 0%. Low antipsychotic use was associated with increased risk of 30-day hospitalization (OR 1.18, 95% CI 1.01-1.37) but not with 30-day mortality (OR 0.96, 95% CI 0.73-1.26). CONCLUSIONS: Nursing home level antipsychotic prescribing practices was not associated with short-term all-cause hospitalization or mortality. However, patient-level antipsychotic was associated with higher risk of 30-day hospitalization.
examined patient and contextual factors associated with initiation of antipsychotics among nursing home residents with dementia. METHODS: This retrospective cohort study used Medicare claims, Minimum Dataset Set, and the OnLine Certification, and Reporting data from 2007-2009. The study sample consisted of short-stay (nursing home stay ≤100 days) elderly nursing home residents with dementia. The low antipsychotic initiation rate was categorized into tertiles (low, medium, or high) based on proportional of dementia residents newly started on antipsychotics during the baseline period. The association of predisposing, enabling, and need factors with initiation of antipsychotics was evaluated using hierarchical logistic regression models. RESULTS: A total of 9,611 patients was identified residing in 2,548 nursing homes. Overall antipsychotic initiation rate was 11.2%, nursing home level initiation rate was 0% in 890, <.12.6% in 659 (low), 12.6%-17% in 465 (medium) and 16.8%-70% in 534 (high) nursing homes. Nursing home level antipsychotic initiation rates were significantly associated with likelihood of initiating antipsychotic (Medium: OR 1.36, 95% CI 1.09-1.71, High: OR 1.48, 95% CI 1.20-1.82). Among patient level factors, predisposing (female), enabling (dementia unit, AD symptoms, mild cognitive impairment, and moderate/severe behavior) and need (drug abuse, psychosis, antianxiety medication use) were associated with higher likelihood of antipsychotic initiation. CONCLUSIONS: Both patient and contextual level predisposing, enabling and need factors influenced initiation of antipsychotics among nursing home residents with dementia. The study revealed that antipsychotic prescribing practices play an important role in the use of antipsychotics in nursing home residents with dementia.

PMH72
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OBJECTIVES: The use of antipsychotic drugs has been significantly increasing in the US and Canada, both agencies evaluate drug in similar ways. However, differences in approval processes and outcomes such as approved indication, contraindication, and limitation of use exist with other classes of drugs. The objective of this study was to provide a comprehensive and comparative analysis of antipsychotic drugs approved by the U.S. Food and Drug Administration (FDA) and Health Canada (HC).

METHODS: A list of all antipsychotic drugs approved by both agencies from 1950 to 2015 was gathered. For each drug, the following data were extracted: indication, class, dosage forms, route of administration, market statuses and review statuses. Differences were identified and compared qualitatively and quantitatively. RESULTS: Out of the 68 antipsychotic drugs on the WHO ATC list, 29 had never been approved by or submitted to the FDA and HC. Of the 39 drugs that were approved by both agencies, 20 are currently on the market in both countries. For these 20 drugs, the average number of approved indications by FDA (2.85±1.96) was higher than HC (2.20±0.81), though not statistically significant. Qualitative analysis revealed differences in approved indications in 80% of the drugs. HC approved more contraindications than the FDA (6.25±4.96 vs. 3.90±3.18; p-value < 0.05). Moreover, differences were identified in limitation of use, restriction of indication, approval dates between the two agencies. CONCLUSIONS: There are significant differences in the antipsychotic drugs approved by both agencies. Additionally, differences in indications, contraindications, and other characteristics of drugs were identified. Harmonization of the drug regulatory process may help in decreasing these differences.

PMH73
SUICIDE IN LATIN AMERICAN INDIGENOUS POPULATION: A SYSTEMATIC REVIEW
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OBJECTIVES: High rates of suicide have been reported in different ethnic minorities, particularly among indigenous populations. Socioeconomic, demographic, and cultural phenomena is a major public health issue in Latin America. METHODS: We performed a systematic review of the literature in PubMed, Scopus, PsychTl and Scielo (the Latin American database). An additional search for "grey literature" was done in Scholar Google using suicide (and Spanish and Portuguese equivalents) associated with each Latin American country. The reference lists of all included articles were reviewed for any additional studies. Searches were carried out on March 2016. Articles were reviewed in full text. No language or publication date limits were applied. Only articles centered on or considering indigenous population were used for data extraction. Meta-analysis was not attempted due to heterogeneity in study design, including study populations, study designs, and research methodology. Narrative synthesis was therefore used to analyze the extracted data. RESULTS: Initial searches identified 1862 potential references, of which 75 were selected for full-text review, 2 were not available. Data was extracted from 41 articles published between 1980 and 2015, 21 of them referred to Brazil, 13 to Colombia, 2 to Chile, 1 to Peru, while 4 additional articles included data from several Latin American countries. CONCLUSIONS: Suicide rates are high and have been increasing over time, despite high underreporting and scarce scientific interest on the issue. Suicide mostly occurs in middle aged men, using hanging as most frequent method. Alcohol consumption is widely associated. Changes in lifestyles influenced by industrialization, environmental degradation, and cultural and religious invasion have affected indigenous groups, making them experience what has been described as “cultural death”. Mental health disorders in Latin American indigenous groups have not been studied in depth. Interventions have to incorporate their own traditions and beliefs.

PMH74
TREATMENT PATTERNS AND CHARACTERISTICS OF ADULT PATIENTS WITH ATTENTION DEFICIT/HYPERACTIVITY DISORDER RECEIVING ATOMOXETINE IN JAPAN
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OBJECTIVES: To describe the characteristics and medication treatment patterns of adult patients with attention-deficit/hyperactivity disorder (ADHD) prescribed atomoxetine in Japan.

METHODS: A retrospective analysis of insurance claims data was conducted using the Japan Medical Data Center database. Adults (≥18 years) with ADHD who had ≥1 atomoxetine claim from 1 January 2013, to 31 December 2014, and ≥180 days of follow-up were included. First atomoxetine claim defined the index date. Patient characteristics included age, gender, and comorbid conditions. Treatment patterns assessed included rates of atomoxetine discontinuation, switch, persistence, adherence (assessed via the medication possession ratio), and use of concomitant medications.

RESULTS: A total of 457 adults met all inclusion criteria; mean [SD] age 23.7 [8.3] years. Nearly 72% of the patients had at least one comorbid mental health condition in the baseline period; depression (43.8%) and insomnia (40.7%) were the most common mental comorbidities. Most common physical comorbidities were chronic obstructive pulmonary disease (14.4%) and diabetes (12.9%). Psychotropics were received by 59.7% of patients during baseline period and by 66.0% during follow-up period; however, only 6.6% received psychotropics concomitantly with atomoxetine. Approximately 0.05% of adults discontinued atomoxetine and 65.9% were persistent with atomoxetine therapy at 3 months post-index date. Mean (SD) atomoxetine medication possession ratio was 0.57 (0.25), and 25.4% switched to an alternative ADHD medication. Methylphenidate showed the highest switching rate (22.4%) and psychotropics (77.6%) were the most common medications to switch to. Nearly 8% augmented atomoxetine with an alternative ADHD therapy. CONCLUSIONS: In this observational study, a majority of adults with ADHD treated with atomoxetine were still persistent with therapy at 3 months post-index date, whereas 25.4% switched to alternative medications. Higher proportions of both mental and physical co-morbidities, along with greater use of psychotropic medications in the baseline period, were observed among patients with ADHD prescribed atomoxetine.

PMH75
A SYSTEMATIC LITERATURE REVIEW OF CLINICAL PRACTICE GUIDELINES FOR THE TREATMENT OF BIPOLAR DISORDER TYPE I (BD-I)
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OBJECTIVES: To perform a systematic review (SR) of literature and present the inclusion criteria, mean [SD] age 23.7 [8.3] years. Nearly 72% of the patients had at least one comorbid mental health condition in the baseline period; depression (43.8%) and insomnia (40.7%) were the most common mental comorbidities. Most common physical comorbidities were chronic obstructive pulmonary disease (14.4%) and diabetes (12.9%). Psychotropics were received by 59.7% of patients during baseline period and by 66.0% during follow-up period; however, only 6.6% received psychotropics concomitantly with atomoxetine. Approximately 0.05% of adults discontinued atomoxetine and 65.9% were persistent with atomoxetine therapy at 3 months post-index date. Mean (SD) atomoxetine medication possession ratio was 0.57 (0.25), and 25.4% switched to an alternative ADHD medication. Methylphenidate showed the highest switching rate (22.4%) and psychotropics (77.6%) were the most common medications to switch to. Nearly 8% augmented atomoxetine with an alternative ADHD therapy. CONCLUSIONS: In this observational study, a majority of adults with ADHD treated with atomoxetine were still persistent with therapy at 3 months post-index date, whereas 25.4% switched to alternative medications. Higher proportions of both mental and physical co-morbidities, along with greater use of psychotropic medications in the baseline period, were observed among patients with ADHD prescribed atomoxetine.

URINARY/KIDNEY DISORDERS – Clinical Outcomes Studies
PUK1
EFFECT OF ALLOPURINOL IN THE ESTIMATED GLOMERULAR FILTRATION RATE IN PATIENTS OVER 50 YEARS
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OBJECTIVES: To estimate the effect of allopurinol on hyperuricemia and estimated glomerular filtration rate (eGFR).

METHODS: An observational non-concurrent prospective cohort study. Patients older than 50 years with hyperuricemia were included. All patients received allopurinol 100-300 mg daily for 12 months. The levels of uric acid (UA) were determined and the glomerular filtration rate (GFR) was
estimated at baseline. Changes in AU and in GFR were observed after treatment. RESULTS: 50 patients diagnosed with hyperuricemia on treatment with allopurinol were eligible with a mean age of 71.6 ± 11.1 years. 58% of the patients were male and 46% had diabetes mellitus. UA levels decreased significantly from 7.1 ± 1.1 mg/dl to 5.5 ± 1.2 mg/dl (p < 0.001). The GFR increased from 46.3 ± 19.1 ml/min/1.73 m² to 52.6 ± 20.6 ml/min/1.73 m² (p < 0.001). The difference was significant (p = 0.14). There were no reports of adverse reactions to allopurinol.

CONCLUSIONS: In this study, allopurinol was effective and safe in the treatment of hyperuricemia but did not significantly increase GFR in patients older than 50 years.

PUK4
IMPACT OF INDIVIDUAL DIAGNOSIS CODES ON DATABASE ESTIMATES OF OVERACTIVE BLADDER
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OBJECTIVES: To assess the effect of individual International Classification of Disease, Ninth Revision, Clinical Modification (ICD-9-CM) diagnosis codes on database estimates of overactive bladder (OAB) in the absence of a specific OAB diagnosis.

METHODS: ICD-9-CM codes used to define OAB were identified from a review of published claims database studies. OAB prevalence and patient characteristics were evaluated for each code using 2015 OptumHealth claims data. Prevalence was calculated among all subjects in the data with insurance eligibility. The share of patients with a medical claim for each code was counted overall, and compared between visits to urologists and all other healthcare providers. Patient clinical and demographic characteristics and oral OAB pharmacologic treatment rates were measured for each code.

RESULTS: Fourteen studies were reviewed, yielding 27 distinct ICD-9-CM codes identified to identify OAB patients. A total of 24,057 patients had at least one claim with any of these codes (52% of all enrollees). The most commonly used ICD-9-CM code (788.31 - urge incontinence), identified only 12,472 patients (0.09%), while ICD-9-CM 788.41 (emphysema attributed to the micturition (1.13%)); p = 0.0046) was not only used in 8 of 14 studies. Only 19% of patients with ICD-9-CM 788.41 were seen by urologists compared with 25% of all OAB patients identified. Relative to all other OAB patients identified, those with ICD-9-CM 788.41 had lower mean age (42.7 years vs. 45.9 years; p < 0.0001), fewer males (33% vs. 46%; p < 0.0001), and lower rate of oral pharmacologic treatment (3% vs. 6%; p < 0.0001).

CONCLUSIONS: Numerous combinations of codes have been used to identify OAB patients. This analysis shows the codes chosen have a significant impact on the patient population and treatment pattern estimates.

PUK5
EFFECTIVENESS OF LOSARTAN 50MG IN THE MANAGEMENT OF POST DIALYSIS EUVOLEMIC HYPERTENSION: A BLINDED RANDOMIZED CONTROL TRIAL
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OBJECTIVES: To assess the effectiveness of losartan 50 mg on Post dialysis euvoletic hypertensive patients against standard antihypertensive pharmacotherapy. METHODS: A multicentre, prospective, randomised, single blind trial was conducted at 6 University hospitals, 3 in Malaysia and 3 in UK. The effect of losartan 50mg once daily (OD) on post dialysis euvoletic hypertensive patients. Covariate Adaptive Randomization was used for allocation of patients to treatment. Each patient was followed up for eight weeks. Pre, intra and post dialysis session blood pressure measurements were recorded along with any adverse events. Wilcoxon statistical test was performed to note the difference in blood pressure from baseline. RESULTS: A total of 70 patients were randomised into standard (n = 35) and treatment arm (n = 35) and were followed for a period of 8 weeks. The mean baseline post dialysis systolic blood pressure of standard arm was 156 ± (14.3) mmHg as compared to treatment arm 157.7 ± (13.9) mmHg. In the standard group, the mean post dialysis blood pressure dropped by 0.5 mmHg by the end of 4th week but increased by 0.5 mmHg by the next four weeks. However the treatment arm reported a drop of 2.8 mmHg of BP drop during 8 week trial period. Analysis suggests that there was a significant difference in blood pressure readings at the end of 8 weeks among patients treated with Losartan (P < 0.001) however no such statistical association was observed in standard arm (P = 0.17). CONCLUSIONS: A slow, steady decline in post dialysis BP was observed among euvoletic hypertensive patients that were treated with losartan 50mg.

PUK6
COMPARATIVE EFFECTIVENESS OF PERITONEAL DIALYSIS VERSUS HEMODIALYSIS IN END-STAGE RENAL DISEASE
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OBJECTIVES: Meta-analyses of randomized controlled trials suggest angiotensin-converting enzyme inhibitors (ACEIs) and angiotensin receptor blockers (ARBs) reduce the rate of chronic kidney disease (CKD) progression. However, controlled trials have not enrolled enough patients to permit precise inferences for this important population. We examined the comparative effects of ACEIs and ARBs on renal and cardiovascular outcomes among CKD patients using insurance claims data.

METHODS: We conducted a retrospective new-user cohort study using national U.S. data from OptumLabs on privately insured individuals enrolled in Medicare Advantage enrollees. We identified individuals ≥ 18 years old with CKD that initiated therapy with an ACEI orARB between 2005 and 2015 after ≥6 months of nonuse. We used Cox proportional hazards models to estimate hazard ratios (HR) and 95% confidence intervals (CI) by inverse probability of treatment weighting to compare ACEIs versus ARBs for progression to end-stage renal disease (ESRD), myocardial infarction (MI), and ischemic stroke.

RESULTS: The study cohort comprised 48,489 patients, with a total of 3,148 ESRD progression, 1,011 MI, and 741 stroke events. Mean follow-up was 2.2 years. Inverse probability weighting resulted in well-balanced treatment groups. HRs comparing patients treated with ACEIs to those treated with ARBs were 0.87 (95% CI, 0.80-0.94) for ESRD, 1.08 (95% CI, 0.93-1.25) for MI, and 1.08 (95% CI, 0.98-1.23) for the composite of stroke or MI. Results were consistent across stability analyses using different outcome definitions, treatment washout periods, and continuous enrollment periods.

CONCLUSIONS: Use of ACEIs among CKD patients was associated with a lower rate of ESRD and similar rates of cardiovascular outcomes compared with use of ARBs. Our results are consistent with the results of meta-analyses of CKD clinical trials, but are more precise, and suggest that ACEIs may be the preferred treatment to slow CKD progression.
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PUK1

THE PREVALENCE, TREATMENT, AND CHARACTERISTICS OF OVERACTIVE BLADDER PATIENTS IN THE MEDICARE FEE-FOR-SERVICE (FFS) POPULATION

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OBJECTIVES: To examine the prevalence of Medicare FFS patients 65+ years receiving treatment in 2013 for OAB and to determine what patient characteristics were associated with higher prevalence.

METHODS: The 2013 Medicare Beneficiary Part D Carrier Claims File (Carriers), the Part D Drug Event File (PDE), and the Medicare Beneficiary Annual Summary File (BSA) for patients over 65 years were used to calculate prevalence of OAB and the number of patients with OAB among the Medicare FFS population. OAB was defined as having an OAB related diagnosis and/or a prescription for an antimuscarinic or anticholinergic and/or a CPT code (G0024) for onabotulinumtoxinA injection of the bladder. The BSA was linked to the Carrier and PDE Files to determine patient age, gender, and race/ethnicity.

RESULTS: The national prevalence rate of OAB treatment among Medicare FFS patients was 5.86% (95% CI: 5.80–5.92). The rate was 7.72% among males and 6.74% among females. By race/ethnicity subgroups, the prevalence rate was lower in Blacks (5.8%) and Hispanics (5.86%) compared with Whites (7.43%). Patients 75+ years have a significantly higher OAB prevalence rate of 9.32% (p < 0.01) than those 65-74 years (5.44%). Nationally the prevalence of OAB in rural zip codes was 6.01% vs 7.49% in urban zip codes. Among OAB patients only 21.4% were being treated with mirabegron or an antimuscarinic. Target rates are in females (20% vs 13% in males), Hispanics (29.5% vs 22% and 21% in Blacks and Whites, respectively) and older patients (23% vs ≥75 years vs 19% in 65-74 years). CONCLUSIONS: The prevalence rates are similar to older estimates of Medicare data but are much lower than studies based on self-reporting. However, overall treatment rates of only 21% is in line with findings from other studies. These results also show substantial differences in OAB prevalence rates in particular patient demographics.

PUK2

DIFFERENTIAL PRESCRIBING OF ANTIMUSCARINIC AGENTS IN OLDER ADULTS WITH COGNITIVE IMPAIRMENT

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OBJECTIVES: To evaluate differential prescribing of newer vs. older antimuscarinics in older adults and determine if appropriate prescribing of a newer over an older antimuscarinic occurred in persons with preexisting cognitive impairment.

METHODS: We performed a population-based retrospective analysis using the 5% random sample Medicare claims data linked with Part D data from 2007 to 2012. We identified new users of older (e.g., oxybutynin) and newer (e.g., tolterodine, trospium, solifenacin, darifenacin, fesoterodine) antimuscarinics in adults aged ≥65 years and older, and conditions potentially associated with differential utilization of newer vs. older antimuscarinics in the 6 months prior to the first prescription using ICD-9-CM diagnosis and procedure codes and medication claims. Conditions analyzed included indicators of cognitive impairment (mild cognitive impairment, dementia, or antidepressant medication), comorbid conditions (defined by Elixhauser), and other conditions (prescribing 2 or more medications). We used multivariate logistic regression models and backward selection to assess the selection of newer vs. older antimuscarinics after adjusting for comorbid conditions.

RESULTS: Of the 55,405 older adults with a new prescription for antimuscarinics, 68% received a newer antimuscarinic than an initial therapy. Overall, 7,314 patients were diagnosed or treated for dementia prior to initial therapy. Older adults diagnosed or treated for dementia were more likely (OR 1.14; 95% CI 1.12–1.16) and 30-day readmission rates were compared among 1:1 matched patients with and without UTI. The follow-up period was 3 months. The statistical analysis was done using SPS version 15. RESULTS: There were 29 patients in E group and 23 in D group. The baseline characteristics were comparable. The average Hgb level over one year was the 9.71 ± 1.43 g/dl in E group and 9.73 ± 1.86 g/dl in D group (p = 0.942) suggesting superior efficacy. There was a significant difference in the mean costs per patient per year for E (2392.04 INR) as well as a higher total costs ($19,260 vs $2,469; p < 0.001) in E group. CONCLUSIONS: Antiepileptic therapy is an important part of the current treatment in maintaining Hemoglobin levels in CKD patients with similar clinical efficacy. It needs large prospective randomized trials to obtain more definitive data.

PUK11

ASSESSING THE ECONOMIC BURDEN AND 30-DAY READMISSION RATES AMONG PATIENTS WITH URINARY TRACT INFECTION IN THE US VETERANS HEALTH ADMINISTRATION POPULATION

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OBJECTIVES: To assess the health care costs, 30-day readmission rates, and mortality among patients with 30-day readmission among patients with urinary tract infection (UTI) in the US Veterans Health Administration (VHA) population.

METHODS: Patients diagnosed with UTI (International Classification of Disease, 9th Revision, Clinical Modification codes 590, 595, and 599) were identified from the VHA dataset for the identification period (01OCT2010-30SEP2015). The initial diagnosis date was designated as the index date. Patients with the same age, race, and sex as the study UTI patients, but without a UTI diagnosis, were identified for comparison. An index date was selected randomly to minimize bias. Adult patients were required to have continuous medical and pharmacy benefits for 1 year pre- and post-index date. Health care costs and 30-day readmission rates were compared among 1:1 matched patients with and without UTI diagnosis. The follow-up period was 3 months. The statistical analysis was done using SPS version 15. RESULTS: After matching, 468,883 patients were included in each group. Compared to patients without UTI, those with UTI incurred significantly higher inpatient ($13,240 vs $8,997; p < 0.001) and total costs ($19,260 vs $2,469; p < 0.001) as well as a higher 30-day readmission rate (9.3% vs 5%; p < 0.001). The likelihood of 30-day readmission was lower among patients aged 18-64 years versus ≥65 years (odds ratio [OR] 0.4–0.9; p < 0.001) and higher among male (OR 1.3; p < 0.001), black (OR 1.2; p < 0.001), and white patients (OR 1.1; p < 0.001) compared to those of other races and those with higher Charlson comorbidity index (CCI) scores (OR 1.2; p < 0.001). CONCLUSIONS: Patients diagnosed with UTI had significantly higher 30-day readmission rates and economic burden than those without UTI. Age, gender, race, and CCI score were significant predictors of 30-day readmission.

PUK12

OPTIMIZING SURVIVAL AND QUALITY OF LIFE USING BAYESIAN NETWORK MODELING IN KIDNEY TRANSPLANTATION

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OBJECTIVE: To evaluate the potential impact of a Bayesian network model on allocation decisions for renal transplant candidates with marginal renal function.
OBJECTIVES: Existing solid organ transplant models are based upon organ availability, donor and recipient characteristics and severity of the illness. However, they lack the ability to fully capture the personalized context of treatments that certain instances can avoid the need for transplantation and re-transplantation. In this study, we propose supervised and unsupervised Bayesian Network Models to predict the most personalized pathway that minimizes the disease progression conditional upon patient needs and access to the most suitable technology. Furthermore, in addition to prediction, we will also test how well patients would perform with donor access to technology that makes the progression of the illness slow. The Bayesian Network model will assess the impact of these interventions on likely rate of transplant and downstream costs. METHODS: Using the United Network for Organ Sharing (UNOS) National Organ Procurement and Transplantation Network (OPTN) dataset from 2000 to 2014, we developed a Bayesian Network Model to estimate the probability distribution bilaterally, between donor and recipient, to predict transplant survival rates conditional upon defined biological, clinical and treatment characteristics. A k-fold validation of the Bayesian Network Model shows more than 60% predictive power for survival rates. Such models can be made available graphically to transplant teams to assist in optimizing donor characteristics and treatments to the precise needs of kidney transplant patients. The two alternatives are used valganciclovir-based cytomegalovirus (CMV) prophylaxis strategies, in interpenetrating transplantation. Transition analysis was conducted using a one-way probabilistic analysis with 10% variation in transition/probability of death. RESULTS: Average costs in patients for first year in anticipated therapy would be USD $14,984 (incremental cost of USD $497). Results did not change significantly with deterministic and probabilistic sensitivity analyses. CONCLUSIONS: For Colombian renal transplant patients, the risk of CMV infections, universal prophylaxis strategy should be the optimal choice.

PUC16 COST-EFFECTIVENESS OF THYMGLOBULINE VS. ATG-FRENIUS FOR INDUCTION IMMUNOSUPPRESSION IN KIDNEY TRANSPLANTATION IN CHINA

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OBJECTIVES: Induction immunosuppression therapy is used to support optimal outcomes in kidney transplantation. This study was to assess the cost-effectiveness of Thymoglobuline (Anti-T lymphocyte globulin) versus ATG-Freensius (Anti-T lymphocyte globulin) in kidney transplantation in the Chinese setting. METHODS: A two-part survival model was developed consisting of a "short-term" part and a "long-term" part. The "short-term" part analyzed the first-year using decision tree and consisted of the "functioning transplant", "acute rejection (AR)", "delayed graft function (DGF)", "dialysis", and "death" health states. The "long-term" part analyzed the two five-year using Markov model and consisted of the "functioning transplant", "chronic dysfunction", "recurring primary disease", "dialysis", and "death" health states, with capture of the association between DGF and graft loss. Costs including drug acquisition and other direct medical costs were derived from the CHINA database. RESULTS: The transition probabilities were extrapolated from a retrospective cohort study comparing Chronic Kidney Disease(KD) stage transitions in ADPKD patients. Annual pharmacological costs pending average daily dose per CKD stage was extracted from a large US healthcare claims database. Median total health care costs per CKD stage or transplant were extracted from published data. Transition probabilities were estimated using a one-way probabilistic analysis with 10% variation in transition/probability of death. RESULTS: Total annual health care costs accrued after 30 years among ADPKD patients taking Thymoglobuline was estimated to be approximately $3,505,028.41 compared to ARB at $3,644,327.65. Life expectancy was increased in patients taking ATG-Freensius compared to the ACE-I. Approximate 10-year survival in patients taking ACE-I was 47% compared to ARB at 34%. CONCLUSIONS: ACE-I dominated ARB and displayed greater cost-effectiveness due to lower cost and increased capacity to prolong years of life without transplant or death avoidance. This result supports the use of ACE-I as first line treatment for hypertension management in ADPKD patients.

PUC15 COST-EFFECTIVENESS OF TWO PREVENTIVE STRATEGIES FOR CYTOMEGALOVIRUS INFECTION IN INTERMEDIATE RISK COLOMBIAN RENAL TRANSPLANT PATIENTS

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OBJECTIVES: Our objective was to compare the cost-effectiveness of the two most used valganciclovir-based cytomegalovirus (CMV) prophylaxis strategies, in intermediate risk renal transplant patients. The two alternatives were compared for the "universal prophylaxis" strategy, which uses valganciclovir for the first 90 days post-transplantation, and "anticipated therapy" which requires weekly viral load surveillance, warranting therapy only when positive. METHODS: We designed a TreeAge-based third party payer perspective (Colombian healthcare system) decision tree, considering only direct medical costs, in 2014 Colombian pesos (1 USD = 2000 COP) and a time horizon of one year. Target population was intermediate risk renal transplant patients (positive CMV status) who were diagnosed with the infection. This meta-analysis included 4 RCTs. RESULTS: The results were based upon the previous validation of the model with a Delphi expert panel method. CONCLUSIONS: For Colombia, the valganciclovir-based CMV prophylaxis strategy is the most cost-effective option. Sub-analyses showed that efficacy gains in drug-related costs were offset by less efficient clinical staffing after 2010. CONCLUSIONS: Despite higher drug acquisition costs, thymoglobuline-based prophylaxis strategies achieve better short and long term outcomes, resulting in cost savings by avoidance of graft failure and long-term dialysis costs.

PUC17 CHANGES IN EFFICIENCY OF U.S. DIALYSIS CENTERS AMID REGULATORY AND PAYMENT REFORM

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OBJECTIVES: To evaluate the impact of a new prospective payment system (PPS) on the relative efficiency of U.S. Medicare-certified dialysis providers after implementati

PUC18 ADHERENCE AND DE NOVO DONOR-SPECIFIC ANTIBODY FORMATION IN RENAL TRANSPLANT RECIPIENTS: IMPACT ON IMMUNOSUPRESSION, CLINICAL AND ECONOMIC OUTCOMES ASSOCIATED WITH PROLONGED-RELEASE AND IMMEDIATE-RELEASE TACROLIMUS IN CANADA

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OBJECTIVES: While advances in immunosuppression have resulted in substantial improvements in short-term renal allograft survival, improvements in longer-
term graft survival rates have been less marked. This may be due, in part, to antibody-mediated rejection driven by formation of de novo donor-specific antibodies (dnDSA). Because of its association with non-adherence, dnDSA has emerged as an important factor in longer-term graft loss. Long-term data on adherence, dnDSA formation, and graft failure were utilized to model clinical outcomes associated with protocols that allowed for delayed renal retransplantation (PR) versus early retransplantation (IR) in renal transplant recipients in Canada. METHODS: A decision tree developed to capture differences in adherence between IR-TAC and PR-TAC was combined with a five-state Markov model of dnDSA formation, graft failure, and transition probabilities were determined by a set of Weibull, logistic, and least squares regression models. Adherence, quality of life, patient and graft survival, and drug costs were derived from Canada-specific sources. Analyses were run over a 25-year time horizon. Cost were reported in 2016 Canadian dollars, inflated where necessary. RESULTS: The proportion of patients experiencing dnDSA was reduced from 22.1% with IR-TAC to 20.5% with PR-TAC, reflecting a 7.2% relative reduction in dnDSA, and a number needed to treat to prevent a single event of dnDSA, mediating dnDSA, mean graft survival increased by 0.24 years to 7.9 years with PR-TAC relative to IR-TAC. At a willingness-to-pay threshold of CAD 50,000 per quality-adjusted life year gained, PR-TAC was more cost-effective than IR-TAC. In patient-level simulations, PR-TAC would delay the onset and reduce the incidence of dnDSA, and PR-TAC would remain the lowest-cost option at a 13.5% higher per-milligram price when compared to IR-TAC in Canada.

CONCLUSIONS: Based on modern clinical data on the incidence of dnDSA in adherent versus non-adherent patients, improved adherence associated with PR-TAC would delay the onset and reduce the incidence of dnDSA, and PR-TAC would remain the lowest-cost option at a 13.5% higher per-milligram price when compared to IR-TAC in Canada.
dependent age, TIV and estimated glomerular filtration rate to ESRD. The model’s clinical face and operational validity were assessed by external Spanish experts through face-to-face validation. Published Spanish data informed ESRD model inputs; patient characteristics and treatment effect on renal function (10% ESRD reduction) were taken from the TEMPO-3 study. RESULTS: The validation exercise concluded the model adequately estimated ADPKD disease progression and further highlighted the historically limited availability of TIV in clinical practice and differences in patterns of organ availability in Spain. The model predicted 95% of TEMPO-3 patients reached ESRD at mean age 53 years and spent six years on dialysis, with one transplant performed for every 2-3 patients. Treatment was estimated to prevent 4% of ESRD cases, delay mean time to ESRD by 4.5 years, avoid 5% of transplants, and reduce dialysis time by five months per patient. CONCLUSIONS: The validation of the ADPKD-OM supports the model’s use to inform health outcomes decision-making in Spain. This study indicates that treatment that slows ADPKD progression can delay the burden of ESRD for patients and offer meaningful reductions in healthcare resource use, with positive implications for service delivery in Spain.

**PUK24**

**IMPACT OF FDA SAFETY WARNINGS ON ERYTHROPOIESIS STIMULATING AGENTS (ESA) PRESCRIBING AMONG NON-DIALYSIS CHRONIC KIDNEY DISEASE PATIENTS**

Park H, Liu X

**OBJECTIVES:** In June 2011, the US FDA issued modified recommendations for more conservative dosing of erythropoiesis-stimulating agents (ESA) in patients with chronic renal disease (CRD) due to increasing evidence of anemia treatment in non-dialysis CKD patients. METHODS: A retrospective analysis (2008-2014) of Truven MarketScan Commercial and Medicare administrative datasets was conducted to identify patients with chronic renal disease stages 5-9. Morbidity and mortality of anemia treatment including ESA, intravenous iron, and blood transfusions were estimated for years after the FDA safety warnings (June 2011–Dec 2014), compared with rates from pre-FDA warnings (Jan 2009–May 2011). An interrupted time series analysis was performed. Generalized estimating equations were used to quantify the impact of the safety warnings. RESULTS: We identified 24970 patients during the pre-warnings and 29465 patients during the post-warnings. Among Medicare patients, ESA prescribing rates decreased steadily from 2009 to 2011, followed by slower decreases from 2011 to 2014. Overall ESA prescribing prevalence was 9.0% per 1000 patients in 2009, and decreased at a rate of 1.2 prescriptions per 1000 patients per month until the end of the pre-warning period. During the post-warnings, the ESA prescribing rate continued to decrease by 0.5 prescriptions per 1000 patients per month. After adjusting for covariates, the probability of prescribing ESA was 28% lower (relative risk (RR),0.72; 95% confidence interval (CI),0.70-0.74) but the probability of prescribing intravenous iron and blood transfusions were 20% (RR,1.20; 95% CI,1.12-1.29) and 34% (RR,1.34; 95% CI,1.21-1.48) higher, respectively, during the post compared to pre-warning period. Similar trends of outcomes were observed in commercially insured CRD patients. Characteristic differences were associated with increased ESA prescribing including CKD stage 4 (RR,2.05), CKD stage 5 (RR,2.90), female (RR,1.19), and involvement of a nephrologist (RR,1.18). CONCLUSIONS: The FDA safety warnings were associated with steady decreases in ESA prescribing but increases in intravenous iron and blood transfusions in CKD patients.

**PUK25**

**HOW CAN A LOW COST ECONOMIC PERSPECTIVE BE INCLUDED TO A SYSTEMATIC REVIEW – AN EXAMPLE FROM A CASUALLY COMPLETED SYSTEMATIC REVIEW OF SURGICAL TREATMENTS FOR WOMEN WITH STRESS URINARY INCONTINENCE**

Akoko PO1, Vale L1, Craig D3, Shemilt I1. On behalf of the Campbell and Cochrane Economic methods Group 1

**OBJECTIVES:** Extending the scope of Cochrane Intervention Reviews (CIRs) to incorporate economic evidence, alongside evidence for health effects, can increase the usefulness of decision-making. However, the primary methodology for incorporating economic evidence into a CIR – an integrated full systematic review of economic evidence – is time consuming and requires specialist input from a health economist. The Brief Economic Commentary (BEC) methodology is especially designed to support inclusion of economic evidence in CIRs, without placing large additional workload on review teams or requiring specialist input. We demonstrated this framework by applying it in Cochrane reviews investigating the effectiveness and cost-effectiveness of surgical treatments for women with stress urinary incontinence. METHODS: NHS Economic Evaluation Database and MEDLINE were searched to identify eligible cost-of-illness and economic evaluation studies conducted between 1994 and 2016. A short description of the economic burden of the health condition and the current status of existing economic evaluations were collated from the discussion sections of all selected papers and integrated into the background section of the CIR. Basic details of the characteristics and principal findings of included economic evaluations were extracted and used in the discussion sections of all selected papers and integrated into the background section of the CIR. RESULTS: Eligible economic evaluations studies included a systematic review covering various countries and three primary studies from the UK, Finland and Spain. Of the surgeries considered, all of these studies found Tension-free Vaginal Tape (TVT) to be more cost-effective compared to other surgical mesh colposuspension procedures and open colposuspension. However, two studies reported Mid-Urethral Sling procedure (MUS), a much recent surgery, to be less costly and as effective as TVT. CONCLUSIONS: This work confirmed that BECs can summarise relevant economic information for decision-makers without large additional workload. Development of BECs provides a low cost method for inclusion of economic evidence in systematic reviews when a full integrated systematic review of economic evidence, or modelling economic evidence is beyond scope.
describe a method for measuring PMN by linking an electronic medical record (EMR) database to a longitudinal prescription claims database (LRs). METHODS: Patients had new or increased psychotropic orders (180 days washout) for statins, cyclosporine, and statin combinations were identified in a large US EMR database between 7/1/2013 - 7/31/2015 (first order date was index). These patients were linked deterministically to LRs. Patients were required to have >180 days of stability in both databases pre- and post-index and >1 low-density lipoprotein cholesterol (LDL-C) value in the 180 days pre-index. PMN was determined by the proportion of patients with a new EMR prescription order for a therapy of interest and no claim for that therapy in LRs prior to the LDL-C index. Demographic and clinical characteristics of the adherent and PMN populations were compared using descriptive statistics. RESULTS: Of the patients indexed in EMR, 90.6% linked to LRs. A total of 69,227 patients met study criteria. PMN was observed in 38.6% of the population at 30 days, and in 34.3% at 180 days. Significant age and gender differences were found between adherent and PMN patients. Patients with PMN had a higher prevalence of diabetes (28.4% vs 25.7%), and hypertension (56.0% vs 50.0%), and had a lower mean LDL-C level (101.3 vs 137.2). CONCLUSIONS: This study demonstrates an ability to link a large EMR population to a prescription database to evaluate PMN. The finding suggest that if a prescription fill is not seen by day 30 it is likely abandoned, making PMN an important consideration in adherence assessments. This research forms a strong basis for evaluating the predictors of PMN, such as LDL-C level.

PRM4

EVALUATION OF A CUSTOMIZED COMPLIANCE PROGRAM FOR ORAL ONCOLYTIC THERAPY: FEASIBILITY AND EXPERIENCE Northcutt L1, Drenning J2, Ping CB1, Milks K1

OBJECTIVES: To describe a method for measuring PMN by linking an electronic medical record (EMR) database to a longitudinal prescription claims database (LRs). METHODS: Patients had new or increased psychotropic orders (180 days washout) for statins, cyclosporine, and statin combinations were identified in a large US EMR database between 7/1/2013 - 7/31/2015 (first order date was index). These patients were linked deterministically to LRs. Patients were required to have >180 days of stability in both databases pre- and post-index and >1 low-density lipoprotein cholesterol (LDL-C) value in the 180 days pre-index. PMN was determined by the proportion of patients with a new EMR prescription order for a therapy of interest and no claim for that therapy in LRs prior to the LDL-C index. Demographic and clinical characteristics of the adherent and PMN populations were compared using descriptive statistics. RESULTS: Of the patients indexed in EMR, 90.6% linked to LRs. A total of 69,227 patients met study criteria. PMN was observed in 38.6% of the population at 30 days, and in 34.3% at 180 days. Significant age and gender differences were found between adherent and PMN patients. Patients with PMN had a higher prevalence of diabetes (28.4% vs 25.7%), and hypertension (56.0% vs 50.0%), and had a lower mean LDL-C level (101.3 vs 137.2). CONCLUSIONS: This study demonstrates an ability to link a large EMR population to a prescription database to evaluate PMN. The finding suggest that if a prescription fill is not seen by day 30 it is likely abandoned, making PMN an important consideration in adherence assessments. This research forms a strong basis for evaluating the predictors of PMN, such as LDL-C level.

PRM5

REAL-WORLD EVALUATION SCREENING STUDY AND REGISTRY OF DYKINESIA IN PATIENTS TAKING ANTIPSYCHOTIC AGENTS: THE RE-KINESTUDY Yeomans K1, Lenderking WR2, Ross J1, Shalhoub H1, Yonan CS2

OBJECTIVES: Tardive dyskinesia (TD) is an involuntary movement disorder that is associated with exposure to antipsychotic medications. Scant evidence exists regarding the burden of TD symptoms and even less has been published, recently, regarding the role of TD in the overall health status of patients. A prospective registry study, RE-KINESTUDY, was designed to document the presence and impact of abnormal, involuntary movements (possible TD) in a real-world cohort of outpatients taking antipsychotics. METHODS: Approximately 1000 adults from 70 regions (head/face, neck/trunk, upper/lower limbs). Assignment to Cohort 1 or 2 was determined by the proportion of patients with a new EMR prescription order for a therapy of interest and no claim for that therapy in LRs prior to the LDL-C index. Demographic and clinical characteristics of the adherent and PMN populations were compared using descriptive statistics. RESULTS: Of the patients indexed in EMR, 90.6% linked to LRs. A total of 69,227 patients met study criteria. PMN was observed in 38.6% of the population at 30 days, and in 34.3% at 180 days. Significant age and gender differences were found between adherent and PMN patients. Patients with PMN had a higher prevalence of diabetes (28.4% vs 25.7%), and hypertension (56.0% vs 50.0%), and had a lower mean LDL-C level (101.3 vs 137.2). CONCLUSIONS: This study demonstrates an ability to link a large EMR population to a prescription database to evaluate PMN. The finding suggest that if a prescription fill is not seen by day 30 it is likely abandoned, making PMN an important consideration in adherence assessments. This research forms a strong basis for evaluating the predictors of PMN, such as LDL-C level.

PRM6

ESTIMATION OF SURVIVAL OUTCOMES FOR USE IN ONCOLOGY VALUE FRAMEWORKS Luu S, Ruiz K, Colby JA

OBJECTIVES: Hazard ratios (HRs) are commonly preferred as inputs to calculate clinical benefit across oncology value frameworks. However, these data are not consistently reported in publications, and individual patient data are not readily available. Therefore, we present a practical method for estimating the HR of survival data. METHODS: We selected a published phase 3, multicenter trial (NCT00482833) in which investigators compared all-trans retinoic acid (ATRA) to chemotherapy with ATO in the treatment of patients with low-to-intermediate risk acute promyelocytic leukemia (APL). The median follow-up was 34.4 months. At the time of the study publication, only 2-3 patients were included in this retrospective cohort study. Investigators of ATRA patients and clinical data were compared. RESULTS: Of 256 patients included in this study, 188 patients were eligible for inclusion in the survival analysis. Of these, 187 patients had a lower mean LDL-C level (101.3 vs 137.2). CONCLUSIONS: This study demonstrates an ability to link a large EMR population to a prescription database to evaluate PMN. The finding suggest that if a prescription fill is not seen by day 30 it is likely abandoned, making PMN an important consideration in adherence assessments. This research forms a strong basis for evaluating the predictors of PMN, such as LDL-C level.

PRM7

INSULIN IS MOST APPROPRIATE COMPARATOR TO GLP-1 RECEPTOR AGONISTS AND DPP-4 INHIBITORS IN REAL-WORLD CARDIOVASCULAR OUTCOME STUDIES Ali AK, Motsoke SI

OBJECTIVES: To illustrate selection bias when choosing inappropriate anti-diabetes medications (ADM) as comparators to incertin enhancements in cardiovascular outcomes using real-world data. METHODS: Adults with type 2 diabetes (T2D) who initiated ADM between 2006 and 2012 and enrolled in Humedica HER database were included in this retrospective cohort study. Investigators of ATRA patients and clinical data were compared. RESULTS: Of 256 patients included in this study, 188 patients were eligible for inclusion in the survival analysis. Of these, 187 patients had a lower mean LDL-C level (101.3 vs 137.2). CONCLUSIONS: This study demonstrates an ability to link a large EMR population to a prescription database to evaluate PMN. The finding suggest that if a prescription fill is not seen by day 30 it is likely abandoned, making PMN an important consideration in adherence assessments. This research forms a strong basis for evaluating the predictors of PMN, such as LDL-C level.

PRM8

AN INDIRECT TREATMENT COMPARISON OF UNAPPROVED TREATMENT OPTIONS OF ALZHEIMER’S DISEASE FOR RESEARCH PRIORITIZATION Pandey K1, Jha D1, Pandey P1, Gupta P1, Shah V1

OBJECTIVES: There are seven potential investigational therapies for Alzheimer’s disease with inconclusive evidence of efficacy. This network meta-analysis was performed to compare the effects of these treatments and prioritize future research directions. METHODS: Indirect comparison of MAED scores was conducted using STATA.13. The probability of each treatment for being most efficacious regimen was calculated using the difference against placebo, and counting the proportion of studies that favored each treatment. RESULTS: A total of twenty-two studies were included. Overall 2,974 individuals were randomized to vitamins (cyanocobalamin, folic acid, tocopherol), N-Acids (Nmethionin, picroxacin, ibuprofen, diclofenac, trimipramine), statins (atorvastatin, pravastatin, simvastatin), omega-3 fatty acids, sertraline, FBX, xanthenes derivatives (dennubuline, propofol) or...
placebo. Results showed that simvastatin was the most efficacious regimen with a difference (95% prediction interval) of 0.91 (2.36, 5.09) against denbufylline; 2.44 (-1.69, 6.60) against propentofylline; 0.58 (-3.82, 4.98) against atorvastatin; 2.76 (-1.27, 6.79) against cyanocobalamin; 3.48 (1.13, 8.28) against diclofenac-misoprostol; 2.30 (1.01, 5.04) against hydralazine; 2.81 (1.02, 5.60) against amlodipine-bendroflumethiazide (12.5%); and 2.61 (-0.89, 6.12) against tocopherol. The cumulative probabilities for being the best treatment were: simvastatin (39.4%), atorvastatin (23.0%), and denbufylline (12.9%).

**CONCLUSIONS:** All the unapproved potential treatments of Alzheimer’s, statins and PBT2 showed a superior efficacy. Therefore, future other clinical investigations should consider statins and PBT2 as preferred candidates.

**PM10**

**THE POTENTIAL OF ELECTRONIC HEALTH RECORD DATA TO OPTIMIZE RECRUITMENT EFFICIENCY IN CARDIOVASCULAR OUTCOME TRIALS**

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**OBJECTIVES:** To demonstrate the potential value of electronic health records (EHR) from an integrated healthcare system in the USA to enroll research subjects by simulating the inclusion/exclusion criteria of ongoing cardiovascular (CV) outcomes trials. The objective was to assess if use of EHRs could reduce the high costs and inefficiencies associated with CV clinical trials. In particular, we wanted to see if EHRs could be an efficient tool to screen and enroll patients of interest in CV clinical trials.

**METHODS:** Reduction of Cardiovascular Events with EPA - Intervention Trial (REDUCE-IT) is a Phase III trial evaluating the safety and efficacy of high dose EPA (Vascepa ñ 2) in reducing major CV events in high-risk patients. Enrolled patients had LDL-C levels 40-100 mg/dL on statin therapy and high triglyceride (TG) levels (150-499 mg/dL). Inclusion criteria included established atherosclerotic CV disease (ASCVD) risk group 1; and treated diabetes (T2D) with or without ASCVD risk factors (risk group 2; RG2). Exclusion criteria were more in RG1 and 13,335 to RG2. A total of 57.8% (n = 6,996) and 45.2% (n = 6,038) in RG1 and RG2 met at least one exclusion criterion. The most common exclusion criteria for RG1 included: heart failure (28%), cancer (25%), and planned surgery (15%); and for RG2: low renal function (16%) and cancer (15%).

**RESULTS:** Of 25,432 subjects who met inclusion criteria, 12,097 were assigned to RG1 and 13,335 to RG2. A total of 57.8% (n = 6,996) and 45.2% (n = 6,038) in RG1 and RG2 met at least one exclusion criterion. The most common exclusion criteria for RG1 included: heart failure (28%), cancer (25%), and planned surgery (15%); and for RG2: low renal function (16%) and cancer (15%).

**CONCLUSIONS:** Our results demonstrate that EHRs from large integrated healthcare systems may be an efficient tool to screen and enroll patients of interest in CV clinical trials.

**PM11**

**EFFECT OF EDUCATIONAL INTERVENTION TOOL IN KAP SCORE DIFFERENCES AMONG ADULT RESPONDENTS AT THREE TIME POINTS**

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**OBJECTIVES:** Healthcare provider recommendation is critical to increase the human papillomavirus (HPV) vaccine uptake among the un-vaccinated adult population aged 18 to 26 years. Our aim was to estimate the effect of educational intervention tool in KAP score differences among adult respondents at three time points (pre-test, post-test, and post-test) in rural areas of Khairpur, NIl, Sindh, Pakistan. The intervention was based on an educational pamphlet or Fact sheet which contained information regarding HPV infection and HPV vaccination. The knowledge gained was assessed at baseline and post one to three weeks, whereas knowledge retained was assessed between baseline and post 3 to six months. McNemar test was used to compare knowledge scores between pre-test and post-test, and the proportion of correct responses for each question, respectively based on binomial distribution and Wilcoxon signed ranks test was used to estimate the precise differences in KAP scores between the three time points. **RESULTS:** A total of 942 participants, responded to all the three phases of the study, conducted in rural and urban areas of Khairpur, NIl, Sindh. The educational intervention tool significantly improved knowledge about HPV and HPV vaccination. Future investigation should be conducted to determine if this intervention can be sustained beyond the short term and influence vaccination and self-screening behavior in women. HPV infection, Knowledge, Attitude, Perception, Practice, HPV Vaccine, Educational intervention
PRM14

USING ITERATIVE USER EXPERIENCE DESIGN TO IMPROVE ELECTRONIC CLINICAL OUTCOMES ASSESSMENT DATA QUALITY

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OBJECTIVES: Electronic Clinical Outcome Assessments (eCOA) are increasingly utilized in clinical trials. Obstacles to treatment of eCOA include poorly functioning electronic tools and interfaces. In earlier research, we described a method for incorporating User Experience design in the development of an eCOA tool. This new research examines the impact of this design process on COA data quality in ongoing trials.

METH-ODS: Based on the User Experience review, enhancements to the eCOA tools were made. These included employing internal logic, automated scanning, standardized instructions and scoring conventions. The eCOA interface was modified to better accommodate a clinical setting. These enhancements were intended to decrease error rates. An older version of the tool, “Version 1”, was utilized in a global RCT. Following a report on the impact of these improvements, the tool and instructions were modified to the “Version 2” tool. In a subsequent RCT that used the same clinical outcomes, the ADAS-Cog and the MMSE. The clinicians who utilized the system in trials had their data evaluated by a clinical reviewer at the Screening visit.

RESULTS: The analysis included 475 ADAS-Cog assessments using Version 2 reviewed at Screening, 34 (7.2%), required a contact with the clinician due to an error in scoring. This represents a significant decrease (p < 0.05) in error rates compared to the previously reported 11.3% with version 1 of the ADAS-Cog eCOA tool. Similarly, 55% new versions of the MMSE were reviewed at screening of which 35 (6.3%) required a contact with the rater. Compared to the 10.8% error rate previously reported using Version 1 of the eMMSE, a significant reduction (p < 0.01) in error rates was observed. CONCLUSIONS: Compared to the original version, the improvements made in the COA’s implemented in the electronic system significantly improved data quality by reducing error and ensuring standardized administration and scoring.

PRM15

ASSESSMENT OF REAL-WORLD DATA SURROGATE FOR THE RESPONSE EVALUATION CRITERIA IN SOLID TUMORS (RECIST)

Feinberg BA1, Klink AJ1, Ernst FR1, Weltz M2, Nabhan C1

1Bracket, Wayne, PA, USA, 2Bracket, wayne, PA, USA

OBJECTIVES: In earlier research, we described a method for incorporating User Experience design in the development of an eCOA tool. This new research examines the faces. In earlier research, we described a method for incorporating User Experience design in the development of an eCOA tool. This new research examines the impact of this design process on COA data quality in ongoing trials.

METH-ODS: Based on the User Experience review, enhancements to the eCOA tools were made. These included employing internal logic, automated scanning, standardized instructions and scoring conventions. The eCOA interface was modified to better accommodate a clinical setting. These enhancements were intended to decrease error rates. An older version of the tool, “Version 1”, was utilized in a global RCT. Following a report on the impact of these improvements, the tool and instructions were modified to the “Version 2” tool. In a subsequent RCT that used the same clinical outcomes, the ADAS-Cog and the MMSE. The clinicians who utilized the system in trials had their data evaluated by a clinical reviewer at the Screening visit.

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PRM16

ESTIMATING CESTOS ASSOCIATED WITH EXACERBATIONS OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) – A RANGE OF ALGORITHMS

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OBJECTIVES: To examine various algorithms for estimating costs from claims data associated with chronic obstructive pulmonary disease (COPD) exacerbations. METH-ODS: The sample included COPD patients aged ≥ 40 years from a large US claims database who initiated long-acting bronchodilator monotherapy between 1/1/2008 and 3/31/2015. COPD exacerbations, associated costs, and all-cause costs (2015 constant dollars) were accrued over the one year prior to treatment initiation. Exacerbation events were defined as a COPD-related inpatient stay, emergency department (ED) visit, or an ambulatory visit followed by systemic corticosteroid therapy use within 30 days of an exacerbation episode. The broader algorithm compared with the most conservative algorithm. Severe exacerbations accounted for 32% to 41% of COPD-related costs and 12% to 16% of all-cause costs. COPD-related exacerbation costs were estimated to be nearly 30% higher with the broadest algorithm compared with the most conservative algorithm. Severe exacerbations accounted for 75% to 80% of COPD-related exacerbation costs.

PRM17

ESTIMATING GLOMERULAR FILTRATION RATE IN PRIMARY CARE ELECTRONIC MEDICAL RECORD DATABASES IN EUROPE

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OBJECTIVES: Chronic kidney disease (CKD) prevalence is increasing, partially as a consequence of the increasing diabetes prevalence, and is rightly increasingly health watch authorities. The estimated glomerular filtration rate (eGFR) is used to monitor kidney status. It is a calculation based on the results of a blood creatinine test along with other variables such as age, sex, and race, depending on the use of the Cockroft & Gault formula (CG) and Simplified Modification of Diet in Renal Diseases (shMDRD) in European electronic medical record (EMR)-data-base methods. This study used data from QuintilesIMS EMR-databases which are EMR and prescribing databases of primary care physicians in community-based, fee-for-service practices in the UK and Germany. Frequency of renal impairment based on eGFR was estimated using both CG and shMDRD equations on a cohort patients with chronic kidney disease (CKD). Following a report on the impact of these improvements, the tool and instructions were modified to the “Version 2” tool. In a subsequent RCT that used the same clinical outcomes, the ADAS-Cog and the MMSE. The clinicians who utilized the system in trials had their data evaluated by a clinical reviewer at the Screening visit.

RESULTS: The cohort included 260,000 patients from two EMRs in the UK and Germany. Frequency of renal impairment based on eGFR was calculated for 95% and 75% (Germany) of patients using shMDRD. The eGFR values varied depending on the formula used. A higher proportion of patients with moderate and severe renal impairment were identified when using shMDRD for both outcomes.

CONCLUSIONS: In agreement with previous works we found that CG formula tends to overestimate eGFR value. We recommend the use of shMDRD in European EMR-databases for calculation of eGFR.

PRM18

TOWARDS OPTIMIZED ONCOLOGY CLINICAL TRIAL DESIGN: A PLATFORM TO ASSESS THE SENSITIVITY OF CLINICAL ENDPOINTS TO MAXIMIZE DRUG VALUE

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OBJECTIVES: To examine various algorithms for estimating costs from claims data associated with chronic obstructive pulmonary disease (COPD) exacerbations. METH-ODS: The sample included COPD patients aged ≥ 40 years from a large US claims database who initiated long-acting bronchodilator monotherapy between 1/1/2008 and 3/31/2015. COPD exacerbations, associated costs, and all-cause costs (2015 constant dollars) were accrued over the one year prior to treatment initiation. Exacerbation events were defined as a COPD-related inpatient stay, emergency department (ED) visit, or an ambulatory visit followed by systemic corticosteroid therapy use within 30 days of an exacerbation episode. The broader algorithm compared with the most conservative algorithm. Severe exacerbations accounted for 32% to 41% of COPD-related costs and 12% to 16% of all-cause costs. COPD-related exacerbation costs were estimated to be nearly 30% higher with the broadest algorithm compared with the most conservative algorithm. Severe exacerbations accounted for 75% to 80% of COPD-related exacerbation costs.

RESULTS: The cohort included 260,000 patients from two EMRs in the UK and Germany. Frequency of renal impairment based on eGFR was calculated for 95% and 75% (Germany) of patients using shMDRD. The eGFR values varied depending on the formula used. A higher proportion of patients with moderate and severe renal impairment were identified when using shMDRD for both outcomes.

CONCLUSIONS: In agreement with previous works we found that CG formula tends to overestimate eGFR value. We recommend the use of shMDRD in European EMR-databases for calculation of eGFR.

PRM19

QUANTIFYING THE HEALTH OUTCOMES OF MARKET ACCESS POLICIES - USING SIMULATION MODELING TO COMPARE ACCESS TO CANCER MEDICINES ACROSS GLOBAL MARKETS

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OBJECTIVES: To design a simulation model that can quantitatively project and compare the health outcomes of varying market access policies on cancer medicines across global markets. METH-ODS: Using Non-Small Cell Lung Cancer (NSCLC) as an example, we conducted a simulation on health economics and market access models in the therapeutic area. Though the cost effectiveness of cancer medicines among various patient subpopulations has been well studied, research on how market access policies can lead to differential health outcomes has been primarily qualitative. We designed a de novo simulation model with 4 submodules – epidemiology,
medicine, access policy, and disease pathway - to quantify the health outcomes of access policies. The model base case simulated the access landscape to NSCLC medications in the United States (US) with 6 additional scenarios that included access to the US access policy with that of Australia, Canada, France, Germany, South Korea, and United Kingdom. RESULTS: The epidemiology module generated NSCLC patients based on real-world 2006-2016 statistics on stage, genetic mutation, subtypes, and performance status. The medicine module includes chemotherapy, medicines targeting tumor blood vessel growth and various genetic mutations, and immunotherapies. The access policy module introduced the aforementioned medicines to patients per each country's access landscape, such as dates of market authorization, use of rebates, treatment setting, market share, market share, indication expansion, early access schemes, supported cancer drug fund, and accounted for prescribing outside of the approved indication. Based on the results of this study, the direct impact module then projected overall survival, progression free survival, and mortality. The difference in health outcomes between the scenarios quantified how market access policies can impact the collective health outcomes of NSCLC patients in the US.

CONCLUSIONS: Simulation models can provide quantitative evidence to evaluate the impact of country-level market access policies on patient health outcomes.

PRM2

TO RE-CENSOR, OR NOT TO RE-CENSOR, THAT IS THE QUESTION: CRITICAL CONSIDERATIONS WHEN APPLYING STATISTICAL METHODS TO ADJUST FOR TREATMENT SWITCHING IN CLINICAL TRIALS

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OBJECTIVES: To determine when re-censoring should be incorporated in statistical analyses undertaken to adjust for treatment switching in randomised controlled trials, and to demonstrate the utility of inverse probability weighting (IPW) as an alternative to re-censoring. Treatment switching often has a crucial impact on estimates of the effectiveness and cost-effectiveness of new oncology treatments. Switching adjustment methods such as rank preserving structural failure time model (RPSFTM) and two-stage estimation (‘counterfactual’ estimates of long-term survival) may provide useful information on the size of the true treatment effect. Methods were assessed according to their estimation of true restricted mean survival (in the absence of switching) and incorporate re-censoring to guard against informative censoring in the counterfactual dataset. However, re-censoring involves a loss of longer term survival information which is problematic when estimating long-term survival effects are required. RESULTS: A simulation study was conducted, testing RPSFTM and two-stage adjustment methods with and without re-censoring, and with IPW in place of re-censoring, across scenarios with various switch proportions and sizes and time dependencies of the treatment effect. Methods were assessed according to their estimation of true restricted mean survival (in the absence of switching) at the end of trial follow-up. RESULTS: RPSFTM analyses that incorporated re-censoring were prone to bias when the treatment effect is changing over time - resulting in over 3-11% in these scenarios, compared to bias of approximately 0-2% for RPSFTM and two-stage analyses that did not incorporate re-censoring. Two-stage analyses usually over-estimated the treatment effect when re-censoring was incorporated and consistently under-estimated the treatment effect when re-censoring was not incorporated. Using IPW in place of re-censoring resulted in low levels of bias when the censoring proportion and switching proportion were relatively small (both approximately 20%). Conclusions: Re-censoring should not always be incorporated in adjustment analyses when the objective is to estimate the long-term treatment effect. Conducting analyses with and without re-censoring may provide useful information on the size of the true treatment effect.

PRM2

APPLICABILITY OF APPLE RESEARCH KIT TO DELIVER COGNITIVE TESTING IN CLINICAL TRIALS

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OBJECTIVES: To evaluate the use of Apple Research Kit (ARK) to deliver a Paced Visual Serial Addition Test (PVSAT) in a controlled environment and provide preliminary evidence of its applicability. METHODS: Subjects with chronic pain conditions completed the PVSAT, a measure of attention and visual processing speed in which subjects are asked to add consecutive digits. The test was conducted using ARK and deployed on an iPad Mini. Subjects provided written informed consent, and ethical approval was obtained. Associations between PVSAT performance and participant characteristics were assessed (ANOVAs). RESULTS: 124 subjects (57 male, 67 female) aged 19-69 years (mean 48.8 ± 13.6) entered the single-center study. Correct additions ranged from 3 to 59 out of a possible 60 (mean: 40.6 ± 16.3); number of dyads (sequences of correct answers) ranged from 2 to 29 (mean 9.2 ± 6.4); and maximum dyad length ranged from 1 to 57 responses (mean: 18.2 ± 15.4). Responses speed and accuracy were normally distributed, ranging from 1.32 to 3.36 (mean: 2.12 ± 0.43). There was no evidence of gender or age effects, but PVSAT performance was related to education level. The number correct and maximum dyad length were significantly lower among those with a bachelor’s degree or less versus those with a master’s/doctoral degree (p=0.030 and p=0.029, respectively). CONCLUSIONS: The PNASAT has been used to study working memory and attention in individuals with traumatic brain injury and multiple sclerosis, and to provide a means of introducing stress while studying other constructs. Studies have shown performance to be related to intellect and mathematical ability which may be related to education level. Identified in our study, ARK provided a straightforward approach to app development, resulting in a solution with good participant acceptability. ARK shows promise to help cognitive testing on mobile devices in clinical trials.

PRM3

PATIENT ATTITUDES AND ACCEPTABILITY TOWARDS USING THEIR OWN MOBILE DEVICE TO RECORD PATIENT REPORTED OUTCOMES DATA IN CLINICAL TRIALS

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OBJECTIVES: To evaluate patient attitudes towards the use of their own device (BYOD) to record patient reported outcomes (PRO) data in clinical trials. METHODS: Subjects entering a health questionnaire study using BYOD and a provisioned device were asked to complete a questionnaire assessing their attitudes towards BYOD use in clinical trials. RESULTS: 155 subjects (71 male, 83 female) aged 19-69 years (mean 48.8 ± 13.1) entered the single-center study. Ninety-four percent (146/155) stated they would definitely or probably use a BYOD device, and 92% (142/155) felt that they could probably or definitely do so. Ninety-four percent (146/155) stated they would probably or definitely use a BYOD device, and 92% (142/155) felt that they could probably or definitely do so. Amongst the sample in this study there was good acceptance for the use of BYOD in clinical trials. Some concerns could be mitigated by training, assistance. Ninety-four percent (146/155) felt that they could probably or definitely do so. Some concerns could be mitigated by training, and the device and the user’s acknowledge that attitudes in the wider population may differ. However, this study provides a favorable indication that BYOD may be acceptable to participants in clinical trials.

PRM4

REAL WORLD EVIDENCE AND NETWORK META-ANALYSES: A SYSTEMATIC LITERATURE REVIEW OF EVIDENCE SYNTHESIS METHODS COMBINING DIFFERENT STUDY DESIGNS

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OBJECTIVES: To conduct a systematic review and meta-analysis of literature on real world evidence and network meta-analyses. METHODS: A systematic literature search of electronic databases was conducted and consisted of reviewing citations found in included publications and methodological papers and published NMAs combining different study designs. Search strategies were conducted in PubMed and Embase. Extensive hand searches were also conducted and consisted of reviewing citations found in included publications and methodological articles. RESULTS: Four main methods for combining evidence from different study designs were identified: naive pooling of all types of evidence, conducting a design-adjusted analysis, using non-randomized evidence as prior information, and running a three-level hierarchical model. These methods were...
associated with advantages such as optimizing precision and network connection through the inclusion of more evidence, modeling bias directly by accounting for between-study type variability, understanding the bias non-normalized data may introduce into the analysis, and generating more generalizable NMA outputs. These methods were also associated with the following drawbacks: introduction of bias by including non-randomized trials, challenges associated with evaluating the bias associated with RWE studies. CONCLUSIONS: Given the lack of published guidance in this research area, the methods reviewed are considered exploratory and their perception by health technology assessment agencies is uncertain. While the three level hierarchical modeling approach seems to best allow for bias adjustment, further research remains to be conducted to address the bias inherent to pooling data from different sources. Refining these methods would help develop tools for a more generalizable comparative effectiveness assessment of health technologies.

PRM25
SURVIVAL TREND AND IMPACT OF ADVERSE DRUG REACTIONS DURING HAART ON SURVIVAL FUNCTION IN HIV/AIDS PATIENTS

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OBJECTIVES: Current study is aimed to observe survival trend in HIV/AIDS patients and to explore the impact of ADRs experienced during HAART on survival trends of the patients. METHODS: An observational retrospective study of all patients diagnosed of HIV infection and on HAART therapy from Jan 2003 to Dec 2016 was conducted at Infectious disease department of Hospital Pulau Pinang, Malaysia. The survival function was observed on Kaplan-Meir survival analysis and Cox-regression for survival function. Data was descriptively analyzed using statistical package for social sciences (SPSS 20). Results: Out of 792 patients that underwent HAART therapy, 607 (76.6%) were male and 185 (23.3%) were female patients. The probability of 6 years survival was compared where the overall median follow up time of all patients was 36 months. 65% of patients experienced at least one adverse reaction where a total number of 449 (56.7%) adverse drug reactions were reported among which 329 (73.2%) occurred in males and 120 (26.8%) in female patients. The survival probability with significant association (p < 0.001) among patients with absence of ADR was reported higher on Kaplan-Meir survival. On Cox-regression survival analysis, Alcoholic patients (HR 1.14, p = 0.02), drug users (HR 1.38, p = 0.01) and patients with ADRs (HR 0.65, p < 0.001) shows a higher risk for death with patients having ADRs. CONCLUSIONS: This study indicates that a patient’s life-style and occurrence of ADRs has a direct impact on survival probability in HIV/AIDS patients which shows a greater risk to death and poor survival. However, a multicenter study with a larger sample size can provide us with better understanding of this relationship.

PRM26
EVALUATION OF PHARMACIST’S EDUCATIONAL AND COUNSELING IMPACT ON PATIENTS’ CLINICAL OUTCOMES IN A DIABETIC SETTING

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OBJECTIVES: The study aimed to evaluate pharmacist’s educational and counseling impact on patients’ clinical outcomes in a diabetic setting. METHODS: A cross-sectional study was conducted among diabetic patients in the endocrinology clinic of Obafemi Awolowo University Teaching Hospital, Sagamu, Ogun State, Nigeria. METHODS: This was a 6 Month randomized controlled study involving 150 consented elderly type 2 diabetic patients. Patients who were planned to be on warfarin therapy were randomly assigned into both control and intervention groups (75 patients each). The 75 patients on our intervention group were educated by the Pharmacist on diabetes and hypertension, their complications, risks, preventive measures and management. Outcome measure included changes in fasting blood sugar (FBS), blood pressure (BP), body mass index (BMI) and adherence to instructions. RESULTS: There were no statistical differences between the baseline and 6 months data of the control group as mean fasting blood sugar were 162.2 ± 49.1 and 145.5 ± 23.8. Blood pressure were 180.7 ± 13.9 and 133.8 ± 18.5 in control and intervention groups respectively. Adherence levels to medication taking in the groups were 42.7% ± 9.7% respectively (P = 0.001). CONCLUSIONS: In diabetes management, patient education and counseling have become key tools in achieving both glycaemic control and blood pressure control.

PRM27
DEVELOPING AN ICD-10 CM VERSION OF CHARLSON COMORBIDITIES FOR UNITED STATES REAL-WORLD HEALTHCARE DATA

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OBJECTIVE: Charlson comorbidities are frequently used to describe populations and for risk adjustment in observational studies and are often identified using International Classification of Diseases, Clinical Modification (ICD-9-CM) codes. To date, no ICD-9-CM Charlson code list has been published for United States (US) healthcare claims, although for Canada, Adoption of ICD-10 (Quan et al. Med Care 2005;43:1130-9). The objective was to develop a code list for the US. METHODS: ICD-9-CM crosswalks (CMS GEMS, Optum360®: Encoder Project) were used to identify ICD-10-CM codes (effective 01-Oct 2015 through 30-Sep 2016) for Charlson enhanced ICD-9-CM codes in Quan et al. Coding experts also conducted ‘native searches,’ but medical experts used the concepts from Quan et al. to determine a code/concept’s relevance for inclusion. The Deyo ICD-9-CM code list was also considered. RESULTS: Comparison with Quan et al. ICD-9-CM crosswalks, and expert review identified ICD-9-CM deletions/additions (4/29 unique codes/ ranges) and ICD-10-CM deletions/additions (30/73 codes/ranges). The most common reason for additions was unknown, the added codes/ranges may not exist in current ICD-10 but a list of all codes was unavailable. Comorbidities with the most code deletions/additions were mild (30) and moderate or severe liver disease (21) and renal disease (30). Additionally, 13 codes/ranges were re-categorized between mild versus moderate or severe liver disease and 6 codes/ranges between diabetes with versus without chronic complications. CONCLUSIONS: We developed an ICD-9-CM code list for Charlson comorbidities for the US. The differences between US and Canadian codes highlight the importance of considering cross-country ICD differences when adapting code lists. Additionally, using ICD-10-CM mapping tools alone was not sufficient; native code searching and expert review were critical inputs. Codes should be reviewed with future ICD-10-CM changes and validated in real-world datasets.

PRM28
THE APPLICATION OF RECOMBINANT HUMAN THROMBOPOIETIN (rHtPO) IN SECONDARY PREVENTION OF CHEMOTHERAPY INDUCED THROMBOCYTOPENIA PATIENTS IN CHINA

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OBJECTIVES: Chemotherapy-induced thrombocytopenia (CIT) is a common symptom in patients after various cycle of chemotherapy. Recombinant human thrombopoietin was approved in China Food and Drug Administration for CIT treatment. Secondary prevention for patients experienced CIT for the subsequent chemotherapy cycles are considered. Methods: This study, we aim to investigate the fact of the usage of predosing of rhTPO in secondary prevention of CIT through a physician insight survey. METHODS: An expert questionnaire was collected individually. The usage of rhTPO in CIT patients. Major questions include tumor types of predosing application and the rate of predosing in CIT patients. 51 oncologists from 21 tertiary 3 hospitals in Beijing, Shanghai, Guangzhou, Jinan, Chengdu, Wuhan completed the questionnaire. RESULTS: 32 of 51 (62.75%) clinicians who completed the questionnaire. 16 kinds of cancer were mentioned in the questionnaire. The most frequent cancer of clinicians referred is lung cancer mentioned by 15 physicians. The overall rate of predosing of rhTPO is 15.7%; the predosing rate in CIT patients with ovarian cancer, breast cancer and esophageal cancer is 11.3%, 12.5% and 12.5% respectively. 6 clinicians reported used rhTPO of predosing in ovarian cancer, breast cancer and esophageal cancer in real world. CONCLUSIONS: Clinically, the different proportion of predosing of rhTPO was used in CIT patients in different tumors. The overall application rate is still relatively low and the potential clinical and economic benefit of rhTPO in secondary prevention of CIT is not fully realized. Further study to fully explore rhTPO clinical and economic benefits is needed to identify the criterion of predosing of rhTPO.

PRM29
A METHOD FOR IDENTIFYING LONG-TERM CARE USE IN CLAIMS DATA

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OBJECTIVES: Medicare and commercial insurance plans provide limited long-term care (LTC) coverage, resulting in potential underestimation of total care costs when using insurance claims. The objective of this study was to test a method using place-of-services codes (POS) to identify and categorize LTC transitions for a cohort of dementia patients. METHODS: Analyses used de-identified administrative claims (2011 to 2015) from the OptumLabsTM Data Warehouse, a database which includes retrospective administrative claims data on more than 150M U.S. commercially-insured Medicare Advantage beneficiaries. Using ICD-9-CM admission claims, a dementia cohort was created with 36 months continuous coverage pre and 6 months post diagnosis. Hospice patients were excluded. POS codes were used to identify LTC use (11, 21, 54, 55, 61), interstitial care (18, 54), and assisted-living (13) facilities. Current Procedural Terminology (CPT) codes (93930-93910, 93915-93918, 93244-93940) also indicated LTC use. Each month for each individual was coded as LTC or community (1/0). Hospitalization during any period in any facility was also indicated LTC use. Each month for each individual was coded as LTC or community (1/0). Hospitalization during any period in any facility was also indicated LTC use. Each month for each individual was coded as LTC or community (1/0). Hospitalization during any period in any facility was also indicated LTC use. Each month for each individual was coded as LTC or community (1/0). Hospitalization during any period in any facility was also indicated LTC use.

R E S E A R C H O N M E T H O D S – C o s t M e t h o d s
community to LTC, 1.671 (9.9%) were continuously LTC, 53 (3.0%) transitioned LTC to community, 499 (3.0%) transitioned community to mixed LTC, and 244 (1.4%) transitioned mixed LTC to community. Complete case analysis (CCA) across related claims is a viable method to identify LTC use and care transitions using claims data.

PFRM3 CONSIDERATIONS IN THE ECONOMIC EVALUATION OF PRACTICE NURSES AND CLINICAL NURSE SPECIALISTS ROLES
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OBJECTIVES: Advanced practice nurses (nurse practitioners (NPs) and clinical nurse specialists (CNSs)) have been introduced internationally to increase access to high quality care and to tackle increasing health care expenditures. The poor quality of economic evaluations (EEs) of advanced practice nursing roles to date raises the question of whether current EE guidelines are adequate when examining the cost-effectiveness of such a complex intervention as advanced practice nursing roles. The aim of this paper is to synthesize all findings of EEs of advanced practice nursing roles.

CONCLUSIONS: A range of appropriate and complementary EE guidelines for evaluations of NP&CNS roles was informed by a qualitative synthesis of: 1) narrative review of discussion papers on EE of advanced practice nursing roles; 2) quality assessment of a set of NP&CNS roles alongside randomized controlled trials; 3) review of guidelines for EE; and, 4) input from an expert panel. The narrative review revealed several challenges in EEs of advanced practice nursing roles (e.g., complexity of the roles, variability in models and practice settings where the roles are implemented, and impact on outcomes that are difficult to measure). The quality assessment of EEs of NP&CNS roles identified methodological limitations of these studies. When we applied the Guidelines for the EE of Health Technologies: Canada to the identified challenges and limitations, discussed those with experts and qualitatively synthesized all findings we concluded that standard guidelines for EE are generally appropriate for evaluation of NP&CNS roles and should be followed routinely. However, we recommended a qualitative guideline for choosing the type of EE, selecting comparators, determining the study perspective, estimating effectiveness, measuring and valuing health, and assessing resource use and costs) may require additional role-specific considerations to fully capture costs and effects of the roles.

PFRM33 COST SAVINGS FROM REDUCED PROLONGED AIR LEAK DUE TO THE APPLICATION OF POWERED ENDOCUTTERS IN VIDEO-ASSISTED THORACOSCOPIC LUNG RESECTION PROCEDURES: A REAL-WORLD EVIDENCE STUDY IN CHINA
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OBJECTIVES: To evaluate the impact of powered endoscopes on the overall hospitalization costs in video-assisted thoracoscopic surgery (VATS) in China.

METHODS: To evaluate the impact of powered endoscopes on the overall hospitalization costs in video-assisted thoracoscopic surgery (VATS) in China.

RESULTS: The impact of powered endoscopes was evaluated in a real-world health care setting. We estimated the impact of powered endoscopes on the overall hospitalization costs in video-assisted thoracoscopic surgery (VATS) in China. The impact of powered endoscopes on the overall hospitalization costs in video-assisted thoracoscopic surgery (VATS) in China.

CONCLUSIONS: The impact of powered endoscopes on the overall hospitalization costs in video-assisted thoracoscopic surgery (VATS) in China.

PFRM34 ECONOMIC EVALUATION OF AVOIDABLE MORTALITY IN THE CARIBBEAN REGION OF COLOMBIA
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OBJECTIVES: To value the economic cost of losing human capital induced by preventable causes of death in the Caribbean Region of Colombia in the period 1999-2013.

METHODS: Two methods were applied. First, life tables were constructed by performing hypothetical scenarios of elimination of death causes for five-year, five-year periods and for each department. Allowing to know the impact of different avoidable causes of death on the mortality patterns of this population (probability of death, survival and life expectancy). The second method was the human capital approach, which included the economic value of Years of Potential Life Lost (YPLL) and Years of Productive Potential Life Lost (YPPLL).

RESULTS: If deaths from external and circulatory systems were averted, the period of studying the impact of dying in men would decrease by 37.2% and 15.8%, and the life expectancy would increase by 5 and 7.8 years respectively. In women case, these odds would decrease by 19.7% and 10.4% from cervical and respiratory systems causes were averted, the life expectancy would increase by 10 and 7 years respectively. The economic value generated of losing human capital by preventable causes of death was $5.7 billion USD.

CONCLUSIONS: The economic cost of losing human capital induced by preventable causes of death in the Caribbean Region of Colombia in the period 1999-2013.


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death, adjusted for unemployment was US$13.48 billion (PPP), of which 72.4% is due to avoidable deaths in men and 27.6% in women. This amount corresponds to 3.3% of Bogota GDP and 2.3% of the national production for 2013. CONCLUSIONS: the economic burden of loss of human capital from preventable causes of death is significant and represents an important part of the Region’s economic resources. Furthermore, these causes of death could be avoided by public policies of prevention and promotion of low-budget, contributing to the economic growth and development of this Region.

PRM35 MODELING COMPETING RISKS IN DISCRETE EVENT SIMULATION MODELS: ILLUSTRATING AND COMPARING DIFFERENT APPROACHES
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OBJECTIVES: To close the guidance gap on modeling competing risks in discrete event simulation, by illustrating suitable approaches and comparing their impact on time-to-event and health economic outcomes and the uncertainty surrounding these outcomes. METHODS: Based on the ISPOR Good Modeling Practices Guidelines, three approaches were applied in a simulation study and a case study: (1) select the time-to-event first and the event second, (2) select the event first and the time-to-event second, and (3) select the event first to occur. The approaches were compared based on how well time-to-event data and cost-effectiveness outcomes were replicated, in terms of the prevalence of events, time-to-event distributions, cost-effectiveness point-estimates, and uncertainty surrounding these point-estimates. To assess sample size impact on the approaches’ performance, sample size was varied in the simulation study and subgroup analyses were performed for the case study. RESULTS: In both the simulation and case study, the second approach represented the original data better in terms of the event prevalence of time-to-event and time-to-event distribution. For the case study, this difference in performance did not result in substantial differences between the approaches regarding the cost-effectiveness point-estimates and uncertainty surrounding outcomes and health economic outcomes, e.g. for one of the hypothetical trials the probability of being cost-effective was 74%, 93%, and 81%, for the first, second, and third approach, respectively. CONCLUSIONS: The illustrated approaches perform differently with respect to the simulated time-to-event outcomes. Although the magnitude of this difference and the extent to which it impacts cost-effectiveness point-estimates and their uncertainty depends on the data’s and models’ structures, these health economic outcomes may be impacted and thereby potentially influence the planning and prioritization of resource allocation decisions. Based on the results of this study, the second approach selecting the event first and the time until this event second, seems to be preferred.

PRM36 UNCERTAINTY IN TIME-TO-EVENT DISTRIBUTIONS’ PARAMETER ESTIMATES IN DISCRETE EVENT SIMULATION MODELS
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OBJECTIVES: Patient-level simulation models, e.g. discrete event simulations, are increasingly being used to describe variation (first-order uncertainty) in time-to-event data using statistical distributions. However, the uncertainty in these distributions parameter estimates (first-order uncertainty) is typically being ignored in probabilistic sensitivity analyses. To highlight the need for incorporating the uncertainty in estimated parameters of distributions used to describe patient-level variation, different approaches were illustrated and compared. METHODS: Two approaches, i) bootstrapping and ii) using multivariate Normal distributions, were applied in a simulation study and a case study. The approaches were compared regarding time-to-event outcomes and health economic outcomes, such as parameter point-estimates, time-to-event distributions, cost-effectiveness point-estimates, and the uncertainty surrounding them. To assess sample size impact on the uncertainty in distributions’ parameter estimates, sample size was varied in the simulation study and subgroup analyses were performed for the case study. RESULTS: Incorporating uncertainty in time-to-event distributions’ parameter estimates resulted in a substantial amount of additional uncertainty surrounding the health economic outcomes, illustrated by larger 95%-confidence ellipses surrounding the Incremental Cost-Effectiveness Ratio and different Cost-Effectiveness Acceptability Curves. Both approaches performed similar for large sample sizes (e.g. n=500). However, the approach using multivariate Normal distributions was more sensitive to extreme values for small sample sizes (e.g. n=50) compared to the approaches assuming a normal distribution. It is important to account for uncertainty in time-to-events distributions’ parameter estimates to avoid overestimation of the total uncertainty surrounding health economic outcomes, and subsequent sub-optimal resource allocation decisions. To do so, the bootstrap-based approach is preferable, as no assumptions about underlying distributions are required, the correlation in the complete dataset is maintained, and this approach is less sensitive to extreme values. This study is particularly relevant to the field of personalized medicine, which is characterized by large uncertainty induced by evidence gaps or subgroup stratification.

PRM37 COMPARISON OF PREDICTIVE MODELING OF COST AND HCU BY CROSS-VALIDATION
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OBJECTIVES: Many important variables in health economic studies are usually heavily skewed or with many zeros. Therefore validity of ordinary least squares (OLS) model is of concern for some analysts. To address the concern, alternative methods are proposed to analyze these data. In this study, we applied several methods to a sample data to evaluate the performances of these methods for the analysis of cost data or medical resource utilization (HCU) data. METHODS: The sample data was from a study to assess the health economic burden of patients with treatment resistant depression (TRD) in comparison to non-TRD patients among major depressive disorder (MDD) patients. Patients with demographic information, payment type, and other baseline characteristics were accessed. By using OLS, generalized linear models with different distributional assumptions (Gamma, Poisson or negative binomial (NB), etc) in one or two-part models, the differences of mean of medical cost or LOS from two subgroups were estimated and compared. Simulations were also conducted to compare the performance of different statistical models. RESULTS: Among 57,090 patients in the cohort, there were 5,524 TRD vs 51,566 non-TRD patients. Cost variables were heavily skewed for both groups, hence the skewness for median medical cost was 2.62. The differences of mean medical cost estimation were $4948.00 by OLS, $5809.34 by Gamma regression with LOG link function and $1884.03 by LOG transformed OLS model. Another outcome LOS, which contained 89.6% observations with zeros, was also tested. The results indicated the difference of mean LOS estimation were 1.93 days by OLS, 1.86 days by NB regression and 1.76 days by Poisson regression. CONCLUSIONS: When dealing with cost or LOS, different statistic models or methods could cases also effectively be impacted. The alternative methods should be referenced to better fit the possible data distribution may be more appropriate practice.

PRM38 INCLUSION OF LEARNING CURVE EFFECTS IN ECONOMIC EVALUATIONS OF MEDICAL DEVICES: EMPIRICAL EVIDENCE FOR ICD-10
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OBJECTIVES: To empirically assess the consequences of the inclusion of the learning curve (LC) in the HTA of medical devices by evaluating its potential impact on i) the evaluation of procedural outcomes of medical devices (MD), ii) the evaluation of rising phase-related costs, iii) the estimation of ICER; iv) the identification of patient subgroups; v) the uncertainty in time-to-event distributions in the light of planning the delivery of specific services. METHODS: A systematic review was conducted to identify the current state of knowledge about the LC in the economic evaluation of MDs and its inclusion in HTA processes. Based on the findings, the authors empirically estimated the LC for three MDs using real world data. Multivariate trend analysis assuming different parametric models both at the operator and institutional level was applied. Economic evaluation was performed with the inclusion of the LC to compare the effects. Additional analyses: comparison of LC parameters across different MDs; test of the persistence of the LC from procedural outcomes to final endpoint. RESULTS: LC effects are particularly evident for devices with high degree of complexity of use and high discontinuity with the prevailing technology. The learning curve effects are more evident on procedural outcomes and tend to gradually lose significance once final endpoints are considered. As a consequence, the LC has a more measurable impact on costs, even though in some cases also effectiveness is impacted. CONCLUSIONS: The inclusion of an observed LC could be extremely useful for HTA bodies. First, the initial “inefficiencies” could be identified, assessed, and considered as costs for the system. Second, the ICER evaluated after the learning plateau is reached could be different from the one including the entire learning phase, but both are needed for a fully informed HTA and for an optimal planning aimed at balancing local access and minimization of learning phase-related costs.

PRM39 IMPACT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) CODING DIFFERENCES ON HEALTH CARE UTILIZATION AND COST OUTCOMES FOR RESEARCH SPANNING THE ICD-9 TO ICD-10 TRANSITION
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OBJECTIVES: Generally, coding specificity increased with International Classification of Diseases, 10th Edition (ICD-10). However, for chronic obstructive pulmonary disease (COPD), the opposite is true. COPD is no longer easily differentiated from chronic obstructive asthma (COA), which is now included within the COPD ICD-10 code range (J14-J14). This analysis examined the impact of this coding difference on COPD-related healthcare utilization (HCU) and costs measurement, and determined appropriate ICD-9 codes to ensure consistency in COPD studies spanning the ICD-9/I0 transition. METHODS: The sample included COPD patients aged >40 years from a large US claims database. Longitudinal cohort analysis was conducted. One million COPD patients maintained on long-acting bronchodilator monotherapy between 1/1/2008 and 1/31/2013. Patients had ≥1 year of continuous enrollment pre- and post-treatment initiation. Monthly COPD-related HCU and costs (2015 consumer price index-adjusted) were measured while patients maintained on long-acting bronchodilator monotherapy. Claims were considered COPD-related if there was a COPD diagnosis in any position according to two different coding definitions: 1) COPD (ICD-9 [491.xx, 492.x, or 496] or ICD-10 [J40, J411, J412, J42, J435, J431, J432, J438, J439, J440, J441, J449]) and 2) COPD (ICD-9 [491-493.92] and ICD-10 [J40, J411, J412, J42, J435, J431, J432, J438, J439, J440, J441, J449]). RESULTS: 11,395-952.54. RESULTS: Analyses included 74,500+ patients, aged 68-10 years, 50% female, and 60% on Medicare. During a mean ± SD post-index period of 192.7 ± 308.0 days, 69.0%, 9.3%, and 12.0% of patients had ≥1 COPD-related hospitalization, emergency department visit, or inpatient admission, respectively, according to definition 1; and 69.6%, 9.5%, and 12.2% per definition 2. Mean ± SD monthly COPD-related costs were $1,205.5 ± $4,063.1 and $1,222.0 ± $4,093.0, according to definitions 1 and 2, respectively. CONCLUSIONS: Among COPD patients initiating long-acting bronchodilator monotherapy, the impact of coding definitions varied. With the ICD-9 codes for COA when ascertaining COPD-related HCU and costs was minimal. Therefore, inclusion of ICD-9 codes for COA is unnecessary to maintain coding consistency in studies spanning the ICD-9/I0 transition. This analysis should be replicated in other COPD populations to confirm these findings.
randomly sampled with replacement and used to substitute records for the patients without recorded comorbidities, stratified by index drug, age group, gender and stroke event. RESULTS: The adjusted RR for the separated and prevalent stroke was 1.04 (95% CI: 0.92, 1.18). A similar effect was observed for incident stroke. CONCLUSIONS: Under-recording of potential confounding factors may lead to biased estimates even if non-differential between groups. With large sample size resulting in narrow confidence intervals, even small magnitude of resulting bias may affect the statistical interpretations of the study results. Therefore, it is important to utilize appropriate statistical methods to detect and correct for morbidity under-recording.

PRM44
CORE CLINICAL DATA ELEMENTS FOR CANCER GENOMICS REPOSITORIES: A MULTI-STAKEHOLDER CONSENSUS
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OBJECTIVES: A 2016 report from the Institute of Medicine concluded that one of the barriers to achieving the full potential of precision medicine was the inability to share clinical data across diverse sources. Through large-scale, multidisciplinary recruitment of key stakeholders, a method for developing core clinical data elements was developed and categorized along with a proposed set of core data elements. The draft set was discussed in depth at an in-person stakeholder conference on April 27, 2016 in Baltimore, MD. Based on that discussion, the set was revised and provided electronically to conference participants for final comment.
METHODS: A consensus set of 49 data elements with value domain types and specific values was developed. Data element categories included demographics (6 elements), medical history (6), physical examination at diagnosis (6), initial treatment (6), and diagnosis (6). To ensure completeness of data elements, an expert panel was engaged over 9-10 months. Seven organizations with prominent existing or planned oncology databases (AACR, ASCO, EORTC, Genentech, Genomics England, NCI-Link and genomic databases) were engaged. A master file of data elements was developed and categorized along with a proposed set of core data elements. The draft set was discussed in depth at an in-person stakeholder conference on April 27, 2016 in Baltimore, MD. Based on that discussion, the set was revised and provided electronically to conference participants for final comment.
RESULTS: A consensus set of 49 data elements with value domain types and specific values was developed. Data element categories included demographics (6 elements), medical history (6), physical examination at diagnosis (6), initial treatment (6), and diagnosis (6). To ensure completeness of data elements, an expert panel was engaged over 9-10 months. Seven organizations with prominent existing or planned oncology databases (AACR, ASCO, EORTC, Genentech, Genomics England, NCI-Link and genomic databases) were engaged. A master file of data elements was developed and categorized along with a proposed set of core data elements. The draft set was discussed in depth at an in-person stakeholder conference on April 27, 2016 in Baltimore, MD. Based on that discussion, the set was revised and provided electronically to conference participants for final comment.
CONCLUSIONS: Cancer genomic repositories’ adoption of these core clinical data elements will facilitate achieving the potential of precision medicine.

PRM45
BIG DATA ANALYTICS FOR EARLY DIAGNOSIS OF AMYOTROPHIC LATERAL SOCLE (ALS)
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OBJECTIVES: Analyze a large claims database to explore if early predictors of ALS can be identified and potentially shorten the diagnosis timeline. The average delay of ALS diagnosis is one year after the appearance of first symptoms, which can be detrimental as it delays initiating approved treatments and may preclude patients from enrolling in clinical trials. METHODS: The Truven MarketScan® database, containing patient-level claims for 170+ million patients, was used. A two-stage code pre-selection for this analysis. A mutual information (MI) database measurement was used to quantify the statistical relevancy of each code in MarketScan® to a future ALS diagnosis in four US states. Codes included: diagnosis codes, procedure codes, medications, provider types, and care facility types. An ensemble of classifiers developed employing machine learning techniques was applied to optimize the selection and ranking of ALS diagnosis predictors. We looked for predictors within the following time brackets: 3-6, 9-12, 18, 24, 36, 48, and 60 months before the initial ALS diagnosis. RESULTS: The ALS ICD-9 diagnosis code identified 12,332 ALS patients with an average of 4.4 years of claims history. ALS patients: average age 60 years ± 14 years; 58% male, and 25% had a prescription claim for riluzole. The top differentiating diagnoses more common in ALS group compared to overall population were: non-traumatic joint disorders (-60 months), connective tissue diseases (-60 months), skin disorders (-48 months), fatigue (-48 months), lower respiratory diseases (-24 months), gastrointestinal disorders (-18 months) and other nervous system disorders (-12 months). CONCLUSIONS: This study suggests 5 years before ALS diagnosis, patients may be presenting with symptoms suggestive of connective tissue disorders, skin disorders or other musculoskeletal or nervous system disorders. Next steps are to validate these findings in national dataset, optimize the algorithm differentiating ALS patients prior to diagnosis, and further characterize early predictors of ALS.

PRM46
SIMILARITIES AND DIFFERENCES BETWEEN REAL WORLD PATIENT DATA SOURCES: A GLOBAL CASE STUDY
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OBJECTIVES: Medical claims databases are typically used to measure the effectiveness and value of medical interventions. We aimed to validate these findings in a global setting.
PRM47

VALIDATION OF A WEIGHTED HEALTH STATE INDEX FOR DEPRESSED PATIENTS IN HEALTHCARE DATABASES: A SURVEY OF UK GENERAL PRACTITIONERS AND PSYCHIATRISTS

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OBJECTIVES: A health state index (HSI) was developed to reflect the health state of depressed patients initiating antidepressants in a UK medical records database. The HSI includes 29 weighted parameters available in the database, considered relevant to depression by a group of experts. Polarity of weights is positive if parameters indicate better health status and negative if they indicate worse health status; weight values range from 1 to 9. Here we present an online survey aiming to confirm the weighting (polarity and value) of HSI parameters by a sample of UK physicians. METHODS: The survey was launched in 2015 aiming to recruit 100 GPs and psychiatrists. Participants were presented with the list of HSI parameters and asked for each to indicate whether it would have a positive or negative impact on a depressed patient’s health state. Participants were then required to rate each parameter from 1 to 9 for lowest impact on the patient’s health state, 9 for highest impact. RESULTS: A total of 42 GPs and 52 psychiatrists participated. Of 160 parameter entries, 9 were rated positively by > 75% of physicians. Average differences between values of positive HSI weights and physician-rated weights ranged from 2 to 0.6 (median=3.6). All 11 new positive parameters were rated positively. HSI parameters with highest agreement between physician-rated and theoretical weights varied from 1.0 to 5.6 (median=1.8). Differences between HSI and physician-rated weights were largest for smallest values of HSI weights. CONCLUSIONS: While physicians agreed on the polarity of most parameters included in the HSI, agreement on weight values was poor. Results tend to indicate the HSI should only take into account direction of the parameter’s impact (positive, negative) and not intensity (weight value): a new index based on these findings should be tested.

PRM48

USING REAL-WORLD DATA TO SUPPORT PROTOCOL OPTIMIZATION: A MULTICOUNTRY APPROACH IN ULCEVATIVE COLITIS

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OBJECTIVES: Real-world data are increasingly used to support innovative study designs by complementing or replacing primary data or claims and can be used to assess feasibility of patient selection criteria. By supporting improved study design, analysis of these data may reduce likelihood of protocol amendments and accelerate recruitment. The objective of this study was to assess feasibility of inclusion and exclusion criteria to support recruitment feasibility of the ulcerative colitis patient selection criteria. METHODS: Real-world data sources in 11 countries were used to assess patient selection criteria for an ulcerative colitis (UC) case study. Patient eligibility criteria were based on claims data (UC, UC severity, ad lib prescription for biologic or corticosteroid), and absence of exclusionary diagnoses including Crohn’s disease and megacolon. Attrition tables were created for each country based on application of selection criteria. RESULTS: The data asset best suited to support protocol feasibility greatly depends on the underlying healthcare delivery system, database characteristics, and data use restrictions within each country. In the UC case study, linked EMR and claims data were used in the US and provided the most robust assessment, with 24% of adult UC patients meeting eligibility criteria. General Practitioner (GP) EMR data were used in Canada, the UK, Spain, Germany, and Italy, while hospital claims were used in France and Japan to better capture the target patient population. Application of criteria in GP EMR identified 27.7% of UC patients in the US, 15.6% in Japan, and 40.0% in France. ICD-9-CM and ICD-10-CM codes met several criteria in hospital charts. Differences were a combination of country-specific practice patterns and source of data which impacts the generalizability of the data. CONCLUSIONS: Real-world data provide a rich resource within which to assess feasibility of inclusion and exclusion criteria for clinical trials. Local knowledge and data expertise are critical to correctly analyze and interpret country-level results for global study planning.

PRM49

CASE STUDIES ON THE IMPACT OF ICD-9-CM TO ICD-10-CM CODING TRANSITION ON STUDIES USING REAL-WORLD DATA IN THE UNITED STATES

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OBJECTIVES: On October 1, 2015 payers in US required all medical claims to be submitted using ICD-10-CM instead of ICD-9-CM. Increased quantity and specificity of codes in ICD-10-CM will likely enhance misclassification in claims data during transition. This study describes real-world ICD-10-CM coding patterns for several diseases during ICD-10-CM transition. METHODS: Adjudicated claims in Truven Health MarketScan\textsuperscript{\textregistered} Commercial and Medicare Supplemental databases for adult patients were used. Patients with ICD-9-CM and ICD-10-CM codes spanning the transition through January 31, 2016 were selected for: lung cancer (LC), pleural mesothelioma (PM), Alzheimer’s disease (AD), and diabetes mellitus (DM). LC was identified using ICD-9-CM-CM-162.2-162.9 and ICD-10-CM-CM-3-4; PM using ICD-9-CM-LC (E05.0, AD using ICD-9-CM-G30.0, G30.1, G30.8, and G30.9; and DM using ICD-9-CM-250-920 and ICD-10-CM-E10-19). RESULTS: Clinically relevant ICD-10-CM associated with ICD-9-CM codes of cohort and ratio were: 3-4% for LC, 7-12% for PM, and 1-3% for DM. CONCLUSIONS: ICD-10-CM coding will likely evolve over time. Researchers should continue to look for similar descriptive or validation studies of cohort algorithms relevant to the study period.

PRM50

CHALLENGES OF IDENTIFYING TREATMENT PATTERNS OF PATIENTS WITH ADVANCED SOFT TISSUE SARCOMA USING CLAIMS DATA IN THE UNITED STATES

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OBJECTIVES: Soft tissue sarcoma (STS) is a heterogeneous group of rare solid tumors that arise from soft tissues, such as muscle, fat, nerves and blood vessels. The chemotherapy regimens used to treat STS vary across delivery systems, database characteristics, and data use restrictions within each country. The data asset best suited to support protocol feasibility greatly depends on the underlying healthcare delivery system, database characteristics, and data use restrictions within each country. In the UC case study, linked EMR and claims data were used in the US and provided the most robust assessment, with 24% of adult UC patients meeting eligibility criteria. General Practitioner (GP) EMR data were used in Canada, the UK, Spain, Germany, and Italy, while hospital claims were used in France and Japan to better capture the target patient population. Application of criteria in GP EMR identified 27.7% of UC patients in the US, 15.6% in Japan, and 40.0% in France. ICD-9-CM and ICD-10-CM codes met several criteria in hospital charts. Differences were a combination of country-specific practice patterns and source of data which impacts the generalizability of the data. CONCLUSIONS: Real-world data provide a rich resource within which to assess feasibility of inclusion and exclusion criteria for clinical trials. Local knowledge and data expertise are critical to correctly analyze and interpret country-level results for global study planning.

PRM51

USABILITY EVALUATION OF CLINICAL AND OPERATIONAL POPULATION HEALTH DATABASES IN VISION 3\textsuperscript{N}

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OBJECTIVES: Veteran Integrated Service Network (VHN) 21 Pharmacy Benefits Management (PBM) pharmacists utilize electronic health record data to create and
maintain over 300 real-time clinical and operational population management dashboards and reports. These tools allow for a comprehensive and interactive view of patient care, drug utilization, and performance data. Clinical managers use this data to more efficiently monitor patient populations and staff for quality, safety, and value. While anecdotal feedback has been solicited and use of these tools has been largely adopted in the region, utility has never before been assessed. This project will evaluate the current usability of these tools. METHODS: A survey based on the validated System Usability Scale (SUS) to objectively measure usability was developed. The instrument gathers demographic and use information from current users, opinions on data accuracy, ease, and applicability of the current tools and was sent to staff that had accessed a dashboard in the prior year. Following this survey, an in-depth heuristic evaluation will be done by external dashboard developers. Changes will be made to dashboards based on feedback and the SUS survey instrument re-sent to assess any change in usability. RESULTS: For the first SUS survey we received 207 responses out of 1653 surveyed (12.5 % response rate), with 73 pharmacists (35%), 72 nurses (35%), and 22 other (10%). The SUS average score for the survey was 61.1± 14.84 (N=151). On a scale of 1-5, with 1 being strongly disagree and 5 being strongly agree, user confidence that data matches the medical record was 3.4±1.00, accurate and correct 2.6±1.15, and most current 3.7±1.07. CONCLUSIONS: Respondents considered dashboard usability marginally acceptable by SUS grading scale. Users agreed that the dashboard and report data matches the medical record and is up-to-date. Next steps are to complete the heuristic evaluation, make changes, and re-survey.

PRM52 DEVELOPMENT OF EPISODE-BASED PAYMENT MODELS FOR CHRONIC MYELOGENOUS LEUKEMIA (CML), LUNG CANCER, MELANOMA, AND BREAST CANCER

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OBJECTIVES: Innovative healthcare reimbursement models are gaining attention and have been implemented by several payers, including the Centers for Medicare & Medicaid Services (CMS) Innovation Center with the Oncology Care model (OCM). A common alternative payment model is the episode-based payment. This study aimed to develop an episode-based payment model for a commercial insurance plan for various types of cancer. METHODS: Administrative claims databases from 3 regional commercial health plans were used to identify continuously eligible patients (Age ≥ 18) with various cancer diagnoses. Episode triggers were identified using CMS OCM methodology. In calculating the episode based payments, we found many adjustments to the OCM methodology were necessary to implement the methodology in a commercial population. For example, we utilized linear models on national Medicare data to calculate adjustment factors. This isn’t applicable to regional commercial health plans, so instead a model using age, gender, and comorbidity burden data was used. RESULTS: The adapted OCM model was applied to data from 5,764 patients, representing 9,511 episodes, meeting the analysis criteria. Actual expenditures for these patients were found to be $453M, while the episode-eligible calculated target amount for the same population was $251M. CONCLUSIONS: The OCM model was adapted to regional commercial populations showing the need for regionalized models to calculate adjustment factors. This isn’t applicable to regional commercial health plans, so instead a model using age, gender, and comorbidity burden data was used.

PRM53 THE IMPACT OF CARE DISCONTINUITY ON RECORDING PATIENT CHARACTERISTICS CRITICAL FOR COMPARATIVE EFFECTIVENESS AND SAFETY RESEARCH WHEN USING ELECTRONIC HEALTH RECORDS

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OBJECTIVES: Electronic health records (EHR) have been increasingly used for comparative effectiveness research. It is unclear how care-discontinuity, defined as receiving care outside of an EHR system, may affect data completeness and study validity using EHR. We aimed to quantify care-discontinuity of an EHR system and compare the misclassification of key variables in patients with high vs. low care-continuity. METHODS: Study cohort comprised all patients ≥ 65 in EHR from two large US provider networks linked with Medicare insurance claims data from 2007/01 to 2014/12/31. By comparing EHR and claims data, we quantified care-discontinuity by the Mean Proportion of Encounters Captured (MPEC) by the EHR system. Within levels of care-continuity, misclassified medical specialties were compared between the proportions of 40 key variables based on EHR alone vs. linked claims-EHR data (MSPD_OV, -0.1 was used to indicate satisfactory variable classification). We utilized a novel categorization model to evaluate EHR completeness. RESULTS: Between 104,403 patients in EHR system 1 and 79,336 in EHR system 2, the mean capture proportions of all records were 24% and 18% in system 1 and 2, respectively. The misclassification of key variables (MSPD_OV, -0.1) based on EHR alone was 15% and 17% in system 1 and 2, respectively, whereas the care-continuity MPEC (MPEC careg) was 80% in both systems. The highest level of care-continuity (MPEC careg ≥ 0.80%) captured in EHR was similar in both systems (80%) as was the percentage of patients with high care-continuity (≥ 80%). CONCLUSIONS: Care-discontinuity may lead to substantial misclassification in key variables. Researchers may consider restriction to those with high care-continuity to improve study validity when relying exclusively on EHR data.

PRM54 INTEREST IN REAL-WORLD RESEARCH AMONG PHYSICIANS IN SMALL PRACTICE SETTINGS ACCESSIONED VIA AN ELECTRONIC MEDICAL RECORD SYSTEM

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OBJECTIVES: Although a great deal of real-world physician-patient interaction occurs in small practice settings, not a great deal of real-world research has been performed in these settings. Use of EHR systems facilitates outreach to small practice settings; the objective of this study was to assess interest in participating in real-world research among physicians in these settings. METHODS: We fielded a 15-item survey to 824 general practitioners from small primary care practices in the US. RESULTS: With various cancer diagnoses. Episode triggers were identified using CMS OCM methodology. In calculating the episode based payments, we found many adjustments to the OCM methodology were necessary to implement the methodology in a commercial population. For example, we utilized linear models on national Medicare data to calculate adjustment factors. This isn’t applicable to regional commercial health plans, so instead a model using age, gender, and comorbidity burden data was used. Actual expenditures for these patients were found to be $453M, while the episode-eligible calculated target amount for the same population was $251M. CONCLUSIONS: The OCM model was adapted to regional commercial populations showing the need for regionalized models to calculate adjustment factors. This isn’t applicable to regional commercial health plans, so instead a model using age, gender, and comorbidity burden data was used.

PRM55 PHARMACEUTICAL STRATEGIC PRICING: AN ANALYSIS OF GLOBAL CROSS-SKU PRICING APPROACHES

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OBJECTIVES: To evaluate the pricing approach of all oncology products that have received FDA and EMA approval between 2011-2016 to understand the existence of flat, curvilinear, and linear pricing in the USA, EUS (Germany, France, Italy, Spain, Great Britain), Canada, Australia, and Japan. METHODS: Oncology drugs approved by the FDA and EMA between 12/01/2011 and 12/01/2016 were obtained from the official regulatory websites. Topical and transdermal preparations were excluded from the analysis. The ex-manufacturer prices for individual SKUs of each of these drugs were sourced from the IHS PharmaOnline International database. Pricing linearity was assessed by two methods. (1) B. Jonsson methodology which analyzed the highest and lowest SKU prices, strengths and prices/milligram. This method, however, was fraught with errors of curvilinear pricing data and, therefore, a novel (2) CBPartners methodology was devised to analyze the price of all available SKUs, apply strict category definitions of “flat,” “linear,” and “curvilinear” pricing and utilize a process of elimination to ensure accurate categorization. RESULTS: Between 12/01/2011 and 12/01/2016 84 oncology products received FDA or EMA licenses. Of these, 70 products (83%) qualified for further analysis as per exclusion criteria. A total of 39 (6%) oral and 31 (44%) injectable drugs remained for analysis. Of the injectable products, only one product exhibited flat pricing and none had curvilinear pricing, resulting in linear pricing being almost exclusively employed. Oral products presented much more variance. Flat pricing was used in at least one market by 16 products, linear by 14 and curvilinear by 5. CONCLUSIONS: There is a clear difference in how different SKUs of oral and IV oncology products are priced, with IV products almost always pursuing a linear pricing strategy and oral varying between flat and linear pricing. Pricing trends demonstrate the existence of region-specific strategies employed and devised by manufacturers.

PRM56 THE VALUE OF REAL-WORLD DATABASES IN RARE DISEASES: UTILITY AND APPLICATIONS IN FABRY DISEASE

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OBJECTIVES: Rare diseases research presents with many challenges. Real-world databases have been increasingly utilized in rare diseases, to understand diseases and evaluate their treatment impact. Aims: A systematic review was conducted to assess the landscape, utility and application of different types of databases in various regions and countries. METHODS: A targeted literature review was conducted in PubMed and Embase for years 1980–2016, to identify studies utilizing data from various real-world databases, including medical, claims, pharmacy, hospital and other sources; registry studies were not included. RESULTS: The search yielded a total of 42 studies conducted in various regions globally. The majority of the studies were published after 2010. Care-on-the-go was implemented in both insurance and hospital data bases in Europe (n=33). Germany represented the country with the largest number of publications (n=9). Among the types of the data collection methods used, the majority were medical chart or EHR reviews (n=17). Most often these studies were done in specialized Fabry referral centers located in tertiary care hospitals. The
majority were single center studies (n=27), while others were multi-center, and one of the studies was based on a home infusion database. The research questions evaluated ranged from understanding de-identified short-term natural history, to cohorts at the last decade there has been an increasing use of real-world databases in rare diseases, including Fabry disease. The review of Fabry database studies showed the value of these approaches. Many studies included relatively large number of patients and long-term follow-ups, and richness of data that are otherwise unavailable. These approaches are achieving to achieve with other research. Real-world databases offer an opportunity of providing needed data and answering research questions in rare diseases space.

PRMS7

BRAZILIAN HEALTHCARE RECORD LINKAGE (BRHC-BLR) – A RECORD LINKAGE METHODOLOGY FOR BRAZILIAN MEDICAL CLAIMS DATASETS (DATASUS)

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OBJECTIVES: Develop a reliable methodology to correlate records from medical claims databases within the Brazilian public health care system (SUS).

METHODS: Two medical claim databases from the Brazilian Ministry of Health information system (DATASUS) were considered for this study. Ambulatory (SIA) and Hospital (SIH) - both databases are made publicly available in separate without deterministic record keys for record linkage. A record linkage algorithm was developed to craft a broad real world longitudinal patient dataset. A set of parameters such as patient ZIP code, municipality, age or birth date, race, nationality, gender, and ICD were assessed to create a de-identified patient key, as well as to link SIA and SIH datasets. The record linkage methodology consists of a set of eighteen steps based on deterministic and probabilistic criteria used between different codes from both databases, variables are banded into different combinations at each step to maximum the number of connections. Results are considered valid only if no inconsistencies of birth date and gender were found for the same de-identified patient key. Finally, addition of other variables available were set aside from validation due to reporting inconsistencies and volatility.

RESULTS: Linkage outcomes vary depending on disease and health care setting dynamics (e.g. in or out patient) as well as epidemiologic characteristics (e.g. prevalence and age composition). As an illustration, within a hepatocellular carcinoma cohort, 1,189 patients were independently found at SIA and 5,410 at SIH as well. Finally, 2,763 patients were linked over the intersection, resulting in a total cohort of 9,092 patients. On the other hand, for diabetes, only 1,612 patients agreed. Numbers of patients available were set aside from validation due to reporting inconsistencies and volatility.

CONCLUSIONS: The method presented is an useful tool to link records from different health care systems in Brazil and has already been used to conduct research on topics such as mortality and disease in Brazil. However, further validation is needed to improve the accuracy and completeness of the linkage results.

PRMS8

CLINICAL EFFICACY AND COST EFFICIENCY ASSESSMENT OF CADAVERIC ALLOGRAFT SKIN GRAFTING IN THE MANAGEMENT OF EXTENSIVE BURNS AND SUTURELESS WOUND MANAGEMENT

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OBJECTIVES: The problem of treatment of extensive burns remains one of acute problem of medicine. In the Republic of Kazakhstan are burns between 3.5% and 5% of all injuries. When wound is too deep the extensive wound surface becomes a cause of metabolic imbalance and homeostasis. Because of short of donor resources long-term existence of burn surface leads to consumption, multiple organ dysfunction syndrome and to fatality that brings significant economic losses to society. Despite existing of various types of synthetic and biological coatings the allogeneic skin up to date is "gold standard" in management of extensive burn wounds. The best way to demonstrate clinical efficacy and cost efficiency of cadaveric skin grafting in management of extensive burns according to data of researches comes.

METHODS: Review of literature conducted on safety and efficacy of cadaveric allograft skin grafting in databases PubMed, Cochrane Library, NICE, Clinical Trials, TripDatabase etc. according to research issues (PICOs) and key words:

RESULTS: From 1972 relevant sources, 13,574 Mississippi patients in 2015. Of these, 9,092 patients were set aside from validation due to reporting inconsistencies and volatility.

CONCLUSIONS: The method presented is an useful tool to link records from different health care systems in Brazil and has already been used to conduct research on topics such as mortality and disease in Brazil. However, further validation is needed to improve the accuracy and completeness of the linkage results.
values for linkage to claims and mining of free-text notes will be discussed.

METHODS: A physically integrated EHR system that spans multiple healthcare systems feasibly overcomes issues of interoperability. Advantages for linkage to claims and mining of free-text notes will be discussed.

RESULTS: We tested our method on data with patient treatment alternatives. Results generated provided an assessment and understanding mechanism for the counts of events. We divided 5 years into 3 intervals: within 7 days, from 8 days to 12.4); average Charlson comorbidity score was 2.5 (SD ¼ 1.4). The analytic group was randomly divided into training (80%) and test (20%) data set. Probability of hospitalization was 0.2603. The mean AUC was 0.94, sensitivity of 0.73, and specificity of 0.96. Kappa statistic was 0.73. Outpatient visit, comorbidity status, age, and number of prescription claims were important factors for risk of hospitalization. CONCLUSIONS: This study used an innovative technique to identify risk factors associated for hospitalization for COPD. These findings suggest the use of early intervention and goal-directed therapy to improve patient outcome and patient management by reducing potentially preventable hospitalizations.

PRM65
META-ANALYZING TIME-SPECIFIC EVENTS USING COMPOUND POISSON PROCESS: THE CASE FOR POST-STROKE SEIZURES
Wang W, Devine B, Basu A
University of Washington, Seattle, WA, USA
OBJECTIVES: When number of events are reported over varying duration of times, one may identify trends in the event process. Using compound Poisson process (CPP), we can determine associated risk factors. The CPP model can be used to identify the risk factors associated for hospitalization for COPD. This study used an innovative technique to identify risk factors associated for hospitalization for COPD. These findings suggest the use of early intervention and goal-directed therapy to improve patient outcome and patient management by reducing potentially preventable hospitalizations.

PRM66
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PRM67
AN ACTIVE LEARNING ALGORITHM FOR EFFICIENT DEVELOPMENT OF EMULATORS OF COMPLEX MODELS, WITH AN APPLICATION IN PROSTATE CANCER SCREENING
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OBJECTIVES: Emulators are fast-to-evaluate statistical approximations of (typically computationally expensive) mathematical models (simulators). Using
emulators in lieu of simulators can speed up computationally expensive analyses. Emulators are developed using the output of simulators at specified input parameter values, and they can then be used to predict the behavior of a system using design points that require many design points, which becomes computationally expensive. We describe an iterative active learning (AL) algorithm to efficiently develop emulators. Developing emulators for a prostate cancer screening emulator (PSAC) METHODS: The AL algorithm starts with a seed set of design points and sequentially chooses additional design points in regions where (1) the simulator output is fast-changing and (2) the emulator predictions are inaccurate. We developed one-dimensional and two-dimensional Global Sensitivity Analysis (GSA) Process-based emulators of the PSAC using the AL algorithm versus using current standards (Latin Hypercube Sampling [LHS]). The simulator output was mean health plan claims cost and prostate-specific antigen (PSA) based screening costs and re-screening. We compared the accuracy of emulators’ predictions by calculating the maximum difference between the emulator prediction and the PSAC (lower is better) and the emulator’s 95% prediction interval (lower is better). RESULTS: The median maximum difference of the LHS emulators versus the PSAC were comparable between the AL emulators (one dimension: 0.008 [range: 0.006-0.024], two dimensions: 0.217 [range: 0.171-0.234]) and LHS emulators (0.012 [range: 0.002-0.038], 0.520 [range: 0.078-0.643]), respectively. Compared with LHS, performance results with AL had smaller variance. Furthermore, the AL algorithm improved the emulators’ accuracy 25% faster per additional design point. The average performance gains may be greater in (well-behaved) larger-dimensional problems.

PRM68
VALIDATION OF A TYPE 2 DIABETES MONTE CARLO MICRO-SIMULATION MODEL USING REAL-WORLD DATA
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OBJECTIVES: To validate the Treatment Transitions Model (TTM) using real-world data from the Diabetes Predictive Model (DPM). Patients with type 2 diabetes mellitus (T2DM) and one pharmacy claim for type 2 diabetes mellitus (T2DM) and one pharmacy claim for a non-insulin antidiabetic medication were included in the analysis. Comparing the 2-year prevalence of diabetes-related complications predicted by TTM to those observed in the claims database revealed (respectively): retinopathy (11.5% vs. 18.9%), microalbuminuria (5.6% vs. 21.6%), peripheral neuropathy (33.4% vs. 18.9%), and amputation (2.4% vs. 0.4%). Compared with TTM, performance results with AL had smaller variance.

PRM69
APPROACHES TO STANDARDISING CARDIOVASCULAR RISK EQUATION END-POINTS IN ORDER TO FACILITATE THEIR INCLUSION WITHIN A TYPE 2 DIABETES MODEL
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1Health Economics and Outcomes Research Ltd, Cardiff, UK, 2IMS Health, Zaventem, Belgium
OBJECTIVES: There are a number of published cardiovascular (CV) risk equations that differ in design and are often inappropriate to use within T2DM economic models. They require many design points, which becomes computationally expensive. We describe an iterative active learning (AL) algorithm to efficiently develop emulators. Developing emulators for a prostate cancer screening emulator (PSAC) METHODS: The AL algorithm starts with a seed set of design points and sequentially chooses additional design points in regions where (1) the simulator output is fast-changing and (2) the emulator predictions are inaccurate. We developed one-dimensional and two-dimensional Global Sensitivity Analysis (GSA) Process-based emulators of the PSAC using the AL algorithm versus using current standards (Latin Hypercube Sampling [LHS]). The simulator output was mean health plan claims cost and prostate-specific antigen (PSA) based screening costs and re-screening. We compared the accuracy of emulators’ predictions by calculating the maximum difference between the emulator prediction and the PSAC (lower is better) and the emulator’s 95% prediction interval (lower is better). RESULTS: The median maximum difference of the LHS emulators versus the PSAC were comparable between the AL emulators (one dimension: 0.008 [range: 0.006-0.024], two dimensions: 0.217 [range: 0.171-0.234]) and LHS emulators (0.012 [range: 0.002-0.038], 0.520 [range: 0.078-0.643]), respectively. Compared with LHS, performance results with AL had smaller variance. Furthermore, the AL algorithm improved the emulators’ accuracy 25% faster per additional design point. The average performance gains may be greater in (well-behaved) larger-dimensional problems.

PRM70
CAN IRELAND’S COLORECTAL SCREENING PROGRAMME SAVE MORE LIVES, SAVE MONEY AND LIVE WITHIN EXISTING COLONOSCOPY CAPACITY LIMITS?
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OBJECTIVES: Ireland’s colorectal cancer screening programme, BowelScreen, offers biennial faecal immunochemical testing (FIT) for 60-69 year-olds. Screening sensitivity and specificity of FIT are adjusted by varying the test positive threshold. BowelScreen uses a FIT cut-off of 250ng/ml of haemoglobin. Existing literature indicates that a lower cut-off of 50ng/ml would cost less and be more effective, but require more colonscopes for positive screen findings, which is a key capacity limitation. We investigated gaps between real-world data and model predictions.
METHODS: The MISCAN colorectal cancer screening model was used to simulate 10 years of varying screening intervals, age ranges and FIT cut-offs. Outputs estimated were net costs, quality-adjusted life-years (QALYs) and number of colonoscopies required. RESULTS: A combination of a reduction in the FIT cut-off to 50ng/ml, an extended screening interval of 3 years and a reduced screening start age of 60 saves 20% more QALYs, reduces costs by 7%, and yields a 17% reduction in colonoscopy requirements. CONCLUSIONS: Simple changes to BowelScreen could save lives, reduce costs and relieve pressure on colonoscopy capacity.

PRM71
DEVELOPMENT OF A DEPENDENCE SCALE-BASED COST-EFFECTIVENESS FRAMEWORK TO ASSES THE VALUE OF ALZHEIMER’S DISEASE TREATMENTS
Koth JA1, Cohen JT2, Neumann PJ2, Zhu CW3, Stern Y4, Sullivan SD5
1Washington Cancer Research Center, Seattle, WA, USA, 2Tufts Medical Center, Boston, MA, USA, 3Icahn School of Medicine at Mount Sinai, New York, NY, USA, 4University of Washington, Seattle, WA, USA
OBJECTIVES: Healthcare providers must compare the value of alternative Alzheimer’s Disease (AD) treatments but existing modeling frameworks are limited and often rely on delay to institutionalization. The Dependence Scale (DS) reflects the level of assistance AD patients require and is associated with AD progression (across cognitive, functional and behavioral domains), health-related quality of life (HRQOL), and hospitalization costs. Based on these factors we developed a new no-established DS-based cost-effectiveness analysis (CEA) frameworks. We endeavored to fill this gap. METHODS: We developed a probabilistic state-transition simulation model that projects long-term cost-effectiveness based on DS changes. The model relates DS to HRQOL and cost using findings from Guo (2014) and Zhu (2015), respectively. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled. The model relates DS to HRQOL and cost using findings from Guo (2014) and Zhu (2015), respectively. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled. The relationship between DS and mortality can be toggled.

PRM72
COMPARISON OF COST-EFFECTIVENESS ACCEPTABILITY CURVES (CEAC) IN MODELED ANALYSES WITH AND WITHOUT ESTABLISHED HETEROGENEITY OF PATIENT CHARACTERISTICS
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1IMS Health, Zaventem, Belgium, 2Health Economics and Outcomes Research Ltd, Cardiff, UK
OBJECTIVES: Cost-effectiveness acceptability curves (CEAC) are commonly conducted by projecting mean patient characteristics (baseline DS, age, gender) and utility in model simulations in the model and investigate gaps between real-world data and model predictions.
These models often involve multiple comparators from strategies formed by a combination of initiation/cessation age and screening intervals. Using probabilistic sensitivity analysis (PSA) with Monte Carlo simulations is challenging because the probability of cost-effectiveness not only depends on the relative costs and screening effectiveness among alternative strategies but also is presented as a number of probability values for each strategy developed in a microsimulation model to compare the cost-effectiveness mammography screening strategies for average-risk women. Scenario A includes 10 strategies covering guidelines from three professional societies with three cessation ages (55–75) and the no-screening option. Scenario B explores by varying initiation (40/45/50), cessation (75/80/none) age, screening intervals (annual/biennial), and hybrid strategies that transition from annual to biennial. We used risk and clinical parameters from the literature and more of a clinical nature (e.g., age-dependent sojourn time) and cost inputs from Medicare fee schedule and analyzing SEER-Medicare data. To address uncertainties, we ran 100 repetitions of the model, each simulating individual woman’s lifetime natural history for a birth cohort of 1,000. Simulations were performed using nonparametric bootstrapping using multinomial logistic regressions. RESULTS: At $100,000/QALY willingness-to-pay, Scenario A showed the most cost-effective strategy (annual 45-54, biennial 55-75) had 31% chance to yield the highest net benefit, whereas the probability reduced to 19% for the most cost-effective strategy (biennial 40-75) in Scenario B. Using the next-best strategy as the base category, multinomial model showed that the most cost-effective strategy from the positive group has a test value larger than that for a randomly chosen individual from the negative group 75% of the time. After logistic regression and network analysis were conducted in the training sample, we used the outputs from both models to predict the risk of diabetic retinopathy in the testing sample. Receiver operating characteristic (ROC) was calculated and compared for these two models for their discrimination capability. RESULTS: A total of 757 patients were recruited and 21.5% were classified as NIDDM. A random 20% from each group was chosen for testing and the rest was used as the training sample. The Area Under the Curve (AUC) is 0.75 for training sample according to above logistic regression, meaning that a random selected individual from the positive group has a test value larger than that for a randomly chosen individual from the negative group 75% of the time. After logistic regression and network analysis were conducted in the training sample, we used the outputs from both models to predict the risk of diabetic retinopathy in the testing sample (N=400). The areas under the receiver operating characteristic curves were 0.72 and 0.73 for the logistic model and the neural network, respectively. There were no significant differences in predictive ability between the two models. CONCLUSIONS: This study suggests that it is possible to develop a diagnostic and transportable predictive instrument for diabetes patients with retinopathy complication. In our research, both logistic regression and neural network models did a good job of predicting the risk for retinopathy complication.
NON-PROPORTIONAL HAZARDS: EXTRAPOLATING RELATIVE TREATMENT EFFECTS BEYOND OBSERVED DATA WITH CANCER IMMUNOTHERAPIES

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OBJECTIVES: The use of extrapolation in cost-effectiveness analysis (CEA) is essential when estimating the benefits of treatments over a lifetime. Typically, parametric models are used to extrapolate to a 'baseline' comparator with relative treatment effects applied to obtain absolute values for all interventions. An assumption of proportional hazards (PH) is common in oncology, but may fail with cancer immunotherapies. METHODS: We conducted a systematic literature review and a fractional polynomial (FP) network meta-analysis (NMA) of second-line metastatic non-small cell lung cancer randomised controlled trials. We used a log-logistic distribution to model atezolizumab overall survival data and applied time varying hazard ratios (HR) from the FP NMA. RESULTS: We conducted 72 searches in 4 databases and retrieved 11,577 results. After screening and ed studies were screened to determine inclusion eligibility and resulting 17 observational studies, 8 analyses included both baseline and treated patients. The mean overall survival for docetaxel was 1.36, 1.48 and 1.5 years for the increasing HR, capped at 12 months and using the FP NMA estimate (1.99) from 12 months, respectively. CONCLUSIONS: Incorporating time varying HRs into a CEA needs care and involves considerations beyond simple statistical measures of fit. This example demonstrates using PH HRs over extrapolated data may not be reasonable between immunotherapies and chemotherapies.

PERFORMANCE AND NO REFERENCE TEST

Ferreira SE1,2, Talbird SE1, laEM1, Mauskopf J1, Krueger WS1, Altland A2, Daniels VJ3, Pillsbury M2, Wiecek W1, Amzal B2, Casciano R3, Karcher H1

Incorporating time varying HRs into a CEA needs care and involves considerations beyond simple statistical measures of fit. This example demonstrates using PH HRs over extrapolated data may not be reasonable between immunotherapies and chemotherapies.

OBJECTIVES: To estimate the comparative effectiveness in terms of overall survival (OS) of an advanced cancer treatment (immuno-therapy A) against established comparators B and C. Medical experts expected a channeling bias for product A at launch, towards patients with the worst OS prognostics. METHODS: Phase 3 clinical trials reported OS hazard ratio (HR) of 1.6 [1.4, 1.9] for A vs B and 2.1 [1.9, 3.2] for A vs C. The distributions of OS prognostic in the real-world population at treatment initiation for the active comparators, and how they would differ for product A at launch, were elicited from experts as proportions of patients with favorable, intermediate or unfavorable prognostic. A Bayesian model was built in HOPe, a new tool for predicting real-life comparative effectiveness. The model was based on patient-level Phase 3 clinical results and OS and trial patient characteristics, including their survival prognostic at treatment initiation. It accounted for competing risks of biological progression and toxicity over the risk of death over time. Two scenarios, with and without channeling effect, were simulated. RESULTS: The model with channeling bias returned mean estimates of median survivals that were almost equal: 15.7, 15.0, 15.6 months for treatments A, B and C, respectively, whereas the medians in the absence of channeling were 15.8, 14.6 and 13.4 months, respectively. The impact of channeling at launch of A for the three products was estimated as the difference between these means. CONCLUSIONS: The HOPE software allowed for rapid prediction and visualization of real-life OS outcomes by accounting for OS and trial patient data and expert opinions on patient distributions in a single model. The simulation allowed for estimating the magnitude of post-launch channeling effects of a new cancer treatment.
on a review of the published literature. Anxiety disorders have a high rate of chronicity with a recurrence rate of almost 23.5% in patients who have remitted. The rate of persistence is highly dependent on patients’ previous history and characteristics. Even though Markov models are among the most established and accepted approaches for decision modelling in Health Technology Assessment, it remains to be decided whether they are the best model for predicting the effectiveness of anxiety disorders. METHODS: We performed a targeted literature search for published Markov models designed to assess the cost-effectiveness of treatments for anxiety disorders in the following databases: NHS Economic Evaluations Database, MEDLINE, and Embase. One reviewer assessed articles for eligibility and included only studies that reported results for Markov models developed for adults with anxiety disorders. Anxiety disorders were assessed by using various criteria. Models were critically appraised according to standard checklists and de novo criteria developed to assess their applicability to anxiety. RESULTS: Our searches retrieved 164 hits. 23 articles were reviewed at full-text and four articles met the inclusion and exclusion criteria. The models assessed anxiety disorder diagnoses, pharmacological treatments, psychological treatments, and combinations of both (one study) in generalized anxiety disorders, panic disorder and social anxiety disorder. The results of the quality assessment were used to select the most effective predictive Markov models. The models did not adequately reflect the increased risk of recurrence based on patients’ history of prior relapse and sociodemographic characteristics. CONCLUSIONS: Most of the identified Markov models for anxiety disorders have a limited ability to capture the increased risk of recurrence associated with previous anxiety experience.

PRM84 HERPES ZOSTER VACCINE EFFECTIVENESS AND Waning of EFFECTIVENESS

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OBJECTIVES: Synthesize all available clinical data on the herpès zoster (HZ) vaccine to determine the best model with which to predict the vaccine effectiveness and waning of effectiveness for the HZ vaccine based on age and time since vaccination. METHODS: A targeted search of PubMed and Google was performed. The search was limited to literature between January 2006 and December 2015. Studies eligible for inclusion were peer-reviewed papers in scientific journals, conference abstracts and posters. RESULTS: Six models for the HZ vaccine were produced to estimate the waning of effectiveness. All studies used HZ incidence data or vaccination versus unvaccinated populations and measured effectiveness. Four are based on the models presented in Li et al. (2015) clinical study data. One is based on the Long-Term Persistence Study (LTPS) clinical data in Morrison et al. (2015) as modeled by Le and Rothberg (2015). The sixth model is based on data from Baxter et al. (2015) real world data from Permanente Northern California. These data represent up to 8 years of patient follow up and includes over 400,000 vaccinated patients. One model from Li et al. predicted a drop in effectiveness in year 2 but with slower waning in subsequent years. A second model from Li et al. predicted that vaccine effectiveness over time is similar in all age groups. Both of these models are consistent with the model based on data from Baxter et al. CONCLUSIONS: Cost-effectiveness results for herpes zoster prevention is highly dependent on age at vaccination and the waning of effectiveness for the HZ vaccine. Based on the evidence for real world effectiveness against zoster for the HZ vaccine, we recommend utilizing the data from Baxter et al. to predict effectiveness and waning for individuals being vaccinated with the HZ vaccine.

PRM85 USE OF MUTUAL INFORMATION THEORY IN BUILDING A PREDICTIVE MODEL FOR PROGNOSING SPONDYLODYSPLASIA DIAGNOSIS

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OBJECTIVES: Mutual Information (MI) metrics can be utilized to identify predictive patterns obscured by the volume of data in claims databases. MI measures shared content between two data samples and quantifies the relevance of each predictor to a diagnosis. Predictors are classified by predictive ability and reliability, and analysis repeated. Each iteration eliminates predictors and changes ranking. Iterative optimization eventually defines the most effective predictive model. Many US patients with ankylosing spondylitis (AS) experience a 7 to 13-year delay before correct diagnosis. Delayed diagnosis and treatment contribute to considerable economic, physical, and psychological burden on patients, caregivers, physicians, and society. Thus, we aimed to develop a predictive model for AS based on the measurement and timing of diagnostic, procedure, prescription, and provider (DPFP) codes observed in histories of patients with AS diagnosis to aid in earlier identification of AS patients. METHODS: Data for this retrospective cohort study were extracted from claims from over 3.5 million people from January 1, 2006 through September, 2015. Study population comprised patients with AS diagnosis (ICD-9-CM 724.0). For each AS patient, a minimum of 10 patients without AS matched by age, gender, enrollment period, and geographic region were randomly selected from the same database. MI was applied to identify DPFP codes that differentiate AS from the matched-control population. Combinations of DPFP codes were ranked by MI value (high MI indicates higher relevance to AS diagnosis) to determine the best model. RESULTS: Claims history diagnosis of AS was recorded in 12,562 matched controls and 121,620 matched-controls were analyzed to build a proof of concept predictive risk model that separates AS patients from matched-controls. A total of 12,678 features were analyzed and 150 classifiers were built (with 3-fold cross-validation). CONCLUSIONS: Additional modifications and rigorous validation of the proof of concept predictive model will be made to enhance clinical relevance and practicality.

PRM86 RATIONAL COMPUTER ASSISTED DESIGN FOR THE STUDY OF ACUTE TOXICITY OF LOCAL ANESTHETICS

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OBJECTIVES: Comparing study of acute toxicity of new synthesized piperidine derivative after a single dose and by the use of Computer Assisted Design. Now a days use of traditional methods of study of acute toxicity is severely limited, according to the humanization of experimental studies. In these conditions, Computer Assisted Design/CAD is more applicable, when computer recreates in the framework of the chemical in a three-dimensional image. METHODS: In the Institute of Chemical Sciences synthesized new derivatives of piperidine under laboratory code MAB118, MAB121, MAB124, MAB129, MAB130, MAB131, MAB134. Acute toxicity was studied by traditional methods: intraperitoneal, especially was injection of 4, 6 and 10 mg of leseno experiment to white mice of both sexes where used. Toxicity assessment was carried out on the base of LD50 rate. The calculation of quantum chemical parameters was carried out by comparing two drug formulas of moderate toxicity are less reactive than low toxicity ones. CONCLUSIONS: The results indicate the possibility of applying the parameters of quantum chemistry and molecular mechanics to predict the toxicity of derivatives of piperidine and optimization of primary screening.

PRM87 EXPLORING PYTHON FOR USE IN MODELING: DECREASING RUN-TIMES FOR PROBABILISTIC SENSITIVITY ANALYSIS

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OBJECTIVES: Python was released in 1991 as a general-purpose programming language. Its use for scientific computing in industry and academic research has increased significantly in recent years. We discuss using Python in health economic modelling and, in particular, the advantages associated with its powerful multidimensional array object through various practical examples including a probabilistic sensitivity analysis (PSA). METHODS: A fictional model was explored comparing two drugs for prevention of moderate and severe manifestations of a hypothetical disease. The model and PSA were implemented in NumPy, a fundamental package which extends the Python core language for scientific computing. The algorithm store a data in a 3-dimensional (6) array with the first two axes correspond to model health states and cycles, respectively. The third axis represents a unique simulation where input parameters are varied randomly according to appropriate probability distributions. The 3-d nature of the array allows for simultaneous calculation and storage of many different versions of the model. RESULTS: In this fictional model with 5 disease states and 40 cycles, a PSA with 1,000 simulations in Python has a run-time of 50 milliseconds and 450 milliseconds for a PSA with 100 simulations. The third run has a PSA with run-times of approximately 45 seconds and 8 minutes for 1,000 and 10,000 simulations, respectively. CONCLUSIONS: The implementation of the PSA using NumPy were many orders of magnitude faster compared to Excel. Faster execution, especially was injection of 4, 6 and 10 mg of leseno experiment to white mice of both sexes where used. Toxicity assessment was carried out on the base of LD50 rate. The calculation of quantum chemical parameters was carried out by comparing two drug formulas of moderate toxicity are less reactive than low toxicity ones. CONCLUSIONS: The results indicate the possibility of applying the parameters of quantum chemistry and molecular mechanics to predict the toxicity of derivatives of piperidine and optimization of primary screening.

PRM88 HEALTH STATES UTILITY VALUES IN NICE MULTIPLE TECHNOLOGY APPRAISALS: ADHERENCE TO THE NICE REFERENCE CASE IN THE AREA OF CANCER

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OBJECTIVES: The National Institute of Health and Care Excellence (NICE), routinely considers evidence on the cost-effectiveness of health technologies in formulating its recommendations on treatments for use in the English National Health Service. NICE periodically publishes methodological guidelines, known as the ‘reference case’, to ensure technology appraisals meet good quality standards. In spite of this, previous reviews of NICE appraisals have shown high levels of heterogeneity in the methods used to obtain health state utility values for decision analytical models. The aim of this paper was to investigate the level of adherence to the 2013 NICE reference case with respect to the health state utility values employed in recent Multiple Technology Appraisals (MTAs) in the area of cancer. METHODS: The level of adherence was assessed using a checklist that aims to evaluate the extent of decision uncertainty originating from...
evidence on utility values. RESULTS: Thirty-five technology appraisals in the area of cancer were reviewed. Adherence heterogeneity to the NICE reference case was identified in 10, thereby suggesting the need to systematically search for evidence on utility values. Lack of utility values derived from the EQ-SD, and limited amount of data on generic and disease specific patient-reported Health-Related Quality of Life (HRQoL) outcomes was also found. Adherence to the reference case may be increased by stricter requirements for the systematic identification, validation and reporting of evidence on health states utility values used in economic evaluation and the development of mapping algorithms suitable to synthesise summary data from disease specific or generic HRQoL tools commonly reported in cancer trials.

PRM89
MODELING WITH VERY BIG DATA: A PILOT STUDY USING LARGE-SCALE MACHINE LEARNING IN A CLUSTER COMPUTING FRAMEWORK
EMERGING ROOM (ER) VISITS
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OBJECTIVES: To develop and demonstrate the feasibility and limitations of predictive modeling methods adapted for a very large and heterogeneous dataset containing longitudinal data spanning up to 10 years for more than 50 million unique patients. METHODS: We retrospectively studied predictive factors associated with ER visits using an EHR-based database (IBM Explorys) containing broader clinical information for a larger patient population than earlier research on this topic. After filtering to exclude inactive patients, the remainder were counted as positive for the primary outcome if they had visited the ER between January 1, 2006 and December 31, 2015, with the dataset extracted from January 1, 2006 forward. In the initial exploratory phase, we calculated odds ratios for 543 factors from major categories including demographics/socioeconomic status (n=5), healthcare service utilization (n=1,517), and symptomatology and past procedures (n=244). For modeling, the filtered dataset was randomly divided 80%/20% into training and testing subsets. Declarative large-scale machine learning software (SystemML) was used to train a logistic regression model with L2 regularization. Patients were not pre-processed to remove html and stopwords, and to map emojis to text-annotations associated with structured data. Posts contributed by PTSD patients were pre-processed to remove html and stopwords, and to map emojis to text-annotations associated with structured data. Posts contributed by PTSD patients containing longitudinal data spanning up to 10 years for more than 50 million unique patients.

PRM90
THE PATIENT VOICE INCLUDES EMOTIONS: A CASE STUDY IN THE USE OF PROBABILISTIC TOPIC MODELING TO CHARACTERIZE PATIENT CONVERSATIONS IN AN ONLINE COMMUNITY OF PTSD PATIENTS
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OBJECTIVES: To identify and respond to patient-defined priorities in care delivery and share and develop knowledge, it is important to understand what is important to patients. Interestingly, patients share large volumes of free-text data over social media and within online communities. The text generated in these ways is often too fragmented and unstructured to be used effectively for analysis. However, text-based conversations approaches using natural language processing particularly valuable. This case study demonstrates the use of probabilistic topic modeling, with attention to the preservation of emojis, to characterize over 200,000 free-text posts from post-traumatic stress disorder (PTSD) patients in the online patient community PatientsLikeMe (PLM). METHODS: Approximately 54% of PLM patients contribute free-text posts to the platform through user bios, forum conversations, or as annotations associated with structured data. Posts contributed by PTSD patients were pre-processed to remove html and stopwords, and to map emojis to text-based descriptions. Latent Dirichlet allocation (LDA), a form of probabilistic topic modeling, was performed to identify topics discussed among patients. Model parameters were selected on the basis of perplexity as measured on a 10% holdout test set. RESULTS: A total of 224,997 free-text posts were contributed by 8,518 unique PTSD patients between 3/1/2012 and 3/1/2016. Fifty topics were identified, including topics related to quality of life (family, religion, music, literature, pets, service animals), emotion (sadness, anxiety, insomnia, anger), and treatments (medical marijuana, supplements, smoking). CONCLUSIONS: LDA was identified as the best model. We found significant interperson differences in topics generated in text conversations.

PRM91
LONGITUDINAL DETERMINANTS OF DYNAMIC STATIN ADHERENCE: A RETROSPECTIVE COHORT STUDY
Dave C, Park H, Winterstein A, Hartema Z
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OBJECTIVES: To model the baseline and time-varying determinants of longitudinal statin adherence, and to identify and characterize the heterogeneity in statin adherence patterns over time. METHODS: We used MarketScan commercial claims data from 2008-2013. Adults newly initiating a statin, with at least 3 years of continuous coverage, were included. The treatment period was divided into 12 periods of 90 days, a period was considered an adherent one if the patient was exposed to statins for 80% of the days. Baseline covariates included age, sex, and history of heart failure (CHF), hypertension (HTN), stroke, asthma, chronic obstructive pulmonary disease (COPD), depression, and diabetes (DM). Time varying covariates included new onset of clinical conditions (same conditions as baseline plus liver dysfunction and myopathy) and average non-statin daily pill burden (in 3-month period). Generalized Estimating Equations (GEE) were used as primary analysis. We estimated Group Based Trajectory Models (GBTM) while adjusting for all baseline and time-varying covariates as secondary analyses.

PRM92
ASSESSMENT OF PROPORTIONAL HAZARDS IN NICE SUBMISSIONS: A REVIEW OF RECENT NICE APPRAISALS IN CANCER
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OBJECTIVES: Conducting a network meta-analysis (NMA) of hazard ratios (HRs) for time-to-event outcomes, when the proportional hazards (PH) assumption is violated, is not straightforward. Thus, health technology assessment (HTA) groups may expect justification for the choice of scale in reimbursement submissions given the accessibility of formal diagnostic testing techniques. Taking the UK as a case study we aimed to identify whether this was the case in recent NICE appraisals. METHODS: We searched the NICE website for Technology Appraisal Guidance documents published in the last three years. Searches were run in December 2016. We reviewed the TAs to identify whether manufacturers had assessed the PH assumption and justified the choice of scale when synthesising time-to-event endpoints for a NMA. RESULTS: Of the 43 appraisals identified, 21 contained a NMA. Scale choice was discussed in 9. All HTAs justified choice of scale used in NMA submissions that have not justiﬁed choices used in NMs for reimbursement submissions and conduct formal assessment of PHs when synthesising HRs for time-to-event outcomes.

PRM93
WHEN DOUBLY ROBUST IS NOT ROBUST ENOUGH: NONPARAMETRIC MATCHING METHODS UNDER TREATMENT HETEROGENEITY
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OBJECTIVES: Recent technological advances have increased the ability to deliver precision-targeted individualized treatment plans. This approach concentrates treatment among patients most likely to beneﬁt from a particular therapy. However, methodology challenges for evaluators as the average treatment effect on the treated (ATT) is likely to be substantially greater than the average treatment effect (ATE) considered across the entire population. This study aimed to explore the most accurate non-parametric matching methods for estimating the ATT among a population with treatment heterogeneity. METHODS: Both Monte Carlo simulation and semi-simulation using actual data from the Medical Expenditure Panel Survey (MEPS) 2012 were conducted. We simulated three propensity score distortions with high interference between treatments and heterogeneity. Standard OLS and 300 datasets each with 500 patients. Mean squared predicted error for OLS, one-to-one matching, k-nearest-neighbor matching, and kernel matching with optimized bandwidth yielded a 61% improvement over OLS alone. Kernel matching provided the best theoretical improvement over OLS (69%). Kernel matching and OLS were used to estimate the remaining average treatment effect. RESULTS: Results of these matching methods showed improvement (14%–73%) over OLS. Within each of these nine scenarios, we created 1000 datasets each with 500 patients. Mean squared predicted error for OLS, one-to-one matching, k-nearest-neighbor matching, and kernel matching were calculated and compared to known truth. For each matching estimator, the ATT was estimated with both direct mean comparison and weighted OLS using the propensity scores in a weighting function. RESULTS: All matching methods showed improvement (14%–73%) over OLS. Within each of these nine scenarios, we created 1000 datasets each with 500 patients. Mean squared predicted error for OLS, one-to-one matching, k-nearest-neighbor matching, and kernel matching were calculated and compared to known truth. For each matching estimator, the ATT was estimated with both direct mean comparison and weighted OLS using the propensity scores in a weighting function.
was a reliable method in selecting bandwidth. Matching provides improvement over OLS, but caution should be exercised when combining matching with regression techniques.

PROM4

SIMULATING MULTIVARIATE DISTRIBUTIONS WITH ARBITRARY MARGINAL DISTRIBUTIONS AND DEPENDENCE STRUCTURES

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OBJECTIVES: Researchers often need to generate random samples from multivariate distributions (MVDs) with specific univariate marginal distributions (MDs) and dependence structure. Applications include propagating uncertainty during Monte-Carlo simulation for a set of variables in a mathematical model, or creating synthetic datasets that are “similar” to a target population. Typically, information exists about (1) the form, mean, and variance of the marginal distributions (MDs) for each dimension, and (2) the empirical correlation matrix. METHODS: We propose to approximate MVDs using Gaussian copulas, which factor an MVD into a product of distributions (MVDs) with specified parameters and their parameters with moment matching. For the dependence structure, which is parameterized by a correlation matrix, we use an empirical correlation matrix. As an example, we create a synthetic cohort for the American College of Cardiology-National Cardiovascular Data Registry (ACC-NCDR). We use a parametric survival model and compare the predicted survival curves in the synthetic population and in the original cohort. RESULTS: We approximate the MVD of 13 continuous variables (e.g., age, heart rate) and 20 categorical variables, some of which are dichotomous (e.g., sex) or ordinal (e.g., number of disease vessels), using the Gaussian copula and demonstrate that Monte-Carlo random samples preserve the first-order (means) and second-order (variances and covariances) of the MVD and the MDs of all variables. Predicted survival curves agreed well between the synthetic data and the original data and the MDs of all variables. The Gaussian copula approach applies to any empirical original data in terms of model predictions. More generally, this approach can serve as a flexible and robust approach for approximating an MVD using only estimates of first and second moments.

PROM5

EVALUATING THREE MARKOV MATRIX SOFTWARE MODELS FOR HIV TREATMENT COST EFFECTIVENESS ANALYSIS

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OBJECTIVES: Three decision models were to compare that calculate the cost-effectiveness of HIV treatment options using Markov multi-state, transition probabilities, along with corresponding transition state costs and utilities. The first HIV calculator was a publicly available, spreadsheet model described in the textbook “Decision Modeling for Health Economic Evaluation” edited by Briggs et al. A second basic freeware Markov cost-effectiveness calculator is available online at http://www.healthstrategyc.com. The third program is a recently developed health economic evaluation modeling package, Heemod that has been made available for free on cran.r-project.org, the open-source R repository. The objective of our study was to evaluate the three models: Microsoft Excel, Heemod, and Heemod R models. METHODS: For this evaluation, we modified the original Excel HIV spreadsheet structure and data and using mono therapy versus combo therapy for all cycles. Using two treatment option matrixes, the variable inputs that can be modified include probabilities, transition states, costs, and utility. RESULTS: We considered four transition states for each therapy option, and 20 cycles with no discounting. The Microsoft Excel spreadsheet model versus the online JavaScript software versus the Heemod R model compared very well with results respectively as follows: average incremental costs in British pounds: (67701 vs. 67853 vs. 66937), average incremental utility: (5.89 vs 5.99 vs 5.74) and average incremental cost-effectiveness ratio: (11500 vs 61494 vs 11678). CONCLUSIONS: The browser-based, online calculator has potential benefit as a basic educational tool for students and health professionals interested in exploring these analytical approaches. The Heemod package requires R software installation but has many positive features, and is likely to be expanded in capabilities and treatment model examples in the future.

COST OF A COPD-RELATED HOSPITALIZATION – A REGRESSION ANALYSIS OF THE 2012 HCUP-NIS SURVEY DATA SET

Belviso N

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OBJECTIVES: To quantify the association between hospital admission characteristics and cost of a chronic obstructive pulmonary disease (COPD)-related hospitalization to understand which admission characteristics have the greatest impact on costs of a COPD hospitalization. METHODS: A regression analysis was adapted to the 2012 HCUP National Inpatient Survey database (n= 7,161,567 total admissions, nCOPD = 7,410 COPD-related admissions). We chose to determine if any significant characteristics and characteristics, and the cost of a COPD hospitalization. After flagging each COPD-related hospitalization based on the reported diagnosis related group (DRG), a multiple linear regression model was implemented in order to develop the cost inputs followed by assumptions of linear regression. This led to the log-normal transformation of the dependent variable and exclusion of non-significant inputs. The model was then incorporated into a new regression model taking into consideration the sample survey design which included stratification, unequal weighting, and domain subgroups of the DRGs identified as COPD-related. Estimates for the regression coefficients were computed in SAS 9.3 and included the following variables: length of stay, number of complications at admission, age at discharge, gender, death during hospitalization, elective admission, major OR procedure, and admission during weekends. RESULTS: The final model confirmed the presence of non-normal distribution when sampling means, when the sample size is large enough. We demonstrate how the PSA results change when the underlying distribution is used rather than the normal distribution. METHODS: We used simulation methods to produce several histograms of means, each calculated from samples of increasing size, and compared the distribution of these means against the distributions that are frequently used instead of the normal distribution. We then proceeded to assess the impact of this distribution on the cost-effectiveness results when the means are sampled with a normal distribution vs. the underlying distribution. RESULTS: Histograms show that as the sample size increases, the distribution of means calculated using the underlying distribution deviates more from the distribution of the sampled means, which converge to distribution in normal. The model requires that using normal distribution instead of the underlying distribution changes the probability of being cost effective. CONCLUSIONS: Sampling means from a normal distribution is a more accurate representation of the sample means. The use of the underlying distribution to sample from the means leads to inaccurate PSA results. Given the importance of PSA results in making reimbursement recommendations, it should be careful to use the appropriate distribution to simulate the mean, which is the normal distribution.

PROM9

BAYESIAN ANALYSIS OF FLEXIBLE PARAMETRIC FRAILTY MODELS FOR THE EVALUATION OF REPEAT TREATMENT IN PATIENTS WITH INTERVAL CENSORED DATA: APPLICATION TO A LARGE RANDOMISED CONTROLLED TRIAL IN OAB SYNDROME

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OBJECTIVES: Recurrent events are common in clinical trials of chronic diseases. Due to the ongoing nature of chronic conditions, and consequently clinical trials,
patient follow-up can be intermittent and information regarding the time of symptom development is often unreported or poorly reported. Motivated by a large failure to detect overactive bladder, interest in evaluating the duration of treatment effect defined as the time to patient-reported return of symptoms following repeat injection of botulinum toxin in patients with interstitial cystitis (IC). METHODS: Poly-Variable predictive models were fitted in a patient-level framework in order to obtain posterior predictive distributions from which to sample reported event times for interval censored data. To further account for the correlation between repeated events within the same individual, we incorporate a shared frailty term. We applied this methodology to a clinic trial of patients receiving a maximum of 3 repeated injections of botulinum toxin for OAB over a 5 year follow-up period. To compare repeated injection, restricted mean survival (RMS) was calculated. Performance of Bayesian prediction models were assessed for varying proportions of missing data, and misspecification of distributional form using simulation studies. RESULTS: Bayesian flexible parameter frailty models found that there may be a small cumulative reduction of 15% in the risk of OAB for erenumab versus placebo. Simulation studies found that Bayesian prediction models generally perform well with up to 50% of interval censored data, but care should be taken when selecting distributional form. CONCLUSIONS: With an increasing need to assess the time to symptom recurrence in chronic conditions, and the difficulties faced with intervals data follow-up, the use of a flexible Bayesian framework would appear to be advantageous.

PMR100

MODELLING MIGRAINE DAY FREQUENCY USING THE BETA-BINOMIAL DISTRIBUTION: A CASE STUDY OF ERENUMAB AS MIGRAINE PROPHYLAXIS

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OBJECTIVES: Current measures of clinical effectiveness of migraine prophylaxis are predominantly based on the reduction in frequency of migraine days (MDs) per 28 days. It is therefore important to accurately link economic and quality of life outcomes to reductions in MD frequency to model the cost-effectiveness of migraine prophylactics. Traditionally, headache day frequency has been characterized by Poisson, binomial and negative binomial distributions, and zero-inflation of these. All of these distributions are associated with theoretical and practical limitations. The beta-binomial distribution has been applied in other fields to model this type of count data. This analysis aims to compare the beta-binomial distribution to the Poisson, binomial and zero-inflated negative binomial distributions in modeling MD frequency, using data from a phase II study of erenumab (NCT01952574). METHODS: The study compared erenumab 70mg against placebo in patients with episodic migraine. Data on the frequency of MDs per 28 days were used to fit Poisson, binomial, negative binomial, zero-inflated negative binomial and beta-binomial distributions. The average root mean squared errors (RMSE) across all 28-day observation periods was used to quantify the deviation of each distribution from the trial observations. RESULTS: Data from 257 patients were available from the study, with a maximum follow-up of 64 weeks. The average RMSEs were 0.293, 0.257, 0.104, 0.081 and 0.098 for the Poisson, binomial, negative binomial, zero-inflated negative binomial and beta-binomial distributions, respectively, for the erenumab group, and 0.201, 0.221, 0.089, 0.081 and 0.089 for the placebo group. CONCLUSIONS: Based on the RMSE estimates, the negative binomial, zero-inflated negative binomial and beta-binomial provide the best approximations, and fit better than the Poisson and binomial fits. This was observed in both the erenumab and placebo groups. The results suggest that the beta-binomial may be an alternative choice of distribution for modeling MD frequency in migraine populations.

PMR101

PERFORMANCE OF MACHINE LEARNING ALGORITHMS IN PREDICTING 30 DAY HEART FAILURE READMISSIONS RISK USING AN ADMINISTRATIVE CLAIMS DATABASE

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OBJECTIVES: To evaluate machine learning algorithms in modelling the risk of 30-day heart failure (HF) readmissions in a cohort of commercially insured patients in the US. METHODS: We used Marketscan commercial claims data 2012-14 to identify a cohort of patients 18–18 years admitted with a primary diagnosis of heart failure. Heart failure index admissions and 30 day readmissions were defined using the Centers for Medicare and Medicaid Services (CMS) definitions. Using a combination of CMS-defined predictors and empirical analysis, we identified a list of hospital readmissions as predictors. Predictors were included in the model with a one year period prior to the index heart failure hospitalization. Study data were split into the training set (75%) and the test set (25%). We compared four common machine learning algorithms growing in popularity for binary classification: random forest, gradient boosted machines, and support vector machines. We employed 10 fold cross validation on the training set to train each algorithm, predictive performance for each algorithm were compared using the c-statistic (AUC) on the test set. RESULTS: In a cohort of 17,631 patients with a qualifying index admission for heart failure, 2,830 patients had a readmission within 30 days. The mean age of the patients in the cohort was 55 years, and 60.2% were males. Based on the c-statistic on the test set, gradient boosted machines performed the best (AUC 0.66), followed by elastic net regularized logistic regression (AUC 0.65), random forests (AUC 0.65), and support vector machines (AUC 0.63). CONCLUSIONS: Compared to previous models which report an AUC of 0.60, we were able to increase the AUC by 10% and improve predictive ability. However, this increase in AUC was largely driven by an increase in the number of predictors rather than any differences in performance between the machine learning algorithms themselves.

PMR102

CALIBRATION OF DISEASE MODELS FOR HEALTH SYSTEMS EVALUATION

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OBJECTIVES: This project examines approaches to the calibration of natural history models from a Bayesian perspective. The result of the calibration is a joint probability distribution of parameters which can be used in a probabilistic framework for assessing a predictive model to compare different interventions. Two diseases are examined. The two models have important differences in terms of the calibration strategies that are employed. The interventions considered for each disease are different too, this affects the choice of model structure. The first disease is HPV, which uses patient level simulation to account for the transmission dynamic nature of the disease, which is important in considering the impact of herd immunity from vaccination. The second is Hepatitis C, and the purpose of this model is to examine progression of disease and the impact of different strategies for the screen-detected and symptomatic populations. METHODS: Markov Chain Monte Carlo (MCMC) sampling was used to obtain samples from the joint distributions for the unobservable parameters and compared with Monte Carlo approach. RESULTS: The biggest challenge with HPV model calibration was the extensive unparallelisable computational time (20 days of computing time per chain per processor) that was significantly slowing down the calibration process. The non-identifiability of the parameter space could have a profound impact on the convergence of chains. A solution to the problem was to impose a structural prior on the joint parameter space. The Hepatitis C model calibration was an easier problem. The convergence was quicker, computational time was acceptable and some predictions were achieved. Adjusted MCMC was used for calibrating this model. CONCLUSIONS: Advantages of MCMC: for HPV — a better fit compared to simple Monte Carlo approach; for Hepatitis C — good exploration of the parameter space for all strategies.

PMR103

MODELING LONGITUDINAL CHANGE IN PATIENT REPORTED OUTCOMES USING LATENT CURVE MODELS

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OBJECTIVES: Latent curve models (LCMs) offer a flexible method for analyzing change over time in patient-reported outcomes (PROs). In this presentation, we demonstrate how LCMs can be used to understand within- and between-patient variability and to test a wide array of PRO-focused research hypotheses. METHODS: The current study used a simulated data example consistent with data collected from a series of clinical trials to evaluate a set of models and interpreted in practice. The outcomes were based on PRO domains of fatigue and physical functioning. We begin by describing independent univariate LCMs for fatigue and physical functioning and then expand these models to the bivariate case (i.e., modeling the longitudinal relationship between fatigue and physical functioning simultaneously). RESULTS: The univariate fatigue and physical functioning LCMs showed that patients varied in their baseline levels and rates of change. On average, fatigue worsened over the course of the study whereas physical functioning decreased over time. The bivariate LCM, which jointly modeled fatigue and physical functioning, showed that patients with more fatigue reported greater fatigue at baseline and patients with greater increases in fatigue over time had faster declines in physical functioning. Further, there was evidence of a negative within-person autoregressive effect of fatigue on physical functioning. More precisely, when a patient was more fatigue than usual on a given day, they had worse physical functioning than usual on the following assessment day. CONCLUSIONS: Researchers are often interested in assessing hypotheses concerning longitudinal change in PROs over time. While many traditional statistical methods for repeated measures have limitations (e.g., highly restrictive, no insights on individual differences, disconnect from theoretical models), LCMs offer a dynamic framework for testing many hypotheses relating to between- and within-person change in one or more constructs over time.

PMR104

HOPE, “HEALTH OUTCOMES PERFORMANCE ESTIMATOR”: A NEW TOOL TO PREDICT REAL-LIFE OUTCOMES

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OBJECTIVES: HOPE is a web-based tool which bridges the gap between randomized controlled trials (RCT) and real-world practice. HOPE can be used in preclinical and clinical development to understand RCT results in a real-world setting. A novel tool based on bridging-to-effectiveness modeling was developed to anticipate the real-world performance of new drugs. METHODS: The tool was built as an R/Shiny based web interface. The user selects the therapeutic area with a set of outcomes, interventions and real-world practice scenarios to be evaluated. Data
on key patient and drug usage characteristics (effectiveness drivers) and drug
craftiness can then be entered either as patient-level datasets or via summary
statistical data, where the tool can adapt its model for the specific disease
over time using a longitudinal Bayesian model with default prior parameter distrib-
ations. The tool then jointly simulates the dynamics of outcomes, exposure and
effectiveness drivers for 4 user-defined scenarios. Results in terms of
comparative effectiveness are displayed along with confidence inter-
vals. RESULTS: Two case examples were run with the tool to predict real-world
outcomes under various scenarios: prediction of survival in renal-cell carcinoma
patients, and of hospitalizations of patients with aneuploidy. The first case
was channeled to most severe patients after launch [1]. CONCLUSIONS: The tool
allows for rapid prediction and visualisation of real-life outcomes with confidence
intervals. The tool can be scaled (up to four dimensions) and provide an
equitable (unadjusted) value. The tool could save months of modeling time, e.g., in the context of fast-paced performance-based

PRM105
VALIDATION OF HOSPITAL MANAGEMENT EVALUATING METHODS IN CHINA
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OBJECTIVES: Little is known about the current management practices of the hospitals
in China. To address this gap, we developed a comprehensive survey instrument of Chinese Hospital Management Survey (CHMS) following the well-
adapted methodology of World Management Survey (WMS). METHODS: The Chinese version of CHMS includes questions on 20 management practices cover-
ing four major management domains: operation, monitoring, targeting, and incen-
tive. RESULTS: The CHMS settings, four-dimension and two-reality manage-
ment models are analyzed with construct validity test, which is performed by
confirmatory factor analysis (CFA). RESULTS: 810 middle level managers (depart-
ment- and above in charge) fitting the current definition of the user. This tool could save
months of modeling time, e.g., in the context of fast-paced performance-based

PRM106
A META-EPIDEMIOLOGICAL STUDY OF THE REPORTING OF EFFECT MODIFI-
CATION IN NETWORK META-ANALYSES
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OBJECTIVES: To evaluate the current state of reporting and handling of effect
modifications in network meta-analyses (NMA), as well as perform exploratory
analyses to identify factors that are potentially associated with incomplete reporting
of effect modifiers in NMAs. METHODS: We conducted an
epidemiological survey utilizing a systematic review of NMA's published in 2013
and identified through MEDLINE and Embase databases. We extracted information
reported, regression analyses yielded a statistically significant association for the factors
of journal impact factor, ratio of randomized controlled trials to number of
comparisons, and total number of randomized controlled trials. RESULTS: CONCLUSIONS: Completeness of reporting is an
important factor in the generation of evidence on the measurement properties of the R-ODS
for patients with symptomatic hereditary ATTR amyloidosis (hATTR amyloidosis)
with polyneuropathy. METHODS: Assessments (n=359) of the 24 R-ODS items
were collected in the patisiran phase 2 open-label extension (OLE, NCT01961921)
and the APOLLO phase 3 placebo-controlled trials (NCT01960348). Trial partici-
pants were symptomatic hATTR patients with polyneuropathy, including a broad
range of disease severity as measured by mobility impairment and broad range of
underlying generational mutations. The data underwent a comprehensive psychometric
analysis based on Rasch Measurement Theory. RESULTS: R-ODS items
covered a wide spectrum of activity and social participation limitations that
capturing the significant breadth of limitations observed in the patient sample
(359) of the range covered. However, the dimensions of the continuum corresponding to the lowest levels of limitation (i.e., the most
"difficult" activities) could be improved. The 3-point response scale of the R-ODS
was appropriate, as all response options for all items were correctly ordered. Most
items showed acceptable fit to the Rasch model. The reliability of the R-ODS
measure was good (Person Separation Index: 0.95). Item responses were stable
between subgroups (age, gender, global region, genotype), with a very small
number of items showing Differential Item Functioning (DIF) between
subgroups. However, the majority of the sample were females (n
= 218 respondents completed the survey, with
45.4% (56/107) of the 24 R-ODS items
were completed via the online panel [n
= 197]. Confirmatory factor analysis using
the WLSMV estimator in Mplus supported a two-factor model for the SF-12V2
where the physical functioning, role physical, bodily pain, and general health
items loaded onto a latent physical factor (LFP) while the role emotional, mental
and social participation limitations in hATTR patients with polyneuropathy.
Further research is needed to understand and assess the tool’s sensitivity to
detect changes in these limitations over time.

PRM110
AN EVALUATION OF THE PSYCHOMETRIC PROPERTIES OF THE SF-12V2 HEALTH
SURVEY AMONG ADULTS WITH HEMOPHILIA IN THE UNITED STATES
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Brunswick, NJ, USA
OBJECTIVES: This study examined the psychometric properties of version 2 of the
SF-12 Health Survey (SF-12v2) among adults with hemophilia in the United
States. METHODS: A cross-sectional design using web-based and paper-based
self-administered surveys was utilized. Patients were recruited using an online
panel, a Facebook community of hemophilia patients, and a hemophilia treat-
ment provider. The psychometric properties of the SF-12v2 were assessed for
construct validity, internal consistency reliability, and presence of floor and
ceiling effects. RESULTS: A total of 218 respondents completed the survey, with
202 respondents via the online panel [n
= 197]. Confirmatory factor analysis using
the WLSMV estimator in Mplus supported a two-factor model for the SF-12V2
where the physical functioning, role physical, bodily pain, and general health
items loaded onto a latent physical factor (LFP) while the role emotional, mental
healthy, and social functioning, and the vitality items loaded onto a latent
factor (LFP). Correlated residuals for items belonging to similar domains were
examined and there was a significant correlation between LFP and LMF. All standardized
loadings were strong and significantly different, suggesting adequate convergent
validity. Item-to-other scale correlations were lower than item-to-
thematically related scale correlations and model testing revealed that LFP and LMF were not perfectly correlated, suggesting good item and construct discriminant validity. Significant increases in physical function (PCS) and mental health (MCS) compo-
ment summary (MCS) scores were associated with increasing symptom severity,
supporting known groups validity. Internal consistency reliability was satisfac-
tory, with Cronbach's alpha of 0.88 for the LFP and 0.785 for the LMF items. None of
the participants received the least or maximum possible PCS or MCS score.
indicating the absence of floor and ceiling effects. **CONCLUSIONS:** Overall, the SF-12v2 was found to be psychometrically valid. These results provide a basis for its use in future studies designed to measure the health-related quality of life of adults with hemophilia.

**PMR112**

**CONTENT VALIDITY OF QUESTIONNAIRES ASSESSING INJECTION REGIMEN BURDEN IN GROWTH HORMONE DEFICIENT (GHD) ADULTS AND CHILDREN TREATED WITH BIORHYTHM HORMONE**

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**OBJECTIVES:** To understand the burden of GHD injection regimen and evaluate patient understanding of and ability to respond to newly developed questionnaires assessing human growth hormone (hGH) injection regimen burden. **METHODS:** A review of the literature identifying hGH injection regimen burden, with a focus on treatment regimen. Results informed the conceptual framework and two questionnaire batteries were designed to assess aspects of the treatment burden relating to using hGH injection in adult and pediatric patients. Expert panels were convened to elicit hybrid concept elicitation (CE) and cognitive debriefing (CD) interviews were conducted with patients (and caregivers in children) to assess the feasibility of the injections and the types of concepts important to patients and caregivers, and to evaluate comprehensiveness of the questionnaires and respondents’ ability to understand and respond to the questionnaire instructions and items. **RESULTS:** Results from the literature review (N=30 articles) and input from US (n=3) and European (n=3) experts facilitated the generation of questionnaire content assessing (1) ease of use; (2) regimen convenience; (3) patient, caregiver, and family life interference due to regimen; (4) benefit/satisfaction/willingness to continue treatment; (5) regimen choice/preference; (6) intent to comply with regimen; (7) injection-related signs/symptoms; and (8) reasons for missed injections. Hybrid interviews with 21 patients (adults [n=6] and children [n=15]) using the SF-12v2 confirmed the feasibility of capturing their hGH injection-related treatment regimen experience (including key concepts), and are easily understood. Minor wording revisions improved question clarity and understanding of the concept. **CONCLUSIONS:** Findings from this research support the content validity of the questionnaires, resulting in new clinical outcome assessment measures to assess hGH injection regimen burden for adults, children and their caregivers.

**PMR113**

**PREDICTORS OF UTILITY OVER TIME AMONG PATIENTS WITH TREATMENT-NAIVE ADVANCED MELANOMA FROM THE PHASE 3 CHECKMATE 067 TRIAL:**

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**OBJECTIVE:** The aim was to update previous analyses of predictors of health-related quality of life over time to estimate utilities for patients with treatment-naive advanced melanoma using the 28-month data cut from the randomized CheckMate 067 trial comparing nivolumab + ipilimumab, nivolumab monotherapy, and ipilimumab monotherapy for use in a cost-effectiveness model (CEM). **METHODS:** The EQ-5D was administered at baseline and every 28 weeks in CheckMate 067 and was used to generate index utility scores using the UK time trade-off method. Covariates were based on a combination of prior analyses of large longitudinal data sets, including demographic, clinical, and socioeconomic characteristics, quantitative metrics of fit, qualitative/clinical plausibility, and relevance to the CEM. Several longitudinal mixed linear models were explored using different covariate sets. **RESULTS:** This analysis included 916 patients and 7,735 visits where the EQ-5D was administered. Most baseline utility score was 0.774 for nivolumab + ipilimumab patients, 0.779 for nivolumab patients, 0.773 for ipilimumab patients, and 0.775 across all patients. The final model included selected baseline utility (to adjust for imbalance between treatment arms), progression status (pre/post), and treatment arm. Parameter estimates in the model were 0.418 for baseline utility (p<0.001), -0.035 for progression status (p<0.001), and -0.028 (p=0.042) and -0.026 (p=0.064) for ipilimumab and nivolumab + ipilimumab (vs. placebo), respectively. Additional models including time before death or end of follow-up were tested, but the selected model was found to be a better fit to the data when imputed in the CEM, the utility estimates for the preprogression and postprogression states were 0.792 and 0.758, respectively (applying nivolumab as the reference treatment arm). **CONCLUSIONS:** Results showed that baseline utility, progression, and treatment were predictors of utility over time, which is consistent with prior analyses of this trial as well as other nivolumab monotherapy and ipilimumab monotherapy trials.
and VDS response-profiles, subjects inconsistently interpreted the unanchored VAS. In spite of interpretation heterogeneity, when VDS ratings were mapped to a VAS, average VAS scores were approximately equidistant and ordered monotonically. Therefore, the expected VDS scores appear to satisfy the proportional odds assumption for the VAS.

PRM116

MODE COMPARISON IN ELICITING PREFERENCES FOR CARE-RELATED QUALITY OF LIFE: EVIDENCE FROM ENGLAND USING THE ASCOT SERVICE USER MEASURE

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OBJECTIVES: Traditionally, researchers relied on eliciting preferences through face-to-face interviews. Recently, there has been a shift towards using alternative modes, such as the internet, to gather such data. These different modes may be a source of variation in the results. In health services research, preferences are important as they provide an estimate of the value of each quality of life state, and can be used as weights to reflect the differential utility of each state. In this study, our aim was to compare the preferences elicited from two modes of administration (internet versus face-to-face) for the best-worst scaling (BWS) technique using the ASCOT-S domain scores.

CONCLUSIONS: Preferences elicited from internet surveys were found to be consistently lower than those elicited from face-to-face surveys. These findings have important implications for research, policy, and practice.

PRM117

PSYCHOMETRIC VALIDATION OF THE ATOPIC DERMATITIS IMPACT QUESTIONNAIRE (ADIQ)

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OBJECTIVES: Atopic dermatitis (AD) is a chronic inflammatory skin condition with substantial impairment of health-related quality of life (HRQoL). A new instrument, the AD Impact Questionnaire (ADIQ), was developed following FDA PRO Guidance (2009) to assess impacts of AD on patients’ lives. The ADIQ was included in a Ph2 clinical trial and data from that trial was used to assess measurement properties. METHODS: In a Ph2 clinical trial 209 patients aged 18-75 years with moderate to severe AD (after initial screening and a 2-week topical corticosteroid [TCS] run-in period), were randomly assigned to receive lebrikizumab 125mg Q4W, 250mg single dose (SD), 125mg SD, or placebo (PRD) plus twice-daily medium-potency TCS to all lesional skin for 12 weeks. Secondary analyses of screening, run-in, and Week 12 data, were used to evaluate reliability statistics, scaling structure, reliability and validity. Data from all arms were pooled to assess measurement properties of the ADIQ. Data from patients with stable disease, i.e. less than a meaningful change (6.6pts) on the Eczema Disease Severity Index (EDSI), were used for analyses with multiple time points, e.g. test-retest. RESULTS: 203 (97%) patients completed the ADIQ at screening. It showed evidence of adequate reliability (α=0.76), reproducibility (ICC = 0.95); and validity, with the latter including moderate correlations with the Dermatology Life Quality Index (DLQI, r=0.84), and patient-reported components of SCORing Atopic Dermatitis [SCORAD, r=0.41 (pruritus) and 0.46 (sleep loss)] at screening. Concurrent correlation between the ADIQ and indices of disease severity, [overall SCORAD; EASI and Investigator Global Assessment (IGA)] was relatively low. However, change in ADIQ from screening to Week 12 clearly detected minimal important differences in disease severity over the same time period, with SCORAD, EASI and IGA concordance indices ranging from 0.78 to 0.81. CONCLUSIONS: The ADIQ is a reliable and valid measure to assess the impact of AD. Our data support the use of the ADIQ in clinical trials and real-world settings.

PRM118

A SYSTEMATIC REVIEW OF QUALITY OF LIFE DOMAINS AND ITEMS RELevANT TO QUALITY OF LIFE TO PATIENTS WITH SPONDYLOARTHRITIS

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OBJECTIVES: To summarize, from the literature, Quality of Life (QoL) domains and items relevant to quality of life to patients with Spondyloarthritis (SpA), and to determine if commonly used SpA Patient-Reported Outcome (PRO) instruments include the identified domains.

METHODS: We used PRISMA criteria for systematic review and searched Medline®, Embase® and PsycINFO® using relevant keywords. In addition, hand searches of records of the included articles were conducted. All articles were reviewed for inclusion by 2 independent reviewers. Articles were included if they contained information on domains and/or items of relevance to QoL of patients with SpA derived from patients’ own perceptions or reports. QoL domains and items relevant to patients with axial or peripheral SpA were extracted and presented using the adapted World Health Organization Quality of Life (WHOQOL) domain framework. PROs were assessed to determine if they included the domains identified. RESULTS: We retrieved 14,343 articles, of which 34 articles fulfilled inclusion criteria for review. 25 articles were conducted in the European population, 10 in the US population, and 9 in other regions. Of the 34 articles, 21 were included and 13 were excluded. Ten domains were found to be present in 28 and 27 articles respectively. SpA impacted QoL in all domains of the adapted WHOQOL framework. Domains that differed between types of SpA were financial resources, general levels of independence and medication side effects. Differences were confounded by geographical setting. PROs to capture domains for peripheral SpA were similar for axial SpA. CONCLUSIONS: We found that a wide range of domains and items were relevant to SpA with minimal differences between patients with axial and peripheral SpA. Clinicians may consider using peripheral SpA PROs to measure QoL of patients with axial SpA.
date, no validated measures exist to quantify these symptoms from the patient’s perspective. The current study evaluated the psychometric properties of the BPI-SF and WOMAC in adult patients with XLH. Psychometric analyses included construct validity (confirmatory factor analysis, known groups method, convergent and discriminant validity), reliability (inter-rater, test-retest reliability and stability to detect change). Descriptive analyses were also conducted to define meaningful change on the BPI-SF and WOMAC. RESULTS: Confirmatory Factor Analysis demonstrated appropriate item-score groupings for both the BPI-SF and WOMAC with the majority of model fit indices meeting or exceeding statistical thresholds. BPI-SF and WOMAC scores were able to significantly differentiate between groups of patients defined according to a range of clinical and demographic characteristics. BPI-SF and WOMAC scores were positively and strongly correlated and showed excellent test-retest reliability. CONCLUSIONS: The EQ-5D-5L performed very well as a screen for mental health problems, with the AUROC for detecting depression being 0.548. Of Study A’s 3,638 letters, 447 responded, 376 consented, 325 completed the survey. Of Study B’s 5,132 letters, 419 responded, 298 consented, 253 qualified, and 236 completed the survey. Study B’s email and letter list contained 44.6% and 4.6% cooperation rates were 49.4% and 63.1%. CONCLUSIONS: More research is necessary to determine the validity of these recruitment methods in other therapeutic areas and study designs.

**PM124**

**ADAPTING THE MEDICATION ADHERENCE REASONS SCALE (MAR-SCALE) FOR ONLINE ADMINISTRATION ACROSS MULTIPLE COMORBID CONDITIONS, MODES OF ADMINISTRATION, AND FREQUENCIES OF USE**

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**OBJECTIVES:** Medication non-adherence can limit the full realization of treatment benefits for patients. Numerical data are collected for non-adherence, including various reasons reported by patients via the Medication Adherence Reasons Scale (MAR-SCALE). The current objective was to revise the MAR-SCALE to extend its scope to various comorbid conditions across modes and frequencies of administration. **METHODS:** The MAR-Scale items and presentation were adapted and provided for a broader understanding of treatment experiences and challenges, thereby helping inform more programmatic interventions intended to improve adherence within and across conditions.

**PM125**

**INVESTIGATING THE RELATIVE VALUE OF HEALTH AND SOCIAL CARE RELATED QUALITY OF LIFE USING DISCRETE CHOICE**

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**OBJECTIVES:** A key outcome in the economic evaluation of health interventions is the Quality Adjusted Life Year (QALY). The value of life (Qol) weights used to estimate QALYs are generally provided by preference-based measures of health such as EQ-5D. However, QALYs can also result in improvements in non-health related Qol (e.g. social care), but currently these effects are only partially captured. The aim was to investigate the feasibility of using Discrete Choice Experiment (DCE) methods to understand the relative relationship between, and derive preferences for, health and social determinants of Qol (described using EQ-5D-5L and ASCOT). **METHODS:** An online DCE was carried out in Australia. Respondents were presented with choice sets including two preference-based attributes (described using EQ-5D-5L and ASCOT) and four choice sets each including two preference-based attributes. The respondents were asked about any prescription medication(s) taken per condition, and the monetary value assigned to each level of each attribute. The respondents were then asked to evaluate the relative value of health and social care related QoL. Results suggest that the levels of the major dimensions are monotonic. There is clear trading between health and social care, indicated by differences in the magnitude of the coefficients across the different attributes of Qol included in the DCE tasks. Respondents reported being able to conceptualise the states presented and complete the tasks, but there was some incomplete survey. **CONCLUSIONS:** We have tested a possible choice based approach that will allow us to make inferences about Qol based on data obtained from different preference based instruments. DCE is a feasible method to improve our understanding of how separate, and related, social and health related Qol are traded against one another, and the relative importance of each. The data also provide a basis for stimulating further research in this area.

**PM126**

**PAIN ASSESSMENT: A MYRIAD OF TECHNIQUES TO MEASURE PAIN SEVERITY – DOES IT MATTER WHICH ONE IS USED?**

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**OBJECTIVES:** A variety of methods have been developed to assess pain severity. This study was conducted to determine if there are meaningful differences in responses across the different techniques. **METHODS:** 400 subjects were sampled 1:1:1:1 across four disease types: Type-2 Diabetes, Chronic Obstructive Pulmonary Disease, Depression, and Osteoarthritis. Recruitment employed free-media-advertising-based population sampling methods in Boston, MA. Eligible adult

**PM122**

**HOW WELL DOES THE EQ-5D-5L SCREEN FOR MENTAL HEALTH COMPARED TO THE SF-12?**

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**OBJECTIVES:** To examine the performance of EQ-5D-5L (index score; anxiety/ depression dimension), and the SF-12 version 2 (feeling downhearted/depressed item, mental health (MH) domain, and the Mental Composite Summary (MCS) score) in identifying individuals with depressive symptoms. **METHODS:** Baseline data from a cohort study of adults with type 2 diabetes in Alberta, Canada were used. The EQ-5D-5L index score and MCS were categorized into quintiles, and the MH domain into quartiles. Both EQ-5D-5L anxiety/depression dimension and SF-12 feeling downhearted/depressed item have five levels. Depressive symptoms “DS” (using the Patient Health Questionnaire 8 items, PHQ-8) were categorized into two severity levels: any DS (PHQ-8 > 10) vs. absent DS (PHQ-8 ≤ 10); moderate-severe DS (PHQ-8 > 15) vs. absent moderate-severe DS (PHQ-8 ≤ 15). We calculated sensitivity (Sn), specificity (Sp), and area under receiver operator curve (AUROC) for each of the measures for each of the DS levels. For any level of DS, the sensitivity (Sn) and specificity (Sp) were 0.83, 0.76, quartile 3 for MH domain (Sn=0.85, Sp=71%, AUROC=0.78), and quartile 4 for MCS (Sn=0.90, Sp=72%, AUROC=0.81). Overall AUROC were highest for MCS (0.90) and EQ-5D-5L anxiety/ depression (0.87). For moderate-severe DS, optimal performance was at quartile 4 for EQ-5D-5L index score (Sn=0.83, Sp=69%, AUROC=0.76), level 2 for anxiety/depression dimension (Sn=0.92, Sp=64%, AUROC=0.78), level 3 for feeling downhearted/depressed item (Sn=0.72, Sp=81%, AUROC=0.76), quartile 3 for MH domain (Sn=0.85, Sp=71%, AUROC=0.78), and quartile 4 for MCS (Sn=0.90, Sp=72%, AUROC=0.81). Overall AUROC were highest for MCS (0.90) and EQ-5D-5L anxiety/ depression (0.87). **RESULTS:** EQ-5D-5L showed slightly better performance compared to the SF-12 MH domain in identifying depressive symptoms. 164 completed the survey, of Study B’s 5,132 letters, 419 responded, 298 consented, 253 qualified, and 236 completed the survey. Study B’s email and letter list contained 44.6% and 4.6% cooperation rates were 49.4% and 63.1%. CONCLUSIONS: More research is necessary to determine the validity of these recruitment methods in other therapeutic areas and study designs.

**PM123**

**A TALE OF TWO SURVEYS: PATIENT SURVEY RECRUITMENT VIA EMAILS AND LETTERS**

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**OBJECTIVES:** To compare and contrast patient survey recruitment via pre-notification emails and mailed letters. **METHODS:** Patients were recruited for two survey studies using pre-notification emails and mailed letters. Study A’s target population consisted of survey-eligible, commercially-insured patients with cardiac arrhythmia and Study B consisted of survey-eligible, commercially-insured type-2 diabetic insulin users. Patients for both studies were identified from administrative claims in the HealthCore Integrated Research Database. Study participation consisted of completing a one-time survey either via the internet or over the telephone. The protocols and all survey materials were approved by the New England Institutional Review Board. The recruitment pre-notification e-mails and letters contained information regarding the purpose of the survey, who was conducting the survey, participation criteria, a link to complete the survey via the internet and a phone number to complete the survey over the telephone. Participants who did not respond to the e-mails or letters were contacted by telephone and consenting patients completed the survey over the telephone. Summary sample dispositions, survey metrics and rates were calculated by study and type of recruitment and a descriptive analysis was conducted. **RESULTS:** Of Study A’s 2,657 emails, 353 responded, 118 consented, 91 qualified and 80 completed the survey; of Study A’s 3,638 letters, 447 responded, 268 consented, 230 qualified, and 224 completed the survey. Study A’s email and letter list contained 5.4% and 6.2% cooperation rates were 24.5% and 54.8%. Of Study B’s 4,624 emails, 376 responded, 251 consented, 207 qualified and 164 completed the survey, of Study B’s 5,132 letters, 419 responded, 298 consented, 253 qualified, and 236 completed the survey. Study B’s email and letter list contained 44.6% and 4.6% cooperation rates were 49.4% and 63.1%. CONCLUSIONS: More research is necessary to determine the validity of these recruitment methods in other therapeutic areas and study designs.
subjects were screened to confirm diagnosis and disease severity. As part of a larger study, enrolled subjects completed multiple single-item pain assessments: a horizontal and vertical polar-anchored VAS (VAS; scored 0-100), two 11-point numerical rating scales (NRS; polar-anchored and box-plot), and a single six-point verbal descriptor scale (VDS; no, mild, moderate, intense, very intense, and excruciating pain). Responses to pain items were collected daily for 12 days to determine subject consistency in response across modes of assessment. RESULTS: 419 subjects were enrolled from each of the four disease areas, with n=104 for all except Depression (n=107). Vertical and horizontal VAS scores were not perfectly correlated but nearly (r=0.9). VAS scores correlated strongly with both NRS and the VDS item: r=0.9, r=0.9, and r=0.8, respectively. Average VAS scores were monotonically and proportionately ordered across VDS levels: 5.9, 23.4, 49.4, 68.9, 77.1, and 94.2, respectively. However, substantial heterogeneity was noted for each VDS level: range of 0-63, 3-93, 10-88, 0-97, 10-100, and 81-99, respectively. N=159 (39%) subjects preferred the polar-anchored NRS to other methods of assessment. The main reason for preferring the polar-anchored NRS was ease of use. The second most preferred method was the six-point VDS, preferred by n=143 (35%). CONCLUSIONS: Single-item pain assessments are myriad. Subjects do not respond identically across administration forms. How- ever, substantial heterogeneity was noted for each VDS level. Within a given VDS rating substantial variance in VAS scores is observed. Subjects prefer the ease of use of the polar-anchored NRS.

PM127 COMPARING HEALTH-RELATED QUALITY OF LIFE OF SCHIZOPHRENIC PATIENTS WITH PREVIOUSLY NEGATIVE SYMPTOMS TREATED WITH CARIPRANZINE AND RISPERIDONE

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OBJECTIVES: Our study assessed at examining the health-related quality of life gain with the drug cariprazine in the treatment of schizophrenia for patients with negative symptoms using NMS. Methods: Patients treated with cariprazine conducted a data analysis on individual patient level data derived from the RGH188-005 clinical trial. The 30 items of the Positive and Negative Syndrome Scale (PANSS) were used to organize patients into different health states defined according to the approach of Mohr and Lenert published in 2004 and 2005. Utilities were assigned to Mohr-Lenert health states in accordance with the 2004 publica- tion by Lenert et al. A Bayesian poissonian-state transition model was used to estimate the utility gains in health life years (QALYs) associated with patients. Therapy switching or a change in the option was built into the model, linked to lack of efficacy and adverse events to reflect real-life treatment patterns. RESULTS: Based on the transition relative frequency matrices, patients had a higher probability of reaching better health states on the cariprazine arm of the RGH188-005 clinical trial compared to the risperidone arm. In the Markov model, this resulted in an estimated QALY gain of 0.02952 per patient when therapy switch was not considered, comparing caripraz- ine to risperidone after one year of treatment. The model showed an estimated QALY gain of 0.02530 per patient when therapy switch was considered, comparing cariprazine to risperidone after one year of treatment. CONCLUSIONS: Cariprazine can provide additional health-related quality of life gain in the treatment of schizophrenia for patients with predominantly negative symptoms compared to risperidone.

PM128 IS THE SF-6D DAILY SENSITIVE TO CAPTURE QALY-VARIATION ON REACTOGENICITY OF INJECTABLE VACCINES?

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OBJECTIVES: Injectable adenovaccines cause local reactogenicity which may temporarily impact the Quality of Life (QoL) of vaccinated individuals. Variation in QoL-change expressed as quality-adjusted life year (QALY)-scores can be assessed temporarily impact the Quality of Life (QoL) of vaccinated individuals. Variation in QoL-change expressed as quality-adjusted life year (QALY)-scores can be assessed whether available evidence informs the equivalence of these two modes of admin- istration. A systematic review was conducted for each objective. Methods: 1) studies comparing face-to-face and telephone PRO interviews, all of which were reviewed. The equivalence review identified 11 publications comparing face-to-face and telephone PRO interviews, all of which supported equivalence of the two modes. However, no equivalence study comparing the two interview modes administered successively to the same population. In 7 of these 9 studies, interviews were conducted within 2 weeks.

PM129 LET THERE BE LITE

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OBJECTIVES: Health status measures vary widely in size and complexity, defining from 2 to 12 million unique states. The simplest system comprises two states – alive and dead, the standard 3-level version of EQ-5D defines 243 health states. This paper examines a theoretical precursor version of EQ-5D based on 2 response levels per dimension. METHODS: National population surveys for England and Wales were pooled to create a single dataset of EQ-5D-3L self-reported health states. Results. In this dataset, no problem was 0 and ANY problem was 1. Values for the resulting classification of 32 health states were estimated using the 0-100 VAS ratings as the dependent variable in an OLS model. The “life” index was then applied in two further datasets (in lung cancer and back-pain patients) which also included standard clinical measures of severity. RESULTS: When used as a state measure or in valuing changes in health status over time, the “life” index demonstrated statistically significant results consistent with the clinical parameters designates as primary markers in the two clinical studies – the Lung Cancer Symptom Scale and Roland/ Morris Disability Questionnaire. For the purposes of identifying change in health status over time, the “life” index performs satisfactorily, distinguishing groups of patients who improve/deteriorate following treatment. The “life” index values show only small differences when compared with corresponding scores based on the conventional EQ-5D-3L. CONCLUSIONS: For mild to moderate disease/conditions, 2-level descriptive classification and an associated weighting system (in this case based on the 3-level version of EQ-5D) functions as well as more complex health status measurement systems. A small, compact descriptive system has the potential of requiring much simpler valuation methods than more complex systems. It is worth noting that the first index system in common usage by UK health economists was based on a 28 health state classification.

PM130 EQUIVALENCE OF TELEPHONE AND FACE-TO-FACE PATIENT-REPORTED OUTCOME INTERVIEWES: LITERATURE REVIEW AND IMPLICATIONS FOR THE NEI VFQ-25

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OBJECTIVES: The NEI VFQ-25, a patient-reported outcome (PRO) measure of vision-related quality of life, is often administered by telephone or face-to-face interview, given the difficulties of self-administration in patients with low vision. To evaluate whether available evidence informs the equivalence of these two modes of admin- istration. A systematic review was conducted for each objective. Methods: 1) studies comparing face-to-face and telephone PRO interviews, all of which were reviewed. The equivalence review identified 11 publications comparing face-to-face and telephone PRO interviews, all of which supported equivalence of the two modes. However, no equivalence study comparing the two interview modes administered successively to the same population. In 7 of these 9 studies, interviews were conducted within 2 weeks.

PM131 TRANSLATION OF THE ZARIT BURDEN INTERVIEW 22 ITEMS (ZBI-22) INTO 95 LANGUAGES: CHALLENGES AND IMPORTANCE OF THE CONCEPTUAL DEFINITION OF THE ORIGINAL VERSION

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OBJECTIVES: The Zarit Burden Interview (ZBI) is a caregiver self-report measure, developed in US English, specially designed to reflect the stresses experienced by caregivers of dementia patients. Caregivers are asked to respond to a series of 22 questions asking about the impact of the patient’s disabilities on their life. For each item, caregivers are asked to indicate how often they feel that way (never, sometimes, quite frequently, or nearly always). The objectives of this paper were to present a preliminary translation of the ZBI-22 into 95 languages and the importance of developing a conceptual definition for each item. METHODS: In most
languages, the standard translation process consisted of: 1) Concept definition with the developer 2) Forward/backward translation step including a review of the backward translation by Prof. Zanit; 3) Clinician review; and 4) Cognitive interviews with 5-15 caregivers. RESULTS: No cultural issues were identified during the process. Most of the challenges were semantic. One of the greatest challenges was in finding the most appropriate words for the description of the feelings of the caregivers (i.e., do you feel stressed, embarrassed, angry, uncomfortable, afraid, etc.). Each word representing a specific concept needing a clear differentiation. Items 7 and 13 raised queries given their idiomatic nature (? Are you afraid of what the future holds for your family? Do you feel good when you have your child? Do you feel hopeful about the future of your child?). The interventions of Prof. Zanit helped the teams in finding appropriate translations. Examples of solutions found are presented. CONCLUSIONS: The input of the developer in providing definitions of new and complicated definitions was very helpful in developing translations of the ZBI-22 conceptually equivalent to the original.

PRM132

LINGUISTIC VALIDATION OF AN INSTRUMENT TO EVALUATE HEALTH-RELATED QUALITY OF LIFE IN PEDIATRIC PATIENTS WITH GROWTH HORMONE INSUFFICIENCY IN 7 LANGUAGES FOR 5 COUNTRIES

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OBJECTIVES: To translate and linguistically validate a pediatric HROQ instrument for paper administration in 7 languages for 5 countries, intended for use by children with growth hormone insufficiency or idiopathic short stature. Pediatric instruments are often intended for respondents with a wide range of developmental abilities, disabilities, and languages to cognitively understand and enrich our understanding of pediatric populations, we seek a cognitive interview approach with the goal of consistently yielding more robust qualitative data. METHODS: Corporate Translations translated and back translated the instrument into these 5 countries, with an emphasis on age-appropriate terminology. The harmonizations were subjected to in-person cognitive debriefing interviews with children. Informed by the ICECAP-A, a Good Research Practices for the Assessment of Children and Adolescents Task Force (Matza, et al., 2013), age-based interview criteria were developed for subjects aged 3-12 years. Subjects aged 3-6 years completed the instrument via interviewer administration, with follow-up questions targeting difficulty understanding. Subjects aged 7-12 years self-completed the instrument, with probes targeting difficulty in comprehension and the impact of the short stature on QoL. A caregiver was present at all interviews. Item and probe responses, suggestions for translation revisions, and age-appropriate adjustments were recorded and analyzed. RESULTS: Cognitive debriefing was successfully completed with 35 subjects. 15 children aged 3-6 years and 19 children aged 7-12 years. Both groups provided substantive comments to confirm understanding. As a result, revisions were made to the questionnaire translations in favor of age-appropriate language and improved conceptual clarity. CONCLUSIONS: Cognitive interviews were conducted successfully with pediatric patients with shorter stature. This approach provided evidence that a single instrument can be accessible for a wide age range, given that interviewer- and self-administered options are available. This instrument is considered linguistically validated for use in 7 languages for 5 countries.

PRM133

ADAPTATION AND ASSESSMENTS OF THE CHINESE VERSION OF THE ICECAP-A MEASUREMENT

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OBJECTIVES: To adapt and assess the ICECAP-A measurement for estimating the wellbeing of children and young people in China. METHODS: Following the adaptation guidelines in ICECAP-A, the Chinese version of ICECAP-A was translated and back translated into Chinese by two independent translators. Cognitive interviews were conducted successfully with 35 subjects, 18-26 years old, including 17 caregivers. RESULTS: The Chinese version of ICECAP-A has good internal consistency with an overall Cronbach’s alpha of 0.76. The test-retest reliability was 0.77. The test-retest reliability of the Chinese version of ICECAP-A is acceptable. CONCLUSION: The Chinese version of ICECAP-A in relation to public health and social care interventions for patients.

PRM136

THE NECESSITY OF A VISUAL CONCEPT ELABORATION WHEN TRANSLATING STANDARD ANATOMIC TERMS FOR CLINICAL OUTCOMES ASSESSMENT (COAS) IN NON-LATIN LANGUAGES

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OBJECTIVES: COAs often contain questions pertaining to distinct body parts of the subject. This is troublesome as some cultures refer to multiple body parts as one entity, for example, ‘upper arm’ and ‘shoulder’ referred to as ‘arm’. The aim of this study is to investigate how much linguistic validation methods such as visual concept elaborations guarantee accuracy when translating human anatomy. The study focuses on 3 non-Latin languages, Russian, Urdu and Arabic, as these languages have previously been shown to revy produced difficulties when translating COAs.BUDGET: The study was funded by Parexel Clinical Research. METHODS: Linguists were asked to provide literal translations of 17 commonly-used terms for human anatomy with no visual concept elaboration for context. A selection of anatomical terms was used to establish whether they have a direct translation or need to use multiple terms or descriptions. Linguists were then provided with a visual concept elaboration consisting of an image with arrows illustrating the intended anatomical location. This was followed by a review of the translations and a discussion of whether the term was accurate. RESULTS: All the anatomical terms were used in translation alongside the image whereby linguists gave their feedback regarding the changes needed for anatomical accuracy. Based on this data, an evaluation on the effectiveness of a visual concept elaboration was determined. CONCLUSIONS: The necessity of visual concept elaboration was proven to be an essential tool.
advSM-SAF is understandable to patients with advSMV and that it can provide scores that accurately reflect their health status. These results, along with those from previously collected information from the literature, experts, and patients provide support for the ADVSM-VSA as a content valid questionnaire ready for implementation into clinical trial settings.

**PFM137**

CHALLENGES IN TRANSLATING THE NEUropsychiatric INVENTORY (NPI) INTO 74 LANGUAGES

c.Junior C1, Giroudet C2, Dulac M3, Anfray C3, Vasarri S4

OBJECTIVES: The Neuropsychiatric Inventory (NPI) was developed in English to assess, through interviews with caregivers, ten behavioral disturbances occurring in dementia patients: delusions, R. Hallucinations, D. Depression/Depersonalization, E. Anxiety, F. Ilatiophobia/Euphoria, G. Apathy/Indifference, H. Disinhibition, I. Irritability/Lability, and J. Aberrant Motor Behavior. Two neurovegetative areas were added afterwards: K. Sleep, and L. Appetite and Eating Disorders. Each of the three regions assesses the presence or absence of changes in behaviors in the patient. If the behavioral change is present, then, subquestions (n=7 to 9) are asked to evaluate behaviors in terms of frequency, severity, and distress. The objective of this study was to present the challenges faced during the translation of the NPI-12 into 74 different languages representing ten language families.

METHODS: The NPI was translated in most languages with a process including: 1) Concept definition with the developer 2) Forward/backward translation step 3) Final reconciliation; 5) Clinician review; and 6) Proof-readings. RESULTS: The translation process did not reveal any cultural issues since most of the concepts assessed were cross-culturally relevant. The psychiatric terms (e.g., delusion, euphoria, etc.) were carefully translated to the clinician input in the area country. When a literal translation was impossible, synonyms or periphrases were used. Most of the challenges identified were linked to the use of idiomatic/collaborative content, such as the use of “talk big” in subquestion 6 (Does the patient “talk big” in section F, or the use of “flying off the handle” in subquestion 1 (Does the patient have a bad temper, flying off the handle...) in section I. In some languages, idiomatic expressions were available to express the same notions. However, in many languages either a synonym or a circumlocution was needed. Examples are presented. CONCLUSIONS: A rigorous methodology was essential in producing NPI translations conceptually equivalent to the US English original.

**PFR193**

SATURATION OF SIGN AND SYMPTOM CONCEPTS IN CONCEPT ELICITATION STUDIES WITH RARE DISEASE AND VULNERABLE PATIENT POPULATIONS

Mazar I1, Shields A2, Stokes J2

OBJECTIVES: In qualitative research, saturation reflects the point at which little or no new novel data can be elicited from an interview sample. Research suggests that saturation in symptom-focused concept elicitation (CE) studies can be demonstrated in samples with as few as 10 subjects. The objective of this study was to examine the applicability of these results to patient populations that are difficult to recruit and/or to interview. METHODS: A retrospective analysis of results from n=10 CE studies completed between 2014 and 2016 was conducted. Saturation was assessed by dividing the sample across chronological groups: comparing the number of unique concepts spontaneously elicited in the earlier groups to those emerging in the final group. RESULTS: A total of 140 participants across 10 studies were included in this analysis with sample sizes ranging from N=10 to N=40 (M=34). Average age of participants was 52 years (SD=23) and 68% were female. Therapeutic areas included rare genetic disorders (n=6), rare and advanced stage cancer (n=5) and a dermatological condition in adolescents (n=1). A total of 341 sign/symptom concepts were elicited, with an average of 34 (SD=16) concepts per study. An average of 91.5% (range = 75.4% to 100%) of concepts across studies emerged within the first 75% of interviews. CONCLUSIONS: Results from the present analysis are consistent with previous studies, in that sample size decisions in qualitative research, and provide researchers working in rare disease or with vulnerable populations confidence that, if rigorously designed and conducted, their concept elicitation studies can be successful with sample sizes of 10 to 15 participants.

**PFM139**

SLEEP TRACKING AND EXERCISE IN DIABETES PATIENTS (STEP-D): A PILOT STUDY TESTING THE CONCURRENT VALIDITY OF FITBIT HR DATA WITH SELF-REPORT DATA

Weatherall J1, Papproth Y2, Kudel F3, Meyer T4, Witt EA5

OBJECTIVES: To determine the direction and magnitude of the associations between Fitbit data and self-report data for sleep and exercise data collected from active users with type 2 diabetes (T2D). METHODS: STEP-D is a longitudinal, pilot study composed of 140 participants across 10 studies. Participants were required to wear a Fitbit for 14 consecutive days and completed four Internet surveys taken at three time points: Day 1 (baseline), Day 7 (interim) and Day 14 (closing). The Fitbit tracked minutes asleep and number of steps taken. The questionnaire included items gauging the number of days exercised in a week, number of nights sleeping, number of nights having sleep problems. Means and standard deviation were used to report all data and Pearson correlations were used to test the association between the Fitbit and self-report data. RESULTS: Participants, on average took 4,955.0 steps/day and slept 6.7 hours/day. They also self-reported an average of 2.0 days of exercise and 2.3 nights having trouble falling asleep in a typical week. The association between self-reported days exercised in a typical week and the corresponding mean steps recorded by Fitbit (r=0.28, p<0.05) and step data and self-report data are positively associated for sleep and exercise, but physical activity is more closely aligned than sleep-related information. This may indicate that Fitbit is more valid for measuring certain behaviours. If these findngs are replicated in T2D, then large-scale collection of certain objective HRQoL measures is possible, but data limitations will need to be acknowledged.

**PFM140**

IMPACT OF THE AGE OF THE TARGET AUDIENCE ON TRANSLATION DECISIONS

Vollumbi C, Vindrola A

OBJECTIVES: The aim of this study is to assess how the age of the target audience in patient questionnaires impacts on translation decisions undertaking a comparison of the linguistic validation of the Child behavior Checklist (CBCL) aimed at preschool children aged from 1½ to 5. METHODS: We assessed the list of children’s commonly used terms from the CBCL for any potential linguistic difficulties. We compared this approach to the translation process for Korean and Japanese. RESULTS: The word list was reviewed by the lead linguist, and we ascertained that a number of the MSA terms would be unfamiliar to a child. We decided to substitute terms where necessary, in order to provide terms in a dialect familiar to the child, as well as culturally appropriate for the age group concerned. Out of the remaining 460 terms, we were able to localize 75, and to adapt the rest. In the process, terms taken in both Korean and Japanese where there was little need to adapt the translation to a local dialect. There was also little need to alter the source terms for linguistic or cultural purposes. By acknowledging that the translation was sometimes essential to either change the dialect or localize the source terms to ones that would be familiar to the target audience. In the case of Arabic for Lebanon, this was in order to replace some of the Arabic MSA terms that were not understood in order to achieve comprehension, particularly for a young age group, country- and age-specific adaptation is sometimes a vital component of the translation process.
The PGP. This paper compares the changes made in the editing and back translation review steps of the translation process. RESULTS: When editing the English translation, 15% of items required updates to the parent COA, and 17% of the clinician COA items. Of these, 14% were stylistic, 77% were translation errors, and 9% were formatting updates. The Spanish translation required 28% and 12% of items to be translated, and 5% to be updated respectively. Of these, 37% were translation errors, 50% were formatting issues, 9% were to improve consistency, and 4% were to correct an error in the source. During back translation review of the English, 5% and 11% of items were edited respectively (50% were misunderstandings of the source, and 50% of the errors were word order). They then asked whether it was possible to find a "direct equivalent" in their language which could be used to convey the intended meaning without affecting patient understanding. Their answers were coded into six categories: 1) wordy for surgery; 2) synonyms for eye surgery; 3) easily identified, and a second where a direct equivalent could not be found, and translation would require more clarification in order to truly reflect the source. RESULTS: 35% of linguists confirmed there was not a direct equivalent in their language which could convey the intended meaning. The French team advised that, depending on the context and style, several potential words could be implemented with additional adverbs to further explain the meaning. In Dutch several terms exist which convey a part of the difficulty in finding an exact equivalent for the range of meanings that "bother" conveys. To produce a translation that accurately conveys the intended meaning and question, the choice of the word to convey the intended meaning should be taken into consideration, and the possibility of using a more restricted or descriptive text should be considered. Developers may also consider whether a more specific term is advisable.

**PRM143**

**AM I BOTHERED? INVESTIGATING THE POTENTIAL PROBLEMS WITH THE WORD “BOther” IN THE LINGUISTIC VALIDATION OF QUALITY OF LIFE QUESTIONNAIRES**

Oke L

**OBJECTIVES:** QOL questionnaires often contain items that enquire how bothered a patient is by their condition. Corpus-based studies concluded that three meanings could be defined for "bother," relating to "pain," "annoyance" or "hassle" [Glynn, 2010]. This evidently poses a challenge for translators in faithfully conveying the meaning for accurate data collection. This study investigates the extent to which this is an issue in Dutch, English, French, and Italian. METHODS: A selection of experienced translators was contacted covering 20 languages. The linguists were asked whether "bother" posed problems in their translations of PRO instruments. They were then asked whether it was possible to find a "direct equivalent" in their language which could be used to convey the intended meaning without affecting patient understanding. Their answers were coded into six categories: 1) wordy for surgery; 2) synonyms for eye surgery; 3) easily identified, and a second where a direct equivalent could not be found, and translation would require more clarification in order to truly reflect the source. RESULTS: 35% of linguists confirmed there was not a direct equivalent in their language which could convey the intended meaning. The French team advised that, depending on the context and style, several potential words could be implemented with additional adverbs to further explain the meaning. In Dutch several terms exist which convey a part of the difficulty in finding an exact equivalent for the range of meanings that "bother" conveys. To produce a translation that accurately conveys the intended meaning and question, the choice of the word to convey the intended meaning should be taken into consideration, and the possibility of using a more restricted or descriptive text should be considered. Developers may also consider whether a more specific term is advisable.

**PRM144**

**PLACEMENT OF RECALL PERIOD IN PATIENT-REPORTED OUTCOME QUESTIONNAIRES: DOES IT MATTER?**

Mazar I1, Taylor FD2, Ho R3, Carson RT3, Eremenco S4, Reasner DS4, Levy-Hachom O4, Mazar I1, Mizrachi R4, Nalbandian A5, Toledano E5, Coons SJ5

**OBJECTIVES:** Questionnaire developers lack evidence to inform basic item construction activities, including the appropriate placement of a recall period. This study evaluated whether participants interpreted items in three English language patient-reported outcome (PRO) questionnaires consistently, regardless of whether the recall period was placed at the beginning or end of the item. METHODS: In three separate studies, cognitive interview participants were assigned to one of two groups. Group A completed an item with the recall period at the end, followed by the completion of an alternative version of the item identical in content but with the recall period at the beginning. Group B completed the items in the reverse order. In both groups, participants were asked to provide their interpretations of both versions. An example of a tested item pair is as follows: In the reverse order. In both groups, participants were asked to provide their interpretations of both versions. An example of a tested item pair is as follows: Whether the recall period was placed at the beginning or end of the item. RESULTS: Of the 97 total participants, 69.1% were female and the mean age was 43.9 years. Eighty-eight participants contributed to the analysis with all participants averaging 70.5% (range 66.9-74.6) for monthly surveys and 70.8% (range 53.3-77.4) for yearly surveys. CONCLUSIONS: This evidently poses a challenge for translators in faithfully conveying the meaning for accurate data collection. This study investigates the extent to which this is an issue in Dutch, English, French, and Italian.

**PRM146**

**AN ALTERNATIVE WEIGHT ELICITATION METHOD FOR USE IN MULTI-CRITERIA DECISION ANALYSIS FOR HEALTHCARE**

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1Florida A & M University, Tallahassee, FL, USA, 2Florida State University, Tallahassee, FL, USA, 3Cargi-Pontux University, Cargi-Pontux, France

**OBJECTIVES:** The aim of this study was to develop and illustrate the use of an alternative weight elicitation method for use in multi-criteria decision analysis for healthcare, in the context of imprecision and uncertainty. METHODS: The proposed method was applied to a hypothetical case involving the elicitation of DMs' preferences for five criteria, cost, sensor size, zoom, weight and optical image stabilizer, used to select the best camera. RESULTS: The criteria were ranked from 1 to 5 (most important to least important). The DM was asked to rate the criteria based on a strict preference relationship established by the DMs. For each criterion, the DMs was then asked whether the recall period was placed at the beginning or end of the item.

**PRM147**

**AN INNOVATIVE APPROACH TO MIXED-MODE LONGITUDINAL DATA COLLECTION: METHODS AND RESPONSE RATES FROM THE CHRONIC CONSTIPATION & IBS-C TREATMENT AND OUTCOMES REAL WORLD RESEARCH PLATFORM (CONTOR)**

Essai B1, Taylor DC2, Abel B3, Carson RT3, Goddard Hunter A4, Buzevic P5, Martin CI6, Diaby V2, Sanogo V2, Moussa RK1

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**OBJECTIVES:** CONTOR is a novel, mixed-mode longitudinal research platform combining administrative medical and pharmacy claims and patient-reported data to examine associations between symptoms, treatment use and experience, and patient-reported outcomes among patients with chronic idiopathic constipation and irritable bowel syndrome with constipation. The objective of this platform is to describe response rates across the entire CONTOR study. METHODS: Fully-insured patients ≥18 years old were identified in two waves from a large, geographically-diverse US health plan using medical and pharmacy claims. Patients were invited by mail to participate and complete a self-reported paper survey, then complete an online questionnaire up to three times a year over the 12-month period, and monthly and quarterly online surveys over 12 months. CONCLUSIONS: The criteria were ranked from 1 to 5 (most important to least important). The DM was asked to rate the criteria based on a strict preference relationship established by the DMs. For each criterion, the DMs was then asked whether the recall period was placed at the beginning or end of the item. RESULTS: This study was conducted to assess the potential for developing CVD among type 2 DM patients, to assess the risk factors for developing CVD among type 2 DM patients and to assess the CVD risk factor for the next 10 years by using JB3 scale. METHODS: A hospital-based study was carried out at St. Philomena's hospital. The patients were recruited based on inclusion and exclusion criteria and the data collected were pooled and analyzed. RESULTS: Among 106 patients recruited 72 patients were diabetic and 48 patients were Non-diabetic. Majority was recruited from both the groups. It was found that there were elevated biochemistry values and abnormal ECG and ECHO readings in DM patients than Non-DM patients. By using JB3 scale, it was found that DM patients had more tendency for developing CVD than Non-DM patients. CONCLUSIONS: The study was conducted to assess the potential for developing CVD among type 2 DM patients, to assess the risk factors for developing CVD among type 2 DM patients and to assess the CVD risk factor for the next 10 years by using JB3 scale.

**PRM148**

**VALIDATING SELF-REPORTED PATIENT SURVEY DATA ON DIABETES SELF-MANAGEMENT USING PATIENT ELECTRONIC MEDICAL RECORDS**

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**OBJECTIVES:** To validate self-reported patient survey data on diabetes self-management using patient’s electronic medical records (EMR). METHODS: The observational study included patients (age ≥18 years) diagnosed with type 2 diabetes mellitus (T2DM) (ICD-9 code: 250.xx) and had ≥2 physician visits. The
sample was identified from a physician group's EMR database. A mail-based survey assessing diabetes self-management practices was administered to a random sample of 2,100 patients, stratified by age, sex, and county level: <7, 7-9, and >9. Patient survey responses were then linked to their EMR data using unique patient codes. A 'concurrent triangulation design' was then employed to validate the subjective population survey responses with the EMR database for variables that were common in the two databases such as demographics, comorbidities, HbA1c, year since diagnosis, and diabetes medications. Descriptive, comparative and correlation analyses were conducted using IBM SPSS Statistics 24.0. RESULTS: A total of 215 responses were received (10% response rate). Self-reported age (mean: 63.7±11.7 years) and age from EMR (mean: 64.5±12.2 years) were strongly correlated (r=0.94, p<0.001). Marital status (r=0.89, p<0.001), race (r=0.83, p<0.001), and gender (r=0.99, p<0.001) showed strong significant correlation as well. Moderate correlation (r=0.63, p<0.001) was observed between self-reported HbA1c (mean: 7.8±1.7) and HbA1c from EMR (mean: 7.9±1.7). Additionally, important clinical variable such as HbA1c in the EMR (mean: 7.7±2.0) and survey (n=25) had the highest correlations of all four granularities.

METHODS: Since the patient groups were based on HbA1c, it was an extremely important variable and yet, HbA1c was missing for 28% of all surveys. The study compared the impact of the geographic neighborhood used to calculate the individual proxy characteristics, individual data collection methods. This study explored the impact of system-level data collection with aggregate proxies for system-level data when the latter is not available. Socioeconomic characteristics were calculated. Health services researchers commonly employ aggregate proxies for socioeconomic characteristics.

RESULTS: and/or post cards sent by MPN groups, posts on patient advocacy websites, banner ads at selected medical websites, text or banner ads through Google or Facebook, and postcards sent to hematologist/oncologist offices for distribution. Geographic representativeness was assessed by number of respondents per 10 million residents. RESULTS: 904 eligible MPN patients comprised the survey. Largest recruitment was through survey ads posted on MPN-focused social media groups (47.6%), followed by emails (35.1%) and postcards (13.9%) sent by MPN groups, and other communication channels (4.6%). 779 patients (86.2%) opted to receive the incentive. CA, TX, and NY had the highest number of respondents (89, 65, and 51, respectively). Four states (DE, HI, MT, and VT) had no respondents. After adjusting for state population, 17 states had >25 patients per 10 million residents. CONCLUSIONS: Recruitment through patient groups and advocacy organizations using social media was an effective approach to conducting a geographically representative sample of patients with rare diseases.

RESEARCH ON METHODS – Statistical Methods

PM149

RECRUITMENT STRATEGIES AND GEOGRAPHIC REPRESENTATIVENESS FOR PATIENT SURVEYS IN RARE DISEASES
Yu J, Paranagama D, Pararasanam S

METHODS: To determine the impact of aggregated geospatial variables and correlations with the response increased, except for county, which showed the lowest correlations of all four granularities. CONCLUSIONS: When other sources of bias, such as methodological differences, are controlled for, the use of aggregate proxy data may overestimate the true relationship with a response variable, up to county level, which may be too large to be a valid proxy.

PM151 MATCHING-ADJUSTED INDIRECT COMPARISONS IN ANKYLOSING SPONDYLITIS, PSORIATIC-ARTHRITIS AND PSORIASIS: HOW DO THEY ALIGN WITH NICE DSU RECOMMENDATIONS?
Thom H1, Egli BM2, Gilloone F3, Hawkins N1

RESULTS: For the application of MAICs 1. The objective was to review MAICs in Ankylosing Spondylitis (AS) Psoriatic-Arthritis (PsA) and psoriasis in the context of these recommendations. METHODS: A systematic literature review (2010-2016) and a targeted search in congress proceedings in AS, PsA and the generating distribution. RESULTS: Known associations (such as more accurate estimates and effective sample size) ESS post matching were reported or whether evidence was considered that matched variables included effect modifiers or prognostic variables. RESULTS: 19 MAIC publications were identified: AS (4), PsA (7), psoriasis (8). All were published prior to NICE DSU and included only biologic treatments. Results of the assessment with developed checklist revealed that many publications failed to fully report all items recommended by NICE DSU. All MAICs (n=18) reported baseline variables used for matching. Only 11 reported the ESS and same number of MAICs did not report any measure of uncertainty. A large variability was observed among other criteria such as the rationale for selecting the matching variables, or evidence of imbalance pre matching. CONCLUSIONS: This review revealed gaps in AS, PsA and Psoriasis, and postcards showed low compliance to recent NICE DSU TSD recommendations. This research raises important issues to be addressed in each MAIC and can inform future MAC guidelines. 1Phillipps, D.M, Aledes, A.E., Dias, A., Falper, D., Abrams, K.R, Wheaton, N.J. NICE DSU Technical Support Document 18.Methods for population-adjusted indirect comparisons in submission to NICE.2016. Available from http://www.nicesuste.org.uk

PM153 IRT IN ACTION: A DEMONSTRATION OF THE EQUIVALENCE OF IRT-BASED SCORING WHEN USING ITEM SUBSETS
Houts CB, Wirth R

METHODS: Following the concurrent triangulation design, because the researcher cannot rely on adverse effects from being in the treatment group. RESULTS: Concordance in item response theory scoring was evaluated in the PRM149 sample. Item parameters were sampled from normal distributions centered at their true values and with standard deviations of 0.5, 1, and 2. Two analysis methods were used: parametric (N=1000) and non-parametric (N=1000). The results of the two methods were compared using metrics such as the root mean square error, reliability, and mean bias. CONCLUSIONS: Regardless of the content of items seen by individuals, up to presenting only items with content from a specific substantive subset of items, the statistical mechanics underlying IRT-based scoring provide for equivalent scores that accurately reflect true values.

PM165 STATISTICAL EFFICACY AND BIAS OF DIFFERENCE IN DIFFERENCE DESIGN VERSUS NON-EQUIVALENT CONTROL GROUP ANALYSIS METHODS
Wasser T

METHODS: Multiple analysis methods exist for various research designs. Testing the efficiency of these methods is important to prevent Type I and Type II errors from entering the data interpretation. The most important when non-randomized studies are used, such as the Non-equivalent Control Group (NECQ) design, because the researcher cannot rely on adverse effects from being equally distributed between groups. METHODS: Two simulated data sets N=900 were constructed to compare treatment effect for pre-posttest values. (Normal Distribution with mean=0, Standard Deviation=1 N(0,1)). Three groups were simulated for Treatment groups each (N=100,000) reflecting increasing treatment effects with N(0,1) at baseline, and N(0.5,1), N(1,1), and N(-1.5,1) for increasing treatment effect post test. Two analyses

V A L U E  I N  H E A L T H  2 0  ( 2 0 1 7 )  A 1 - A 3 8 3
methods for NEOQ were tested. 1. Standard Difference in Difference (DnD) statistics
- group t-tests on (Post-Pre) data. 2. Paired t-tests within groups and group t-test
- for post intervention. 3. G/P/PTT. Samples were extracted for 4. Random
difference between baseline mean values. For each of the three conditions 1,000
replications were performed. RESULTS: Statistical differences at Baseline were
present in 6% (approximately what would be expected under the null), of all
aggregated comparisons. When these samples from the simulation were extracted,
successful treatment effects by DnD were present in 12%, 30% and 46% of trials
whereas using G/P/PTT found significant treatment effects in 9%, 24% and 38% of the
N(0.5,1), N(1.0,1), and N(1.5,1) combinations respectively. CONCLUSIONS: Differ-
et results were found between identical samples depending on which statistical
method was used. It is unclear if the difference is due to selection bias, regression
artifacts (especially other bias). DnD analysis may over-estimate the effect of treatments
when baseline bias is present (Type I error), or G/P/PTT methods may underestimate
treatment effects (Type II error). Clearly in non-randomized studies baseline tests of equivalence need to be performed.

PRM154
USING LATENT CLASS ANALYSIS TO MODEL PREFERENCE HETEROGENEITY IN
HEALTH: A SYSTEMATIC REVIEW
Zhau M, Thayer WM, Bridges JF
Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA
OBJECTIVES: We sought to document the applications of LCA in the stated-
preference literature focusing on health and to inform future studies by identify-
ing current norms in published applications. METHODS: We conducted a sys-
tematic review of the MEDLINE, Embase, EconLit, Web of Science, and PsyCINFO databases. We included English-language stated-preference studies that used LCA to explore preference heterogeneity in healthcare or public health. Two reviewers independently reviewed 22,575 abstracts, abstracts were included if the study included segmentation methods, preference elicitation methods, number of attributes and levels, sample size, model selection criteria, number of classes reported, and hypotheses tests. Study data quality was assessed using the quality checklist. RESULTS: 78 met the inclusion criteria. 84% were published between 2011 and 2016. Preferences were assessed on a wide variety of topics. Most focused on the preference of patients (57%), the general population (23.9%), the health care provider (29.1%). 62.5% (N=10,151) combinations respectively. CONCLUSIONS: Different results were found between identical samples depending on which statistical method was used. It is unclear if the difference is due to selection bias, regression artifacts, or other bias. DnD analysis may over-estimate the effect of treatments when baseline bias is present (Type I error), or G/P/PTT methods may underestimate treatment effects (Type II error). Clearly in non-randomized studies baseline tests of equivalence need to be performed.

PRM155
SELECTING THE BEST PERFORMING METHODS TO CONTROL FOR BIAS IN
COMPARATIVE EFFECTIVENESS RESEARCH USING REAL WORLD DATA
Park D C, Alfonso R, Gutierrez B
USC, Los Angeles, CA, USA, GS, Caligville, PA, USA, GS, Chicago, IL, USA
OBJECTIVES: To assess the performance of existing methods to reduce confounding bias in Comparative Effectiveness Research using Real World Data. METHODS: Using two hypothetical interventions in simulated cohorts, with different sample sizes, (n=100, 500, 1000, 2000, 5000), we examined the effect of the estimation of the treatment effect, using: 1) Multivariate regression (MR), 2) propensity score matching (PSM), 3) propensity score stratification (PSST), 4) doubly robust estimation (DR), and 5) inverse probability treatment weighting with regression model (IPTW). RESULTS: For each model, we assessed the true positive rate for correctness of statistical significance and the root mean square error. Our results showed that if model is specified correctly and the sample size is large (>1000), the results of the models do show differences regardless of random noise levels. More specifically, if covariates are correlated with each other or with the interventions, MR does not perform well unless the sample size is large. For small sample sizes, IPTW is often the best performing model, even for misspecified post-treatment errors and regression coefficients estimated under low noise levels and larger sample sizes. DR does not perform well when model is corrected. DR does not show good performance even when both post-treatment errors and regression coefficients are misspecified. CONCLUSIONS: The selection of the method to control for bias in CER using RWD, should consider the specification of the models, sample size, and the correlation of the variables included. IPTW for small samples and biased methods like PSM should be used with care especially under high noise levels and small sample sizes.

PRM157
TWO-Stage PIECEWISE LINEAR MODEL FOR INVESTIGATING DOSE-RESPONSE
RELATIONSHIP IN META-ANALYSIS: METHODOLOGY, EXAMPLES, AND
COMPARISON
Chen X
Chinese Evidence-based medicine Center, Chengdu, China
OBJECTIVES: Dose-response meta-analysis (DRMA) is widely employed to establish potential dose-response relationship between exposure and disease out-
come. However, no method is readily available for exploiting relation between
discrete exposure and a binary or continuous outcome. METHODS: We proposed a piecewise linear (PL) DRMA model which provide a solution to this issue. We used patient-level data and simulated data to examine the relationship between discrete or continuous exposure with outcome. We also empirically compared PL model with nonlinear spline model. RESULTS: PL model fitted with our two real data sets; the two methods had close estimates. CONCLUSIONS: Piecewise linear function is a simple and valid method for DRMA and can be used for discrete exposure. It also represents an alternative to non-linear model DRMA.

PRM158
POPULATION-ADJUSTED TREATMENT COMPARISONS: ESTIMATES BASED ON
MAIC (MATCHING-ADJUSTED INDIRECT COMPARISONS) AND STC (SIMULATED
TREATMENT COMPARISONS)
University of Bristol, Bristol, UK, University of York, Heslington, York, UK, University of Leicester, Leicester, UK
OBJECTIVES: To review the properties and assumptions of methods for population-adjusted treatment comparison, including Matching-Adjusted Indirect Comparison (MAIC) and Simulated Treatment Comparison (STC), and to provide guidance on their use in health technology appraisal. METHODS: Standard methods for indirect comparisons used in network meta-analysis on aggregate data, with the key assumption that there is no difference between trials in the distribution of effect-modifying variables. Two methods which relax this assumption, MAIC and STC, are becoming increasingly common in industry- sponsored treatment comparisons, where a company has access to individual patient data (IPD) from its own trials but only aggregate information from competitor trials. Both methods use IPD to adjust for between-trial differences in covariate distributions. We review the properties of these methods in light of the wider literature on standardisation and calibration based on propensity score reweighting and covariate adjustment, which are the foundation for MAIC and STC respectively, and identify the key assumptions in the context of indirect comparisons. RESULTS: There is a lack of clarity about how and when the methods should be applied in practice, and both MAIC and STC as currently applied can only produce population-adjusted estimates that are valid for the populations in the competitor trials, rather than the target population for the decision. In addition, the fundamental distinction between “anchored” and “unanchored” forms of indirect comparison – where a common comparator arm is or is not utilized to control for between-trial differences in prognostic variables – is under-emphasised, with the unanchored comparison making assumptions that are feasibly strong. CONCLUSIONS: We provide recommendations on how and when population adjustment methods of this type should be used in practice, statistically valid, clinically meaningful, transparent and consistent results for any given target population, and set out the additional analyses that should be performed to support their use.

PRM159
MATCHING-ADJUSTED INDIRECT COMPARISONS TO ASSESS COMPARATIVE
EFFECTIVENESS: A SYSTEMATIC REVIEW OF APPLICATION IN SCIENTIFIC
LITERATURE AND HEALTH TECHNOLOGY APPRAISALS
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OBJECTIVES: In the absence of head-to-head studies, indirect comparisons are being recommended and widely used to estimate comparative effectiveness. Matching-Adjusted Indirect Comparison (MAIC) re-weights Individual Patient Data from one study to match the distribution of baseline characteristics of another, reducing heterogeneity due to observed trial differences compared with conventional meta-analytic methods. The objective of this study was to review the application of MAIC in the scientific literature and in Health Technology Assessments (HTA). METHODS: A systematic literature review was conducted using Ovid (Medline, Cochrance Library) and Embase (Embase, Medline) platforms from years 2010 through October 2016. In addition, assessment documents from key HTA bodies (England, Scotland, Canada and Australia) were reviewed. Publications from conferences where the authors of this study have been involved were also targeted for evidence. RESULTS: A total of 61 publications (manuscripts, posters or abstracts) reported the use of MAIC across different therapeutic areas: auto-immune and rheumatology(23), oncology(22), infectious diseases(7), neu-
rosciences(6), hematology(2), metabolic diseases(1), respiratory(1) and unspecified disease(1). An increasing trend in MAIC publications was observed as 29 publica-
tions were released alone in 2016, compared to 6 in 2010. Differences were observed in the methodologies used regarding how to control for variable matching between publications. The MAIC methodology was part of 21 HTA submissions with the first submission in 2012. Comments on MAICs were inconclusive across HTA analyses, with some recommending the use, others questioning them. This diversity in quality and acceptability is likely explained by unclear standards of application, reporting and interpretation of the MAIC analyses. CONCLUSIONS: The current study found that the use of MAIC has been increasing across different therapeutic areas, and so has its acceptability by HTA
bodies even though many MAICs have not been reported adequately. If applied, reported and interpreted correctly, MAIC can be a valid technique for comparative effectiveness research.

PFR160
AN OUTCOMES REGRESSION APPROACH FOR INDIRECT COMPARISONS OF SURVIVAL OUTCOMES WHEN STANDARD NETWORK META-ANALYSIS IS NOT FEASIBLE

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OBJECTIVES: In many cases the relevant evidence base of competing interventions cannot be reflected with one connected evidence network of randomized controlled trials (RCTs) to perform standard network meta-analysis. We present an outcomes regression approach for indirect comparisons regarding time-to-event outcomes when the evidence bases consist of disconnected RCTs and/or single-arm trials.

METHODS: This method requires access to individual patient data for at least one index intervention from which a set of bootstrap samples are produced for each arm which in turn allows all trials of relevance to be connected and to proceed with between-trial comparisons using standard network meta-analysis models.

RESULTS: The method is illustrated with an indirect comparison of interventions for advanced melanoma.

CONCLUSIONS: The proposed method uses cross-validation to ensure that the prediction of outcomes and indirect comparisons are performed on the same (transformed) scale, and uncertainty associated with estimation of the trials (RCTs) to perform standard network meta-analysis. We present an outcomes regression approach for indirect comparisons in the presence of disconnected networks.

PFR161
OPTIMIZING SYSTEMATIC LITERATURE REVIEWS FOR THE CONDUCT OF NETWORK META-ANALYSES: SUGGESTIONS FOR GOOD PRACTICES

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OBJECTIVES: Network meta-analysis (NMA) is recommended by most HTA guidelines to describe recent internship experiences and identify key facilitators for students. Their predictive performance is assessed based on the “out-of-bag” test. For each test, the data is available and not connected to other trials, a large number of hypothetical individuals are simulated based on the reported marginal distributions of the covariates of interest and their assumed correlation. For each of these populations the average log-hazards over time with the index intervention is predicted based on the reported marginal distributions of the individual. Missing data or data reported in graphs only are frequent and may lead to the exclusion of trials from NMA. Finally, SLRs generally capture disconnected networks. The study selection process generally lacks transparency due to NMA-specific exclusion criteria (e.g. non-availability of data in a format suitable for NMA), studies that are disconnected from the network due to the absence of comparators not relevant to the study question to connect the network of studies. The study selection process generally lacks transparency due to NMA-specific exclusion criteria (e.g. non-availability of data in a format suitable for NMA), studies that are disconnected from the network due to the absence of comparators not relevant to the study question to connect the network of studies.

RESULTS: Common challenges related to the definition of the study question include the specificity of the study population and the inclusion of comparators not relevant to the study question to connect the network of studies. The study selection process generally lacks transparency due to NMA-specific exclusion criteria (e.g. non-availability of data in a format suitable for NMA) or studies that are disconnected from the network due to the absence of comparators not relevant to the study question to connect the network of studies. A methodology based on clinical expert input, PIV-related complications were adequately reported across trials, and seven were reported adequately in less than 20% of trials. Less than 40% of the trials described the details on surgical interventions and management. Journal editors and trials investigators should consider more rigorous standards in the reporting of surgical trials.

CONCLUSIONS: The quality of reporting in surgical trials improved in the past decade. Overall quality, however, remains suboptimal, particularly in those important details regarding surgical interventions and management. Journal editors and trials investigators should consider more rigorous standards in the reporting of surgical trials.
Lacosamide was recently approved as monotherapy for adults with focal seizures. The European Union (EU) has already approved lacosamide in USA. Comparative data are needed to inform clinical decision-making. This network meta-analysis (NMA) compared lacosamide with other antiepileptic drugs (AEDs). METHODS: Rando-
mized, controlled trials of AED monotherapy in newly-diagnosed patients (aged > 16) were included. Data were extracted by 2 independent evaluators. NMA worked by obtaining relative estimates for efficacy (6 and 12-month seizure-freedom) and safety (discontinuations due to adverse events [AEs], serious treatment-emergent AEs) for all eligible AEDs (for the overall population and elderly subpopulation. Efficacy analyses used pooled data for immediate-release and controlled-release (CR) carbamazepine. RESULTS: Data from two trials evaluating ten AEs were analyzed. For 6-month seizure-freedom, lacosamide showed similar efficacy to the placebo, with OR of 1.09 (1.01-1.18) and levetiracetam (1.25 [0.77-1.91]), with numerically better efficacy versus other AEDs (lamotrigine: 1.39 [0.62-2.70]; zonisamide: 1.63 [0.98-2.52]; phenytoin: 1.92 [0.60-5.92]; valproate: 1.93 [1.06-3.53]) compared to lacosamide. Lacosamide showed similar efficacy to carbamazepine (1.20 [0.77-1.84]) and levetiracetam (1.20 [0.77-1.82]), with OR versus other AEDs ranging from 1.18 (levetir-
acetam) to 1.66 (lacosamide). Lacosamide tended towards numerical advantages versus lamotrigine (1.46 [0.80-2.65]), levetiracetam (1.40 [0.80-2.43]), and zonisamide (1.46 [0.80-2.52]); however, this was not robustly documented. Indications for discontinuations due to AEs (OR range: 0.48-0.74) and for risk of serious TEAs versus carbamazepine-CR and zonisamide (range: 0.78-0.90). Risk of serious DRAEs for lacosamide (0.38 [1.0.10-
90]; levetiracetam: 0.43 [0.04-0.99]). Subjective AEs showed similar CR vs CR and versus carbamazepine-CR. Similarely, elderly subpopulation analyses showed similarities between lacosamide and, levetiracetam, and zonisamide when compared to each other and versus carbamazepine-CR (with some numerical advantages) on seizure-freedom, and serious DRAEs. CONCLUSIONS: Numerical benefits versus other AEDs indicate lacosamide is a valuable addition to the armamentarium of focal seizure mono-
therapies. However, the available evidence was insufficient to demonstrate mean-
ingful differences between AEDs for efficacy outcomes, as reflected by the wide Credible Intervals. STUDY SUPPORT: UCB Pharma-sponsored.

ASSESSING TRENDS OF DEVELOPING STUDENT INTERESTS WITHIN THE ISPOR STUDENT NETWORK, 2011 TO 2016
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OBJECTIVES: Each year, the International Society of Pharmacoeconomic and Outcomes Research (ISPOR) Student Network conducts the “Student Interest Survey” to identify student member interests in the field. This study aims to evaluate changes in student interests. METHODS: Survey data was available for years from 2011 to 2016. Each year, the online survey was posted on ISPOR website and Sharepoint Page. Additionally, ISPOR members were invited to request for ISPOR members via the ISPOR Student Network and Student Chapter Presidents. To improve the response rate, incentives were offered. Responses were collected using a web-based software. RESULTS: The survey was distributed to approximately 900 student members each year. The response rate ranged from 18%-24% (total number 141-218 each year) during the study period. Most respondents lived in North America (mean±SD:57±12.24%) and were enrolled in a PhD program (mean±SD:2±2.9%). The interest in attending the next Annual International meeting averaged 51% over the years. The level of interest in the Student Research Showcase and Mock Interviews significantly increased over the past five years (51% in 2011-12 to 58% in 2015-16). Most students were interested in guest speakers from government/policy makers (mean±SD:57±6%), academia (mean±SD:77±6.4%), pharmaceutical industry (mean±SD:57±6.5%), and consulting (mean±SD:71±4.7%) at student forums and educational webinars. Submitting interest in research topics for student forums and educational webinars changed from general health outcomes information (91% in 2011) to specific HEOR areas such as economic evaluation, comparative effective-
ness, and patient-reported outcomes (80%, 82%, 70% respectively in 2016). Students preferred specific topics presented as case studies at educational workshops. CONCLUSIONS: As the field of health economics evolves, student interest area are becoming more specific. The trends of student interest over the past 5 years highlight avenues to enhance student engagement and knowledge.

MEASURING THE VALIDITY AND RELIABILITY OF VALUE ASSESSMENT FRAME-
WORKS FOR CANCER DRUGS: AN EVALUATION METHOD
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OBJECTIVES: The use of indirect comparison is becoming unavoidable as it is almost impossible to generate comparative head-to-
head data for all relevant interventions. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials. This study aimed at identifying the information needs of cancer patients, their preferences for the means of receiving health information, and the impact of head-to-head randomized clinical trials.

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OBJECTIVES: We aimed to develop a methodology for evaluating convergent validity and inter-rater reliability of value assessment frameworks. METHODS: Fram-
ement of divergent validity is the correlation among frameworks across frameworks, can be assessed using Kendall’s W coefficient. Framework reliability is evaluated using intraclass correlation coefficients (ICC), which measure the stability of outcomes across users. Drugs can be assessed by independent physician and non-physician evaluators, who can use published drug trial data and instructions provided by framework developers to assign each drug a numeric or letter score. Mean scores for drugs within predefined categories differ for each rank-order. W. Multiple scores for the same drug are compared using ICC. To evaluate stability of results, W and ICC are assessed with varying numbers of evaluators and frame-
works. The method was applied here by 8 evaluators, who assessed 15 oncology drugs and completed a survey on their experiences. RESULTS: Excluding review of drug trial data, each assessment took on average 25 minutes for ASCO, 21 for ICER, 14 for ESMO, and 8 for NCCN. Mean time to review each drug’s data was 20 minutes. Kendall’s W was 0.560 (p = 0.016, 95% CI: 0.33 to 0.990, p = 0.010) for drugs assessed in breast, lung, and prostate cancers, respectively. ICC (95% CI) for ASCO, ESMO, ICER, and NCCN were: 0.800 (0.660-0.913), 0.818 (0.866-0.921), 0.652 (0.466-0.834), and 0.153 (0.004-0.371), respectively. Evaluators considered framework-
requirements is also crucial, considering the ever-changing dynamics of priorities of such information desires.

**PRM170**

**BARRIERS AND SOLUTIONS FOR REAL-WORLD CHART REVIEW EVIDENCE GENERATION**

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**OBJECTIVES:** The growing importance of real-world evidence (RWE) has resulted in the need to generate and evaluate more data under tighter timelines. We aim to describe challenges and propose solutions in conducting retrospective chart review studies to evaluate treatment patterns, clinical outcomes and healthcare resource use.

**METHODS:** Qualitative assessment of the implementation of 3 chart review studies (1 in Europe; 2 in North America) in the last 2 years, and the identification of barriers to conducting such studies.

**RESULTS:** Studies were evaluated based on patient selection procedures, robustness of data collection and timelines to collect data. **RESULTS:**: The studies were in gastroenterology, oncology and respiratory disease therapeutic areas. Study scope ranged from 220-340 patients and 8-27 sites. Barriers included patient consent requirement in the EU, electronic medical record (EMR) data accessibility and data collection duration. Consent rate for the EU study was 71%. Over 75% of sites used an EMR to abstract data, and data collection ranged from 12-18 months longer than anticipated. Potential solutions identified include: 1) working with EU ethics committees to better understand patient privacy and data protection requirements for chart review studies; 2) working with site technology departments to set-up EMR data extraction (i.e., reducing manual chart abstractions thereby reducing data collection duration) and 3) providing supportive tools for data collection and automated analytics without breaching patient confidentiality. **CONCLUSIONS:** Understanding the key challenges associated with study design and execution as well as leveraging technological innovations resulting in cost and timeline efficiencies is paramount. Since most sites are using EMR systems and patient-level data abstraction is time consuming, implementing literature reviews (SLRs) of using directly from site EMR systems is warranted to generate RWE more efficiently.

**PRM171**

**IMPORTANCE OF CLINICAL OUTCOME ASSESSMENT (COA) DATA IN THE EVALUATION OF MEDICINES FOR THE TREATMENT OF RESTLESS LEGS SYNDROME (RLS): A REVIEW OF THE LABELS OF MEDICINES APPROVED BY THE FDA AND THE EMA**

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**OBJECTIVES:** Restless legs syndrome (RLS) is a neurologic sensory disorder characterized by an irresistible urge to move the legs when they are at rest. The urge to move is usually due to unpleasant feelings in the legs. Treatment includes lifestyle changes and use of medicines. The objectives of this study were 1) to identify the medicines approved for the treatment of RLS by the Food and Drug Administration (FDA) and the European Medicines Agency (EMA); 2) to find out about the use of clinical outcome assessments (COAs) in the approval process; 3) to identify the COAs endpoint positioning; **METHODS:** The FDA and EMA websites were explored to identify all medicines approved for RLS. The PRISMA database, through the ePROVIDE platform, was used for labeling claim identification. The study compared endpoints and review non-unioning.

**RESULTS:** The agencies approved nine products with RLS indication (representing four INN, i.e., gabapentin, pramipexole, rotigotine, ropinirole); four products were approved by the FDA, and five by the EMA, including one generic of pramipexole. For the products approved by both agencies (n=2), the sponsors submitted the same data for approval. All products were evaluated using the same PRO measure, i.e., the International Restless Legs Syndrome Study Group Rating Scale (IRLS). Assessing safety severity. All had similar claim, i.e., improvement in baseline IRLS score. The mean change from baseline in IRLS was a co-primary efficacy endpoint. The other COA used to develop a co-primary efficacy endpoint was a Clinical Global Impression scale of Improvement (CGI-I) or a Clinical Global Impression scale of Severity. **CONCLUSIONS:** The patient's perspective is of paramount importance in the evaluation of medicines approved for RLS. The clinician input is also considered as a valuable endpoint since all evaluations were based on the use of co-primary PRO/ClinRO.

**PRM172**

**SYSTEMATIC LITERATURE REVIEWS IN RARE DISEASES: CONSIDERATIONS, ISSUES AND RECOMMENDATIONS WHEN FACED WITH AN IMPERFECT EVIDENCE BASE**

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**OBJECTIVES:** Systematic literature reviews of real world evidence (RWE) are often conducted to summarize evidence on treatment patterns, natural history, and the epidemiological, humanistic and economic burden of illness. When the disease of interest is rare, the evidence can be difficult to find, and conventional approaches to SLR conduct may need to be adapted. Our objectives were to: 1) highlight key differences in SLR conduct between those focusing on RWE in rare diseases versus common diseases; and 2) present a conceptual framework outlining pertinent considerations and recommendations for researchers designing and carrying out SLRs of RWE in rare diseases.

**METHODS:** We conducted a targeted review of SLRs in rare diseases that used RWE, as well as of methodological guidance on SLRs. We used this literature base to develop and synthesize key considerations and recommendations for researchers designing and carrying out SLRs of RWE in rare diseases.

**RESULTS:** We conducted a targeted review of SLRs in rare diseases that used RWE, as well as of methodological guidance on SLRs. We used this literature base to develop and synthesize key considerations and recommendations for researchers designing and carrying out SLRs of RWE in rare diseases. **METHODS:** We conducted a targeted review of SLRs in rare diseases that used RWE, as well as of methodological guidance on SLRs. We used this literature base to develop and synthesize key considerations and recommendations for researchers designing and carrying out SLRs of RWE in rare diseases. **RESULTS:** We conducted a targeted review of SLRs in rare diseases that used RWE, as well as of methodological guidance on SLRs. We used this literature base to develop and synthesize key considerations and recommendations for researchers designing and carrying out SLRs of RWE in rare diseases.
BACKGROUND: Predicting disease progression or adverse health outcomes can be accomplished using real-world observational data. Information collected routinely while providing patient care enables the development of risk models that identify patients with increased likelihood of disease or poor treatment outcomes. Such predictive models can improve patient care, particularly in populations prone to such outcomes (e.g. type 2 gestational diabetes mellitus, asthma, mental disorders). Here we describe the process of developing risk models, along with selected successful examples. METHODS: Large nationally representative EMR, oncology, and behavioral health datasets were used to develop risk models. Results: Risk models successfully predicted primary and secondary medication non-adherence and non-persistence in diabetic patients, with index medication type, history of non-adherence to other chronic medication, and Charlson Comorbidity Index as key drivers. Conclusions: Our models demonstrated excellent predictive performance, as measured using internal validation. Modeling of these data demonstrated that the ability to stratify patients into risk groups can improve patient care, particularly in populations prone to such outcomes. Such analytics can help both providers and payers achieve effective disease management goals.

PM178

IMPROVING DISEASE MANAGEMENT THROUGH INSIGHTS GAINED FROM REAL-WORLD OBSERVATIONAL DATA

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OBJECTIVES: To discuss the application, value and key considerations for implementing qualitative (exit) interviews in clinical research trials. Value, implementation and key considerations

Cater A, Marshall C, Grant L, Wells J

Background: As the healthcare industry becomes more patient-centric, ensuring the patient voice is heard throughout the product life cycle is critical. Patient-reported outcome (PRO) measures provide a healthcare-focused means of evaluating and monitoring the efficacy and safety of products and services from a patient perspective. However, conducting qualitative interviews as part of clinical research studies provides unique opportunities for in-depth exploration of patient experiences and perspectives. Results: To date, few clinical trials provide data to support patient focus of qualitative (exit) interviews in clinical research with reference to illustrative examples from a range of disease areas. Results: When implemented in clinical studies alongside PRO assessments, rich data from interviews can be used to contextualize PRO data and provide supplementary insights as part of a mixed-methods approach.

REFERENCE:

Cater A, Marshall C, Grant L, Wells J

A1—A383
methods approach to evaluating the benefit of medical interventions. Such inter-
views can also capture concepts that are not adequately measured by available PRO measures. The use of PROs in clinical trials to assess the treatment effect is directly related to the ability to capture reliably using a PRO (e.g., benefit-risk evaluations). When employed in early clinical studies, interviews may also help to generate evidence to evaluate content validity of PRO measures prior to their implementation in pivotal studies. Qualitative exploration of the significance of changes experienced by patients can be used to complement quantitative data and help to establish valid responder definitions and interpretation of meaningful change. Finally, feedback during these interviews could inform decision-making in the context of trial design. Key concepts derived from the elicitation of patient priorities could be used to develop and refine PROs for future use. In the oncology setting, health services researchers often utilize claims-based algorithms to identify complex chemotherapy regimens and lines of therapy. The Center for Medical Technology Policy (CMTP) and Green Park Collaborative (GPC, a CMTP program) developed a framework for decision makers more confidently and consistently to assess RWE for their unique decision making needs. Methods: The project was entitled: 1) Stakeholder and Literature Review, 2) Scoping and Framework Development, 3) Vetting of Draft Framework and In-Person Meeting, and 4) Incorporation of Key Findings and Final Framework. Key stakeholders engaged were post-regulatory decision makers, claims analysts, data experts, health technology assessment groups, and accountable care organizations. Patient advo-
cates, industry stakeholders (who were sponsors), and academic researchers were also engaged. Results: The Framework establishes Rigor and Relevance as the two primary properties with which to judge the appropriateness of any PRO-based decision. The PRO-based decision framework is presented as an Excel tool, composed of a series of modules: Module 1: Articulating the Research Question, Module 2A: Assessing the Relevance of each RWE study, Module 2B: Assessing the Rigor of each RWE study, Module 2C: Magnitude and Direction of Effect, Module 3: RWE Framework Visual Summary. Conclusions: The GPC RWE Framework offers a manageable approach for decision-makers who currently lack a systematic approach to assessing RWE for decision-making, or who otherwise have limited training, staff, or time dedicated to the regular assessment of research evidence for decision-making.

PRM181
DEFINING MULTI-AGENT CHEMOTHERAPY REGIMENS USING CLAIMS DATA: AN \ndo analysis is: is there a role for data visualization?

PREVIA ET AL. 
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Introduction: The oncology setting, health services researchers often utilize claims-based algorithms to identify complex chemotherapy regimens and lines of therapy. The Center for Medical Technology Policy (CMTP) and Green Park Collaborative (GPC, a CMTP program) developed a framework for decision makers more confidently and consistently to assess RWE for their unique decision making needs. Methods: The project was entitled: 1) Stakeholder and Literature Review, 2) Scoping and Framework Development, 3) Vetting of Draft Framework and In-Person Meeting, and 4) Incorporation of Key Findings and Final Framework. Key stakeholders engaged were post-regulatory decision makers, claims analysts, data experts, health technology assessment groups, and accountable care organizations. Patient advo-
cates, industry stakeholders (who were sponsors), and academic researchers were also engaged. Results: The Framework establishes Rigor and Relevance as the two primary properties with which to judge the appropriateness of any PRO-based decision. The PRO-based decision framework is presented as an Excel tool, composed of a series of modules: Module 1: Articulating the Research Question, Module 2A: Assessing the Relevance of each RWE study, Module 2B: Assessing the Rigor of each RWE study, Module 2C: Magnitude and Direction of Effect, Module 3: RWE Framework Visual Summary. Conclusions: The GPC RWE Framework offers a manageable approach for decision-makers who currently lack a systematic approach to assessing RWE for decision-making, or who otherwise have limited training, staff, or time dedicated to the regular assessment of research evidence for decision-making.

PRM184
A POTENTIAL SOLUTION MAKING EXPENSIVE TECHNOLOGIES AFFORDABLE UNDER BUDGET CONSTRAINTS IN UNIVERSAL HEALTH COVERAGE: CASE STUDY FOR JAPAN USING DIFFERENTIAL PRICING

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OBJECTIVES: Despite the introduction of a two-year pilot policy in government for value-based re-pricing in Japan, still no chart exist on affordability of expensive technologies and sustainability of the universal health coverage (UHC). To address this fundamental question, we aimed to seek a potential solution using differential pricing (DP) for the National Formulary list. METHODS: A theory is developed based on cyclic bipolar-state modeling with investment and divestment, in which cost increase by investments for new technologies is cancelled out by cost decrease by disinvestments using DP. Since the Japanese national list prices are applied to the whole country without any differentiation, cost-saving could not achieved if the government decisions are based on list prices from regional perspective instead of applying the same price to the whole country. Our approach formulated this hypothetical DP application. RESULTS: Suppose two statistical distributions by recording 1) socio-economic factors 2) and health status 3). Then, four-step procedures were taken as follows: 1) Determine the weight wi by region in consideration of ranking the product, 2) Determine the prices by region, multiplying the weight wi to the mean list price Pm, 3) Estimate the overall mean price at this local level based on the list prices estimated at Step 2, and finally, 4) Estimate the net cost-saving by subtracting the overall mean price obtained at Step 3 from the original mean list price Pm. Eventually the net cost-saving was simply formulated in the form of Pm x (1-a)
expensive technologies can work in theory to ensure an affordable budget space to maintain sustainability of the OHC system in Japan.

PRM186 EMBEDDING A VALUE FOCUS EARLY IN THE MEDICAL TECHNOLOGY INNOVATION PROCESS: INSIGHTS FROM 5 YEARS OF EXPERIENCE AT THE STANFORD BIOSIDNEON PROGRAM

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OBJECTIVES: The adoption of new medical technology is increasingly based on thorough assessment and demonstration of a health-economic value proposition. Innovators need to appreciate economic and clinical effectiveness data requirements early in the translational process to develop solutions that are not only clinically relevant, but also compelling from a health-economic value perspective. We report on our approach and experience in embedding value in postgraduate innovation fellowship program. METHODS: The Stanford Biosidneon fellowship is an immersive, one-year full time fellowship that brings together postgraduate candidates from medicine, engineering, and business. Over the last 15 years, the teaching development which informed curriculum, content, and mentorship has been refined and comprehensively documented, and is now replicated in numerous innovation programs worldwide. Over the last five years, we have inserted a value component into the HE study design. It is a cost-effective technical or opportunity analysis—project cost-effectiveness analysis and cost-effectiveness analysis and applying them systematically to the Biosidneon innovation process. RESULTS: We developed a value curriculum structured in 3 phases: Value exploration, Value estimation, and Value proposition. These value phases align with the three main phases of the Biosidneon teaching process. Value exploration provides introduction and high-level guidance on identifying value drivers in clinical need areas. Value estimation supports decision making as various solution concepts are being assessed. The third phase, Value proposition, provides fellows with the tools for evidence collection and definition of a rigorous value proposal. CONCLUSIONS: We describe a curriculum designed to teach innovators a systematic and expirience health-economic value drivers. The implementation framework, with illustrative examples, for device biAs. The literature review demonstrated substantially less reports on hospital biAs for devices compared with drugs. Of device biAs, the third phase, Value proposition, provides fellows with the tools for evidence collection and definition of a rigorous value proposition.

PRM187 BEST PRACTICES FOR IMPROVED DESIGN AND EXECUTION OF ‘PIGGBACK’ HEALTH ECONOMIC STUDIES


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Health economic (HE) studies comprise a variety of analytic approaches and utilize disparate data sources. Study objectives can range from determining the economic burden of a particular disease to evaluating the budgetary impact of a novel therapy. Data can be derived from payer databases, vendor or registry sources, yet has been refined and comprehensively documented, and is now replicated in numerous innovation programs worldwide. Over the last five years, we have inserted a value component into the HE study design. It is a cost-effective technical or opportunity analysis—project cost-effectiveness analysis and cost-effectiveness analysis and applying them systematically to the Biosidneon innovation process. RESULTS: We developed a value curriculum structured in 3 phases: Value exploration, Value estimation, and Value proposition. These value phases align with the three main phases of the Biosidneon teaching process. Value exploration provides introduction and high-level guidance on identifying value drivers in clinical need areas. Value estimation supports decision making as various solution concepts are being assessed. The third phase, Value proposition, provides fellows with the tools for evidence collection and definition of a rigorous value proposal. CONCLUSIONS: We describe a curriculum designed to teach innovators a systematic and expirience health-economic value drivers. The implementation framework, with illustrative examples, for device biAs. The literature review demonstrated substantially less reports on hospital biAs for devices compared with drugs. Of device biAs, the third phase, Value proposition, provides fellows with the tools for evidence collection and definition of a rigorous value proposition.

PRM190 ADDRESSING ECONOMIC EVALUATION NEEDS OF HOSPITAL DECISION-MAKERS IN THE UNITED STATES: A LITERATURE REVIEW AND RECOMMENDED FRAMEWORK FOR MEDICAL DEVICE BUDGET IMPACT MODELS

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Healthcare reform is increasing demand economic value of hospital products. The economic evaluation of drugs is established practice with support of comprehensive methodological guidance, however the equivalent for medical devices is less developed. Traditional cost-effectiveness analyses are sometimes not applicable for devices due to limitations on endpoints such as health utility or mortality. A budget impact analysis (bia) is a practical tool to assess the economic impact of many medical devices, but the frequency and methodology of such use has not been explicitly characterized. Our aim was to review how economic evaluations are currently conducted from the hospital perspective, and to provide a framework, with illustrative examples, for device biAs. The literature review demonstrated substantially less reports on hospital biAs for devices compared with drugs. Of device biAs, the third phase, Value proposition, provides fellows with the tools for evidence collection and definition of a rigorous value proposition.

PRM191 AN APPROACH TO PHYSICIAN RECRUITMENT FOR EVIDENCE BASED STUDIES IN THE HOSPITAL SETTING

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Developing and implementing evidence-based studies in the preoperative setting, while vital to quality care, can be a real challenge. Not only do you need the institution’s approval but you also need to recruit the surgeons, train the staff and develop programs the staff can use to communicate with and educate the surgical patients. And especially for multi-year studies, it is critical to have an internal endpoints and data collection, data base management and encouraging patient compliance. Based on the design and conduct of Valley Health’s actual immunonutrition study, this presentation will conceptualize a study design, an education model for staff and patients, as well as data selection, management, and analysis. Optimizing a preoperative nutritional intervention requires a multidisciplinary strategy specifically aimed to improve patient compliance. Therefore, building upon this example, the presentation will enumerate important data elements and design considerations for those who want to implement an evidence based approach to preoperative immunonutrition therapy.
PHS1
CROSS-SECTIONAL ANALYSIS OF CYSTIC FIBROSIS RELATED DIABETES INPATIENT ADMISSIONS IN THE UNITED STATES
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OBJECTIVES: An accurate diagnosis is critical for determining prognosis and treatment options for patients with PTCL. However, the accurate diagnosis of PTCL remains challenging. Previous analyses have reported variable revision rates as high as 24%. However, the rate of revision among PTCL cases has not been characterized utilizing a large US claims database.

METHODS: A retrospective analysis of the 2010 to 2012 National Inpatient Sample (NIS). Diabetes-related hospitalization was defined by discharge records with principal or secondary diagnosis of Diabetes (250.xx). Hospitalization discharge status was dichotomized as routine discharge and non-routine discharge in continuity with previous studies. PLE was identified using diagnosis codes and was classified (“severe” v.s. “less severe”) by combination of established severity algorithm, procedure codes and DRG. Descriptive statistics and Chi-square test were used to examine the unadjusted association between PLE and diabetes-related hospitalization discharge status. Multivariate logistic regression was employed to examine the adjusted association between PLE and diabetes-related hospitalization controlling other covariates. Additional clinical data was used to confirm the diagnosis.

RESULTS: Chi-square test showed that 47.7% of the hospitalized diabetes patients with severe PLE had non-routine discharges; while 28.5% of the hospitalized diabetes patients without PLE had non-routine discharges (p<0.0001). Controlling for age, sex, race, household income, primary payer, and comorbidities, diabetes patients with severe PLE had a 49.4% increase in the odds of having a non-routine discharge compared to those without PLE (OR=1.494, 95% CI: 1.465 – 1.522). The odds ratio was 1.221 for diabetes patients with less severe PLE to have non-routine discharge compared to those without PLE (95% CI: 1.204 – 1.239). CONCLUSIONS: Severe PLE was associated with increased likelihood of having non-routine discharges for diabetes-related hospitalization. The results add new evidence for subsequent health care utilization after discharge. Optimal diabetes disease management programs should be designed and implemented to reduce the incidence and prevalence of diabetes complications including PLE.
PHS4 PATIENT CHARACTERISTICS AND HEALTH OUTCOMES IN CHILDREN DIAGNOSED WITH MARFAN SYNDROME IN THE UNITED STATES

Gordon BD,1 Noone JM,2 Zacherle EF,1 Whitmer SM,1 Clark LA,1 Howden R,1 Blanchette CM,2

OBJECTIVES: Marfan syndrome is a rare systemic connective tissue disorder caused by mutations in the gene encoding fibrillin-1, which can contribute to serious cardiovascular (CV) and pulmonary related complications. While signs and symptoms may not appear until adulthood, some patients experience disease complications much earlier in life. Therefore, the purpose of this study was to evaluate the burden of CV and pulmonary related manifestations in children diagnosed with Marfan syndrome. METHODS: We used data from the 2012 Kids National Heart, Lung, and Blood Institute Multicenter Marfan Syndrome Study to estimate the mean change in depression score among the intervention group. Consumers with mild or greater symptom severity had a higher presence of comorbidities and greater hospital charges caused by mutations in the gene encoding fibrillin-1, which can contribute to serious cardiovascular (CV) and pulmonary related complications. While signs and symptoms may not appear until adulthood, some patients experience disease complications much earlier in life. Therefore, the purpose of this study was to evaluate the burden of CV and pulmonary related manifestations in children diagnosed with Marfan syndrome. RESULTS: Mean depression score among Marfan syndrome patients was 16.44 ± 6.56. The myStrength estimated effect size was 0.49 ± 0.03. CONCLUSIONS: Among a commercially insured, adult population with some degree of depression, myStrength was shown to be at least 61% as effective as traditional psychosocial interventions, and may benefit from expanding behavioral healthcare offerings to include digital platforms.

PHS5 THE USE OF E-HEALTH TO IMPROVE MEDICATION ADHERENCE AMONG PATIENTS WITH ASTHMA: A SYSTEMATIC REVIEW AND META-ANALYSIS

Jenniowa BN1, Qian J1, Hansen RA1, Garza KB1, Fox B1

OBJECTIVES: To systematically review the effectiveness of e-health (use of information and communications technology for health) in improving adherence to inhaled corticosteroids (ICS) among patients with persistent asthma, as well as the satisfaction of patients undergoing e-health interventions. METHODS: Literature searches were conducted in PubMed, CINAHL, Academic Search Premier, PsycINFO, and the International Pharmaceutical Abstracts databases in October 2015. RESULTS: Eighty records were identified after duplicates were removed. Of these, 15 trials including 13,907 participants were eligible for qualitative synthesis. Subsets of e-health trials included - social media (1), electronic health record (1), telehealth (6), and mHealth (7). Only 6 out of 15 trials provided clinical inertia in the management of type-2 diabetes mellitus in Colombia - 2015. METHODS: A cross-sectional retrospective study with follow-up was conducted in 23 cities in diabetic patients who had been treated for at least one year and were receiving insulin, oral antidiabetic treatment, or both. Only those patients with haemoglobin A1c levels were established when haemoglobin A1c levels were <7% in general population and <8% in special situations. When clinical inertia was reached, which was defined as no therapeutic modifications despite not achieving management controls. Socio-demographic, clinical, and pharmaceutical variables between June 2014 and December 2015. Clinical inertia of blood pressure control (<140/90 mmHg, metabolic (HBAIC >7.5%), weight control (BMI >30) and lipid (LDL >100 mg/dl) were established. RESULTS: The average age was 58.3 years and 66.5% female. In 18 months of follow-up and independent of the number of medical controls and activities of risk management program, between 73% and 80% of patients achieved good blood pressure control; 47% and 36.7% achieved good metabolic control; 54% had good weight control; and 68% achieved good lipid control. CONCLUSIONS: The results in the clinical goals suggest a positive impact on the cardiovascular risk of patients under program care. Less effective was shown for weight control and metabolic control suggesting that new approaches should be undertaken to improve the results of the program.

PHS6 ESTIMATING THE EFFECT SIZE FOR CHANGES IN DEPRESSION AMONG COMMERCIALLY-INSURED ADULTS USING THE MYSTRENGTH SELF-CARE PLATFORM

Schlachter KE, Rivera S, Hirsch A

OBJECTIVES: To evaluate the effectiveness of managing depression on a population level, a digital self-care behavioral health and wellness platform. An effect size model was developed to compare the impact of myStrenght on depression symptom burden reduction relative to the effectiveness of psychotherapy, the standard of care. METHODS: This study quantified the normalized effect size achieved for 1,143 commercially-insured adults using myStrenght’s self-help tools, who initially demonstrated some depression, the intervention group. The DASS-21 measured self-reported baseline symptom severity and adherence to intervention group. CONCLUSIONS: Adherence with mild or moderate depression severity were included in the analysis and were prompted to complete assessments at 14, 60, 180 and 365 days post-baseline. The difference between baseline and YTD last assessment quantified the change in depression symptom severity score. The effect size was estimated as the mean change in depression score divided by the average difference in standard deviation from baseline to last assessment. The comparator group, psychotherapy, was assumed to have an effect size of between 0.5 - 0.8 based on the literature. RESULTS: Of the 1,143 myStrenght consumers with some baseline level of depression, 78% were female and the mean age was 45.70 years. On average, myStrenght consumers accessed the program 62.75 times in their first year. The mean depression score was 21.50 among myStrenght consumers at baseline (median = 20; standard deviation = 9.41). At last assessment, the mean depression score decreased to 16.10, demonstrating symptom burden reduction among the intervention group (median = 14; standard deviation = 11.84). The myStrenght estimated effect size was 0.49 ± 0.03. CONCLUSIONS: Among a commercially-insured, adult population with some degree of depression, myStrength was shown to be at least 61% as effective as traditional psychosocial interventions, and may benefit from expanding behavioral healthcare offerings to include digital platforms.

PHS7 ACHIEVEMENT OF CLINICAL GOALS OF A CARDIOVASCULAR RISK MANAGEMENT PROGRAM FROM A COLOMBIAN POOR POPULATION: A CROSS-SECTIONAL STUDY

Paz Wilches J1, Miranda Machado P2, Salcedo Mejia F2, De la Hoz Restrepo F2, Alvis Guzman N3

OBJECTIVES: “De Todo Corazón” (DTC) is a risk management program with the aim of reducing complications and improving the quality of life of patients with cardiovascular risks. The aim of this study was to evaluate the clinical goals of blood pressure control, metabolic control, weight control and lipid profile in patients care. METHODS: We started follow-up of a cohort of 64,668 patients with hypertension and/or diabetes mellitus between June 2014 and December 2015. Clinical inertia of blood pressure control (<140/90 mmHg, metabolic (HBAIC >7.5%), weight control (BMI >30) and lipid (LDL >100 mg/dl) were established. RESULTS: The average age was 58.3 years and 66.5% female. In 18 months of follow-up and independent of the number of medical controls and activities of risk management program, between 73% and 80% of patients achieved good blood pressure control; 47% and 36.7% achieved good metabolic control; 54% had good weight control; and 68% achieved good lipid control. CONCLUSIONS: The results in the clinical goals suggest a positive impact on the cardiovascular risk of patients under program care. Less effective was shown for weight control and metabolic control suggesting that new approaches should be undertaken to improve the results of the program.
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PHS10

RISK OF THE FIRST STROKE EVENT IN A CARDIOVASCULAR HEALTH PROMOTION PROGRAM OF A DEVELOPING COUNTRY “DE TODO CORAZON”, A COHORT STUDY

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1AIZK Foundation. Universidad de Cartagena., Cartagena de Indias, Colombia. 2Mutual Ser EPS, Cartagena, Colombia, 3Universidad Nacional de Colombia, Bogotá, Colombia

OBJECTIVES: “De Todo Corazón” (DTC) is a risk management program with the aim of reducing complications and improving the quality of life of patients with cardiovascular risks. The aim of this study was to compare the risk of the first acute heart failure event in patients under program care. METHODS: We started follow-up of a cohort of 47,894 patients with hypertension and/or diabetes mellitus without previous history of cardiovascular events between June 2014 and December 2015. First event were considered to be first admissions due to acute heart failure. Incidence is reported by 100 person years follow-up. Kaplan-Meier curves were used to evaluate time to the first acute heart failure event. Differences between survival curves were compared using Log-Rank test. Multivariate Cox proportional-hazards models were used to evaluate the risk for first acute heart failure event, on the basis of any potentially significant predictor. RESULTS: The average age was 62.8 ± 12.6 years and 70.1% female. Mean follow-up time was 11.6 ± 6.1 months. The proportion of hypertensive, diabetes mellitus and hyperlipidemia was 97.1%, 41.3% and 89.2%, respectively. The average age was 62.8 ± 12.2 years and 67.6% female. At 18 months follow-up, the incidence of first acute heart failure event was 1.3% events per 100 person-years. At 18 months follow-up, the incidence of first acute heart failure event was higher in male compared with women (221 vs. 205 events; p < 0.001, Log-Rank test). Age (HR 1.02; 95% IC 1.01-1.03), male gender (HR 1.73; 95% IC 1.17-2.54), blood pressure non-control (HR 1.47; 95% IC 1.30-1.65) were significantly associated with the incidence of first stroke event. CONCLUSIONS: The incidence of the first myocardial infarction event was significantly higher in patients with blood pressure non-control and metabolic non-control.

PHS11

RISK OF THE FIRST CARDIOVASCULAR EVENT IN A CARDIOVASCULAR HEALTH PROMOTION PROGRAM OF A DEVELOPING COUNTRY “DE TODO CORAZON”. A COHORT STUDY

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OBJECTIVES: De Todo Corazón (DTC) is a risk management program with the aim of reducing complications and improving the quality of life of patients with cardiovascular risks. The aim of this study was to compare the risk of the first acute heart failure event in patients under program care. METHODS: We started follow-up of a cohort of 47,894 patients with hypertension and/or diabetes mellitus without previous history of cardiovascular events between June 2014 and December 2015. First event were considered to be first admissions due to acute heart failure. Incidence is reported by 100 person years follow-up. Kaplan-Meier curves were used to evaluate time to the first acute heart failure event. Differences between survival curves were compared using Log-Rank test. Multivariate Cox proportional-hazards models were used to evaluate the risk for first acute heart failure event, on the basis of any potentially significant predictor. RESULTS: The average age was 62.8 ± 12.2 years and 67.6% female. Mean follow-up time was 11.6 ± 6.1 months. The proportion of hypertensive, diabetes mellitus and hyperlipidemia was 97.1%, 41.3% and 89.2%, respectively. The average age was 62.8 ± 12.2 years and 67.6% female. At 18 months follow-up, the incidence of first acute heart failure event was 1.3% events per 100 person-years. At 18 months follow-up, the incidence of first acute heart failure event was higher in male compared with women (221 vs. 205 events; p < 0.001, Log-Rank test). Age (HR 1.02; 95% IC 1.01-1.03), male gender (HR 1.73; 95% IC 1.17-2.54), blood pressure non-control (HR 1.47; 95% IC 1.30-1.65) were significantly associated with the incidence of first stroke event. CONCLUSIONS: The incidence of the first stroke event was significantly higher in patients with blood pressure non-control and metabolic non-control.

PHS12

RISK OF THE FIRST ACUTE HEART FAILURE EVENT IN A CARDIOVASCULAR HEALTH PROMOTION PROGRAM OF A DEVELOPING COUNTRY “DE TODO CORAZON”, A COHORT STUDY

Miranda Machado P1, Salcedo Mejia F3, Paz Wilches J1, De la Hoz Restrepo F1, Alvis Guzman N2

1AIZK Foundation. Universidad de Cartagena., Cartagena de Indias, Colombia. 2Mutual Ser EPS, Cartagena, Colombia, 3Universidad Nacional de Colombia, Bogotá, Colombia

OBJECTIVES: “De Todo Corazón” (DTC) is a risk management program with the aim of reducing complications and improving the quality of life of patients with cardiovascular risks. The aim of this study was to compare the risk of the first acute heart failure event in patients under program care. METHODS: We started follow-up of a cohort of 47,894 patients with hypertension and/or diabetes mellitus without previous history of cardiovascular events between June 2014 and December 2015. First event were considered to be first admissions due to acute heart failure. Incidence is reported by 100 person years follow-up. Kaplan-Meier curves were used to evaluate time to a first acute heart failure event. Differences between survival curves were compared using Log-Rank test. Multivariate Cox proportional-hazards models were used to evaluate the risk for first acute heart failure event, on the basis of any potentially significant predictor. RESULTS: The average age was 62.8 ± 12.2 years and 67.6% female. Mean follow-up time was 11.6 ± 6.1 months. The proportion of hypertensive, diabetes mellitus and hyperlipidemia was 97.1%, 41.3% and 89.2%, respectively. The average age was 62.8 ± 12.2 years and 67.6% female. At 18 months follow-up, the incidence of first acute heart failure event was 1.3% events per 100 person-years. At 18 months follow-up, the incidence of first acute heart failure event was higher in male compared with women (221 vs. 205 events; p < 0.001, Log-Rank test). Age (HR 1.02; 95% IC 1.01-1.03), male gender (HR 1.73; 95% IC 1.17-2.54), blood pressure non-control (HR 1.47; 95% IC 1.30-1.65) were significantly associated with the incidence of first acute heart failure event. CONCLUSIONS: The incidence of the first stroke event was significantly higher in patients with blood pressure non-control and metabolic non-control.
Post-linear decomposition analyses revealed that 41.7% to 65.5% of the differences in expenditures can be explained by the differences in the need factors of the two study groups, including comorbid depression, poor health status, pain, and other chronic conditions. CONCLUSIONS: Among adults with arthritis, the excess healthcare expenditures associated with coexisting AD were mainly contributed by the need factors. A collaborative care model which provides obesity interventions for both physical and mental conditions may potentially reduce the excessive expenditures.

**PHS15**

**EPIDEMIOLOGY OF POSTPARTUM DEPRESSION IN A MEDICAID POPULATION—A RETROSPECTIVE STUDY**

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**OBJECTIVES:** Postpartum depression (PPD) risk has been reported to be correlated with socioeconomic factors. More than 50% of US deliveries are covered by Medicaid, for which all pregnant women with an income < 133.3% of the federal poverty line are eligible. Although Medicaid covers a large portion of deliveries, coding. PPD cases were identified based on the combination of inpatient and outpatient claims for PPD or major depression (MDM), adjustment disorder or depression not otherwise specified, or claims for treatment. Women with continuous enrollment and discharge severance in the Medicaid database were included. Prevalent and incidence rates were calculated. For the calculation of life years lost the death registration on the date of diagnosis was used, based on the methodology described by the World Health Organization. For data processing a template developed in Microsoft Excel 2007 was used, based on the methodology described by the World Health Organization. Discrepancies between estimates from the different sources used for the calculation of life years (DALYs) for cardiovascular disease and chronic kidney disease, resulting in the most common form of cardiovascular disease and chronic kidney disease and the most affected age was over 60 years. CONCLUSIONS: Most of the patients with rhinosinusitis were female. Though ARS is the most common form of rhinosinusitis followed by CRS and RARS, the healthcare burden in terms of medical care utilization, particularly office visits and prescription drug utilization, was observed to be higher among patients with RARS.

**PHS16**

**IMPACT OF TIME OF DIAGNOSIS ON PREVALENCE OF POSTPARTUM DEPRESSION IN WOMEN WITH COMMERCIAL AND MEDICAID HEALTH INSURANCE – A RETROSPECTIVE STUDY**

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**OBJECTIVES:** Postpartum depression (PPD) has multiple definitions. The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition defines PPD as a subtype of major depressive disorder with onset postpartum, which is defined as a period of 10 days postpartum—i.e., “peripartum onset.” Due to differing time-defined categories of PPD, we sought to determine the impact of time of PPD onset on prevalence estimates of PPD. **METHODS:** We used the Truven Commercial Claims database, the Medicaid-Multi-State database, (both 90 million patients; 11 states), and ICD-9 coding to retrospectively study women between the ages of 15-50 years old at the time of delivery from 2012-2014 based on ICD-9 coding. PPD cases were identified based on the combination of inpatient and outpatient claims for PPD or major depression (MDM), adjustment disorder or depression not otherwise specified, or claims for treatment. Women with continuous enrollment and discharge severance in the Medicaid database were included. Prevalent and incidence rates were calculated. RESULTS: In this Medicaid database population, the algorithm determined a PPD prevalence of 1.7%, 1.9%, and 2.1% for the years 2012-2014, respectively. In 2014, no difference was observed in PPD prevalence in women ≤ 17 years old (2.2%) compared to women ≥ 18 years old (2.2%). Prevalent and incidence rates were estimated by race/ethnicity, with rates of 2.8% among Whites, 1.2% among Blacks, 1.3% among Hispanics, and 1.9% among others. Overall, mild cases accounted for 6.7% of the population, moderate 88.5%, and severe 4.8%. CONCLUSIONS: PPD prevalence estimates were determined by the algorithm in a low-income population insured by Medicaid. Previous literature indicated that lower income and socioeconomic status may increase risk for PPD. However, our findings reveal a lower risk of PPD among large US Medicaid population database than cited in the literature, which suggests an estimated prevalence of 10-20%, suggesting that PPD may be markedly underdiagnosed.

**PHS17**

**PREVALENCE AND HEALTHCARE UTILIZATION BURDEN ASSOCIATED WITH RHINOSINUSITIS IN A UNITED STATES COMMERCIALLY INSURED POPULATION**

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**OBJECTIVES:** This study aimed to determine the prevalence and healthcare utilization burden associated with acute rhinosinusitis (ARS), chronic rhinosinusitis (CRS), and recurrent acute rhinosinusitis (RARS). **METHODS:** The study involved a cross-sectional, retrospective analysis of the 2014 Truven Marketscore database. Patients were included if they had at least one prescription claim for CRS, and RARS, and associated healthcare utilization were determined. Patients with CRS were identified using ICD-9-CM 461.x. CRS was identified where 1 medical visit with an ICD-9-CM 461.x and ≥ 3 prescription claims were separated by at least 12 weeks or more. RARS was classified when a medical visit had an ICD-9-CM 461.x followed by subsequent sinusitis diagnoses with > 4 visits during the year and < 6-weeks between visits. In 2014, more than 22 million individuals had CRS, and 100,000 had RARS in the US. More than 60% of all ARS, CRS, and RARS patients were females, and close to half resided in the South. The average number of office visits were 1.55, and 3.03, and the average number of prescription claims were 3.02, 4.03, and 5.61 among patients with ARS, CRS, and RARS, respectively. The average cost per office visit varied from $138 among patients with ARS to $412 among patients with RARS. The average cost per prescription drug varied from $289 for ARS, $314 for CRS, and $1,148 among RARS patients. The average annual total costs (medical visits and prescription drug) were $285, $553, and $885 among patients with ARS, CRS, and RARS, respectively. **CONCLUSIONS:** Most of the patients with rhinosinusitis were female. Though ARS is the most common form of rhinosinusitis followed by CRS and RARS, the healthcare burden in terms of medical care utilization, particularly office visits and prescription drug utilization, was observed to be higher among patients with RARS.

**PHS18**

**A REVIEW OF THE BURDEN OF HEPATITIS C VIRUS INFECTION IN KAZAKHSTAN**

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**OBJECTIVES:** Hepatitis C virus (HCV) infection is associated with substantial clinical and economic burden and is an important public health issue in Central Asia. The objective of this review was to characterize HCV epidemiology and related complications in Kazakhstan. With more efficacious therapies becoming available, decision-makers require accurate estimates of disease prevalence to inform health policy and benefit ratio of potential strategies for HCV infection. The objective of this study was to synthesize estimates of the epidemiologic burden of HCV from Kazakhstan. **METHODS:** A review was conducted in electronic databases and conference abstracts, by two reviewers to identify population-based estimates of HCV prevalence and incidence. Prevalentially, patients diagnosed with HCV (ICD-10 codes 070.41, 070.44, 070.51, 070.54, 070.70, 070.71, V02.61) between 2011 and 2015 were identified in National HCV registry. **RESULTS:** A search of electronic databases and conference abstracts identified 43 potentially relevant articles. Of those, 32 were included in the epidemiology review and 6 in the review of HCV-related complications. HCV prevalence in the general population was 0.6-0.7%. Prevalence was higher for injecting drug users (56-90%) and those with human immunodeficiency virus coinfection (12-20%) and was lower for blood donors (1-2%). Annual incidence of HCV in Kazakhstan was 5.43 per 100,000. HCV genotype 1b was associated with the highest incidence of hepatocellular carcinoma (HCC). Five-year survival for patients with liver cirrhosis was 75.1%, decreasing to 36.9% following liver transplantation, the majority of deaths were attributable to HCC. Limitations were that the majority of studies included in the epidemiology review were small, regional studies conducted in specific populations, and there was an absence of a national population-based study. **CONCLUSIONS:** These population-based prevalence estimates, and the prevalence estimates from blood donors, may be useful for inclusion in disease models. Discrepancies between estimates from the different sources used for the calculation of life years lost due to hepatitis C virus infection. The major relative weight of the cardiovascular disease and chronic kidney disease and the most affected age was over 60 years. CONCLUSIONS: The major relative weight of the cardiovascular disease and chronic kidney disease and the most affected age was over 60 years. CONCLUSIONS: The major relative weight of the cardiovascular disease and chronic kidney disease and the most affected age was over 60 years.
DALYs lost due to stroke, myocardial infarction, acute heart failure and chronic kidney disease of the population under program care was given by the premature death component

PFS20
ESTIMATES OF POSTPARTUM DEPRESSION PREVALENCE IN A COMMERCIAL INSURED POPULATION – A RETROSPECTIVE ANALYSIS
Bonthapally V1, Broder MS2, Tenu BS3, Gannu L1, Meltzer-Body S4, Chang E2
1Sage Therapeutics, Inc., Cambridge, MA, USA, 2Partnership for Health Analytic Research, LLC, Beverly Hills, CA, USA, 3Massachusetts College of Pharmacy and Health Sciences, Boston, MA, USA, 4University of North Carolina, Chapel Hill, Chapel Hill, NC, USA
OBJECTIVES: Postpartum Depression (PPD) is a complication of childbirth and is associated with impaired maternal function and poor mother-infant interactions. Prevalence estimates vary depending on setting, evaluation method, and diagnostic criteria. The objective of this study was to estimate PPD prevalence in a large, nationally-representative commercial insurance claims database. METHODS: This retrospective study used the Truven MarketScan Commercial Claims database to identify women who gave birth between 2011-2014, were 15-50 years old, and were continuously insured in an insurance plan year before and one year after delivery. The main analysis used a 6-month postpartum observation period to identify PPD cases based on ICD-9 coding for diagnoses and treatment claims. Women with major depressive disorder prior to the third trimester were excluded. Restrictions were removed for sensitivity analyses (SA). RESULTS: During the 6-month postpartum observation period, algorithm-based PPD prevalence estimates were 2.6%, 3.2%, and 3.7% for 2012, 2013, and 2014, respectively. By severity, most cases were moderate (95.9%). In SA1 (allowing pre-existing MDD), the prevalence was 4.5%, 5.4%, and 5.8%, respectively, in the 3 years studied. In SA2 (extending to 12 months postpartum) it was 4.3%, 4.9%, and 5.5%, respectively. Combining both SAs yielded prevalence estimates of 7.3%, 8.1%, and 8.4%, respectively. CONCLUSIONS: Based on the algorithm, PPD prevalence in this commercially insured population increased from 26 per 1000 persons to 37 per 1000 persons from 2012-2014. In 2014, prevalence estimates were lower than in other studies in which all postpartum women in the studied and other studies in which all postpartum women in the studied

PFS21
INCIDENCE OF CARDIOVASCULAR EVENTS IN A CARDIOVASCULAR HEALTH PROMOTION PROGRAM OF A DEVELOPING COUNTRY “DE TODO CORAZON”, A COHORT STUDY
Avis Guzman N1, Miranda Machado P2, Salcedo Mejia P3, Paz Vilches J4
De la Hoz Restrepo F1
1ALZAK Foundation. Universidad de Cartagena, Cartagena de Indias, Colombia, 2Mutual Ser EPS, Cartagena, Colombia, 3Universidad Nacional de Colombia, Bogota, Colombia
OBJECTIVES: “De Todo Corazón” (DTC) is a risk management program with the objective of identifying and offering appropriate therapeutic options to cardiovascular patients who attended a hair salon and who met the inclusion criteria of the study, to reduce cardiovascular risks. The aim of this study was to describe the evolution of the incidence of cardiovascular events in the population under program care, and to determine the death component

PFS22
PREVALENCE OF COMPLICATIONS IN PATIENTS WITH DIABETES MELLITUS IN COLOMBIA
Acuna L1, Bryon A2, Aschner P3, Chica LG4, Espin J5, Jaimes D6, Londoño D7, Lopez R8, Ruiz A9, Soler L10
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OBJECTIVES: The prevalence of complications in patients with Diabetes Mellitus was determined in the 8 insurance sectors that are part of the health system through the Colombian High Cost Illness Fund created by the Ministry of Health and Social Protection of Finance. The main objective of the study was to determine the prevalence of complications in the screen of the health of Diabetes Mellitus during years 8, which has allowed to identify 920.000 patients at the cut of 2016. The literature has identified as the most frequent clinical complications in the countries to Diabetic Neuropathy, Diabetic Retinopathy and Diabetic Nephropathy. METHODS: A cross-sectional descriptive epidemiological study was performed. As well as a sample size of 3 136 patients (cluster sampling), selected in 16 health insurers (48 operating their services in 28 departments of the country). The study exclusions were considered to be: age lower than 18 years, being the patient in the population at risk, and also, patients who were not insured in the health system during the 12,181 patients, the complications to be highlighted were: Diabetic Neuropathy, Diabetic Retinopathy and Diabetic Nephropathy: 23.95%, Coronary Disease: 8.83%, Diabetic Retinopathy: 4.71%, Heart Failure: 3.82%, Cerebrovascular Disease: 3.20%, Lower Limb Amputation: 0.61%. CONCLUSIONS: The study generates a baseline diabetic population with complications in a Latin American country, scientifically contributes a new ladder of complications for the objective pathology where the most frequent are highlighted: Diabetic Neuropathy, Coronary Disease and Diabetic Retinopathy. In turn, it is used to determine the treatment in the 12.181 patients at risk, which is an input for decision making in the distribution of economic resources for the planning of the delivery of health services based on the perspective of payers in health systems.
referred CONCLUSIONS: The CVD prevalence among hairdresser at Thunaburayi
was 18.6%. The CIVIQ-14 was reliable, sensitive for CVD assessment and
correlated with Framingham Heart Study (FHS) score. It was useful for raising awareness and early
detection of CVD among at-risk individual.

PHS25
HOSPITAL VOLUME AND 30-DAY READMISSION RATES AMONG PATIENTS WITH
PNEUMONIA
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OBJECTIVES: Pneumonia is one of the main causes of readmissions in the United
States, with estimates of 30-day readmissions as high as 20%. Given the high costs
associated with readmissions, it is important to understand what factors con-
tribute to readmissions in this patient population. Hospital volume, an indicator
of availability of resources and staff, may be associated with readmission rates.
In this analysis of a large, single-network hospital system, we examined the
association between hospital volume and 30-day readmission in patients
with pneumonia.
METHODS: Adult (18 or older) patients admitted to one of the 11
Advocate Health Care hospitals with a pneumonia diagnosis between 2008 and
2015 were included for analysis. Hospitals were categorized as low, medium, or
high volume based on inpatient beds. 30-day readmission rates evaluated on inpatient beds 30-days
after discharge were compared for low, medium, and high volume hospitals, respectively. In adjusted
models, increased odds of 30-day readmission were seen for patients in both medium
(OR = 1.14; 95%CI 1.04-1.25) and high-volume hospitals (OR = 1.28; 95%CI
1.23-1.34) when compared with low-volume hospitals.
CONCLUSIONS: In this analysis of a single hospital network, patients treated for pneumonia in higher-
volume hospitals were found to have significantly greater odds of 30-day read-
mission than in lower-volume hospitals, even after adjustment for other risk
factors. This finding is surprising and should be investigated further to better
understand the reasons for these differences.

PHS26
DYSLIPIDEMIA IN THE “DE TODO CORAZÓN” PROGRAM. A CROSS-SECTIONAL
STUDY
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OBJECTIVES: “De Todo Corazón” (DTC) is a risk management program with the aim of
reducing complications and improving the quality of life of patients with
cardiovascular risks. The aim of this study was to assess the prevalence of
dyslipidemia in patients under program care.
METHODS: The study comprised individuals (64,668) of all ages, living in the Colombian Caribbean. Dyslipidemia
was defined as the presence of one or more of the following conditions: Triglycerides > 200 mg/dl, or total cholesterol (TC) > 240 mg/dl, or HDL cholesterol < 40 mg/dl or LDL cholesterol > 100 mg/dl, or currently taking
antilipemic agents.
RESULTS: The average age was 64.5 ± 13.9 years and 66.5% female. The prevalence of dyslipidemia in men and women were 32.8% and 67.2%. Prevalence LDL cholesterol > 100 mg/dl and currently taking antilipemic agents was 31.5% (IC 31.1-31.8) and
49.6% (IC 49.2-50.0).
CONCLUSIONS: Dyslipidemia was highly prevalent in patients under program care.

PHS27
ASSESSMENT OF CARDIOVASCULAR RISK IN THE “DE TODO CORAZÓN”
PROGRAM IN A COLOMBIAN POOR POPULATION. A CROSS-SECTIONAL
STUDY
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Universidad de Cartagena., Cartagena de Indias, Colombia
OBJECTIVES: “De Todo Corazón” (DTC) is a risk management program with the aim of
reducing complications and improving the quality of life of patients with
cardiovascular risks. The aim of this study was to assess the prevalence of cardiovascular risk factors in patients under program care.
METHODS: The study comprised individuals (64,668) of all ages, living in the Colombian Caribbean. Data
was based on anthropometric parameters, blood pressure, glycosylated hemoglobin, total,
low-density (LDL) and high-density (HDL) lipoprotein cholesterol, triglycerides, physical activity
and smoking status were collected of the program database. We
used the risk classification of Framingham Heart Study.
RESULTS: The average age was 64.5 ± 13.9 years and 66.5% female. The overall prevalence rates were as follows: hypertension (ICD-10 hypertension code or > 140/90 mm Hg or pharma-
cologic treatment), 96.5% (96.3%-96.6%); hyperlipidemia (total cholesterol > 240
mg/dl or triglycerides >200 mg/dl or LDL cholesterol > 100 mg/dl or HDL
cholesterol), 85.2% (84.8%-85.4%); diabetes (ICD-10 diabetes code or pharmacologic
treatment of diabetes), 43.4% (42.6%-43.4%); smoking, 2.2% (1.9%-2.2%); and physical inactivity, 77.8% (77.5%-78.2%).
80% of the patients had data necessary for the classification of cardiovascular risk
34.9% of the patients had data necessary for the classification of cardiovascular risk. 34.9% had a high cardiovascular risk according to the classification
Framingham Heart Study.
PHS28
THE IMPACT OF PHARMACIST BASED DIABETES TREATMENT ON THE ODDS OF
HBA1C REDUCTION AMONG MEDICAID PATIENTS
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OBJECTIVES: A randomized controlled trial is ongoing in Trenton, NJ to evaluate the
outcomes of having clinical pharmacists to manage chronic diabetics, on Medicaid,
with severely uncontrolled HbA1c (>8%). The purpose of this study was to evaluate the impact of pharmacists on the odds of achieving a clinically
significant reduction in HbA1c of ≥1% at 6 months, while controlling for potential
relevant predictors on metabolic parameters in a cohort of Alzheimer caregivers.
METHODS: A logisitic regression model was fitted to the FRS and impact of the treatment
provider and each factor on the odds of HbA1c reduction. Potential confounders for the model were selected from the results of a literature search.
A records audit interview with patients or patient’s representatives. The risk
for dropout. A mathematical correction was applied to the odds ratios to estimate the risk
result. RESULTS: A total of 189 patients were randomized and scheduled for
follow up appointments. Of the randomized patients, 113 returned for their 6 month follow up appointment. The group treated by the pharmacist lost
worse a 72% increase in the chance of a clinically significant HbA1c reduction (Adjusted OR: 1.72, 95% CI: 1.18-1.92). Treating with a pharmacist also did not produce a statistically significant effect on the odds of achieving a clinically
substantial reduction in HbA1c (OR: 1.37 95% CI: 0.72-1.54). None of the previously identified confounders had a
significant impact on the results.
CONCLUSIONS: In the first 6 months of treatment, utilizing a clinical pharmacist effec
ted the odds of a clinically significant reduction in HbA1c for severely unmanaged diabetics compared to treatment by a physician without increasing the odds of discontinuing treatment. Future research is needed to determine if the results continue past 6 months.

PHS29
ASSESSMENT OF CARDIOVASCULAR DISEASES RISK IN PATIENTS WITH TYPE 2
DIABETES MELLITUS
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OBJECTIVES: To assess the risk for developing cardiovascular diseases (CVD) in type 2 Diabetes Mellitus (DM) patients during a period of 10 years and establish the
association between various risk factors and the risk score.
METHODS: A prospective observational study conducted in a South Indian teaching hospital for a period of
6 months. Patients with type 2 DM hospitalized from October 2014 – March 2015 were included in the study and necessary data was collected from patient’s case
records and interview with patients or patient’s representatives. The risk for developing CVD was calculated using Framingham Risk Score (FRS) and United
Kingdom Prospective Diabetes Study (UKPDS) risk engine and then the significance of association of risk factors to the scores determined.
RESULTS: Out of 100 patients evaluated for their risk, 50% and 15% were found to have low,
intermediate and high risk respectively using FRS, whereas 28%41% and 31% were found to have low, intermediate and high risk respectively using UKPDS risk engine. The overall prevalence of diabetes, gender, age group, total
cholesterol, HDL cholesterol and glycosylated hemoglobin (HbA1c) level had a significant association to the risk score with p values 0.000, 0.001, 0.017 and 0.048 respectively but High Density Lipoprotein (HDL) level and systolic blood pressure (SBP) had a non-significant association. Similarly,
gender, age-group, total cholesterol, duration of diabetes and glycosylated hemoglobin (HbA1c) level had a significant association to the risk score with p values
0.001, 0.016, 0.044, 0.047 and 0.015 respectively despite smoking, HDL level and SBP had a non-significant association to the FRS result.
CONCLUSIONS: Cardiovascular risk scores are useful tools in the management of diabetes. Moreover, it is indicated that the risk factors had a significant association to the scores which provides evidence that computation of CVD risk is an important tool of prioritizing therapy for individuals.

PHS30
METABOLIC PROFILES IN SPousAL Alzheimer CAREGivers WITH POOR SUB-
JECTIVE SLEEP QUALITY
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OBJECTIVES: We examined metabolic parameters associated with caregiver with other relevant predictors on metabolic parameters in a cohort of Alzheimer caregivers with controls. METHODS: A sample of 109 spousal Alzheimer caregivers and 53 non-caregiving age-and gender-matched controls were recruited for this community-based longitudinal study with annual assessments for up to four years. Among the participants, a total of 91 subjects (72 caregivers and 19 non-
caregiving controls) with a baseline FSIQ > 5, were included for the analysis.
RESULTS: Metabolic profiles including body mass index (BMI), blood pressure, lipids profiles, and glucose were measured repeatedly during annual assessment.
Mixed linear models with time effects for covariates known to affect metabolic parameters were used to evaluate their changes. Multivariate-adjusted metabolic parameters did not significantly differ between caregivers and non-caregivers over time except for systolic blood pressure. For male, HDL levels increased with
non-caring status (p = 0.02), higher role overload (p = 0.02), and baseline high HDL status (p = 0.01). For female, HDL levels increased with time (p = 0.02) and decreased with increased role overload (p = 0.01). CONCLUSION: Among poor sleepers (PSQI > 5), Alzheimer caregivers and non-caring caregivers had similar metabolic profiles. Role overload, caring status, and time had different effects on HDL levels on male and female.

HEALTH SERVICES - Cost Studies

PHS1 BURDEN IMPACT ANALYSIS OF PERITONEAL DIALYSIS VERSUS HEMODIALYSIS IN KOREA
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OBJECTIVES: To evaluate the 5-year dialysis-related cost impact of variable distribution of end-stage renal disease (ESRD) patients treated with peritoneal dialysis (PD) and hemodialysis (HD) in South Korea. METHODS: Budget impact model was developed to estimate the dialysis-related costs from the payer's perspective. Analyzed of the national administrative healthcare database to define the target population, prevalence, incidence, medical cost. We assumed that specific ESRD patient would choose the PD instead of HD. In the baseline model we assumed 18% of eligible recipients to receive PD and 82% to HD in alignment with 2003-2015 national administrative healthcare database data. Eight hypothetical scenarios were compared with this reference scenario. The scenarios were increase in the PD use of prevalence by 6%, 13%, 20%, 25%, per year. The other scenarios were increase in the PD use of incidence by 30%, 50%, 70%, 100% per year. RESULTS: There were no differences between HD and PD's mortality and prevalent in neither year. The results showed all scenarios decrease the budget compared to the reference scenario. No validation of this model, various sensitivity analyses were performed. The trend of budget impact did not change. CONCLUSIONS: Under the Korean Healthcare system for dialysis increasing the proportion of patients on PD versus HD could generate substantial savings in dialysis-related costs to the payer. A PD-preferred policy for clinically appropriate patients is also a good strategy to achieve inequity in dialysis access.

PHS2 THE EXPERT IN HAEMOSTASIS AND THROMBOSIS: IS AN ECONOMIC ANALYSIS FEASIBLE?
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OBJECTIVES: Bleeding and thrombosis are surgery complications leading to significant clinical and economic consequences. Prevention, diagnosis and management of complications are generally restricted to the surgical field and are more rarely with specific expertise in Haemostasis and Thrombosis (ET). The aim of the present study is to evaluate the economic impact of experts in ET from the hospital perspective by comparing mid-sized structures, with or without such professionals. Hospital discharge records (HDRs) related to surgical wards were analyzed for year 2012 for two Italian Hospitals comparable in size: 1) AOPV Hospitals, in Vigevano and Voghera cities, without formal experts in ET; 2) AOCR Hospitals, in Monza and Varese, with formal experts in ET. HDRs reporting data from DRG reimbursement or with bleeding complications occurred during hospitalizations were selected. For each HDR we compared the DRG reimbursement with and without complications, when available. RESULTS: 5705 and 6719 HDRs were analyzed for AOPV and AOCR, respectively. The thrombotic/thrombotic complications resulted 60 and 27, respectively. Since bleedings were significantly more in the "no expert" structure (21 AOCR vs. 52 AOPV, p < 0.05), the analysis focused on these complications. For bleedings detected in AOPV, the average compensation per bleedings reported 1 to 3,201 (average 0.33-3354.80), while for AOCR this value resulted € 1,346 (range 0.3-640). The total reimbursement increase for the management of bleeding complications with and without experts in ET resulted respectively, 40,656.78 (26.7%) and 166,481.36 (38.6%). The incremental difference of reimbursements between the two hospitals, resulted 125,826€, can be considered a proxy of the economic value associated to the actual expertise’s management of thrombotic/thrombotic complications. CONCLUSIONS: The study, albeit limited to the analysis of two sample structures, suggests that experts in ET in hospitals actually can represent an appropriate use of resources, from both clinical and economic perspectives.

PHS3 A NATIONAL BUDGET IMPACT ANALYSIS OF A SPECIALISED SURVEILLANCE PROGRAM FOR INDIVIDUALS AT VERY HIGH RISK OF MELANOMA IN AUSTRALIA
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The University of Sydney, Camperdown, Australia

OBJECTIVES: Patients at very high risk of cutaneous melanoma make up 18% of the population diagnosed with melanoma and are currently offered surveillance. In Australia, surveillance has been enabled through the use of a Health Service Speciality (HSS) Schedule rebates which would alleviate out of pocket costs for patients. Follow-up should be conducted to investigate whether the current low rate of excisions is maintained.

PHS4 MIGRAINE IN OBESE ADULTS AND ITS IMPACT ON HEALTH CARE EXPENSES
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OBJECTIVES: Migraine and obesity add significant personal and societal burden, decrease quality of life, and increase health care utilization. Several studies have suggested that obesity is an important risk factor in migraine. This study aims to identify sociodemographic and health-related factors associated with migraine, and examine the effect of obesity on health care utilization and expenses. The study was nationally representative and included 7,907 eligible subjects and 29,315 non-eligible subjects. METHODS: This study used Medical Expenditure Panel Survey (MEPS) longitudinal data (2006-2013) representing the US civilian noninstitutionalized population. The study included individuals aged ≥ 18 years and with a body mass index (BMI, kg/m²) ≥ 30. After identifying migraine from the MEPS medical condition file, obese adults were divided into two groups: (1) obese with migraine (2) obese without migraine. Outcomes measured included annualized per subject total health care expenditures, in-hospital medical services and pharmacy expenses. Multivariate logistic regression identified significant risk factors associated with migraine and a generalized linear model with a log link and gamma distribution assessed the effect of migraine on total health care expenses. RESULTS: Among 23,566 eligible obese adults, 27% had migraine, 7% obesity and migraine. Very low race, poor perceived health status, and greater comorbidity increased the migraine risk among this obese cohort. Migraine versus no migraine showed higher outpatient, emergency, and prescription drug utilization (p < 0.001). The medical, prescription drug, and total health expenses in the migraine group were $1,351 (p = 0.007), $760 (p < 0.001), and $1,991 (p < 0.001) higher than the non-migraine group. Migraine increased total health care expenses 31.6% in the obese population after controlling for sociodemographic and health-related variables. CONCLUSIONS: Sociodemographic characteristics, health status, and comorbidity level increased the risk for migraine among obese adults. Migraine in obese adults significantly increased total health care utilization and expenses.

PHS5 STATE MEDICAID COST SAVINGS FROM THE NEW YORK UNIVERSITY CAREGIVER INTERVENTION FOR FAMILIES COPING WITH DEMENTIA
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OBJECTIVES: The economic burden of long term care for people with dementia is significant and substantially covered by state Medicaid programs. While no therapies exist to substantially alter disease progression, supportive services for caregivers have been shown to improve caregiver capabilities and well-being and delay patients’ institutionalization. We estimated the potential cost savings from offering the New York University Caregiver Intervention (NYUCI) to eligible Medicaid enrollees from a state payer perspective. METHODS: Data from the Minnesota Department of Human Services and the literature informed a population-based Markov model to predict and compare costs, including intervention costs, over 15 years with and without implementation of the NYUCI for family caregivers of community-based Medicaid eligibles with dementia. We incorporated original NYUCI randomized controlled trial results as appropriate, adjusted to Minnesota implementation. RESULTS: Approximately 5-6% more eligibles with dementia would remain in the community from year 3 (2014) on and 17 fewer would be in nursing homes compared to the Minnesota implementation. The state could save $40.4 million (2011 dollars, discounted at 3%) if all eligible/caregivers participated in the NYUCI. Savings are expected within 5 years of program implementation. Before-worse case scenario estimates were $178.9 million and $47.3 million, respectively, driven largely by the variation in the assumed NYUCI effect. CONCLUSIONS: State payers can use enhanced caregiver support to moderate the growing tax burden of dementia, even without a breakthrough therapy for the disease. It is time to realize savings from a program like the NYUCI, the frequently short time horizon of legislative fiscal notes presents a challenge to adoption. In deciding on program value it may be important to distinguish cost-effectiveness from return on investment and take long-term impact into consideration.
Ibekwe E, Prof Francis Fatoye F, Haigh C

$16,610 - $17,835); while that for diabetes patients with less severe PLE or without coronary atherosclerosis. The mean and median diabetes-related hospitalization costs were not associated with significantly higher for patients with severe coronary atherosclerosis ($12,822) than patients with less severe coronary atherosclerosis ($11,264) or patients without coronary atherosclerosis ($10,336). However, severe or less severe kidney diseases were not associated with significant increases in diabetes-related hospitalization costs. CONCLUSIONS: The incremental costs for severe or less severe kidney diseases were $6,858 and $5,286 to diabetes-related hospitalization costs. Optimal diabetes management programs are essential to reduce the burden of diabetes and its complications.

ECONOMIC IMPACT OF ROUTINE OPT-OUT ANTENATAL HIV SCREENING: A SYSTEMATIC REVIEW

Kebb E, Kebb E, Prof Francis Fatoye F, Haigh C

The option of application for ambulatory or domiciliary treatments are needed.

ASSOCIATION OF COMORBID DEPRESSION WITH HEALTH CARE EXPENDITURES IN ADULTS WITH RHEUMATOID ARTHRITIS

Kharin A

OBJECTIVES: To estimate the incremental cost of routine testing of HIV in antenatal (ANC) settings. METHODS: A systematic review of published articles. Extensive electronic searches for relevant journal articles published from 1998 to 2015 when countries began to implement routine ANC HIV testing on their own were conducted in the following databases: Science direct. RESULTS: 804,192 HIV-related hospitalization records were identified. 26.6% of the hospitalized diabetes patients had comorbid PLE; 21.6% with kidney diseases; 24.3% with coronary atherosclerosis. The mean and median diabetes-related hospitalization costs were $10,342 and $6,847. Controlling for covariates, the adjusted mean hospitalization costs for diabetes patients with severe PLE were $17,212 (95% CI: $17,835 to $17,835) while that for diabetes patients with less severe PLE were $10,432 and $10,363, respectively. Diabetes-related hospitalization costs were also significantly higher for patients with severe coronary atherosclerosis ($12,822) than patients with less severe coronary atherosclerosis ($11,264) or patients without coronary atherosclerosis ($10,336). However, severe or less severe kidney diseases were not associated with significant increases in diabetes-related hospitalization costs. CONCLUSIONS: The incremental costs for severe or less severe kidney diseases were $6,858 and $5,286 to diabetes-related hospitalization costs. Optimal diabetes management programs are essential to reduce the burden of diabetes and its complications.

OBJECTIVES: To evaluate the economic impact of routine testing of HIV in antenatal (ANC) settings. METHODS: A retrospective analysis of the 2010–2012 National Inpatient Sample (NIS). Diabetes-related hospitalization was defined by principal and secondary diagnosis of diabetes (250.XX). Hospitalization costs were obtained by adjusting the total hospitalization charge by the hospital-specific cost-to-charge ratio and were adjusted to the 2012 dollar by medical CPI. The presence and severity of these three complications were identified by diagnosis codes, procedure codes and ICD-9. Stratified random matching was adopted to make the cohorts with/without each of the three complications comparable. Generalized linear model (GLM) was used to analyze the association between diabetes complications and hospitalization costs. The statistical significance level was p-value 0.001. RESULTS: 804,192 diabetes-related hospitalization records were identified. 26.6% of the hospitalized diabetes patients had comorbid PLE; 21.6% with kidney diseases; 24.3% with coronary atherosclerosis. The mean and median diabetes-related hospitalization costs were $10,342 and $6,847. Controlling for covariates, the adjusted mean hospitalization costs for diabetes patients with severe PLE were $17,212 (95% CI: $17,835 to $17,835) while that for diabetes patients with less severe PLE were $10,432 and $10,363, respectively. Diabetes-related hospitalization costs were also significantly higher for patients with severe coronary atherosclerosis ($12,822) than patients with less severe coronary atherosclerosis ($11,264) or patients without coronary atherosclerosis ($10,336). However, severe or less severe kidney diseases were not associated with significant increases in diabetes-related hospitalization costs. CONCLUSIONS: The incremental costs for severe or less severe kidney diseases were $6,858 and $5,286 to diabetes-related hospitalization costs. Optimal diabetes management programs are essential to reduce the burden of diabetes and its complications.

OBJECTIVES: To develop a costing exercise that allows comparing the hospital vs outpatient costs of application of intravenous injectable therapy in the treatment of peripheral occlusive arterial disease in Colombia. METHODS: A retrospective review. RESULTS: We identified 30% tariff manual and were adjusted when quartiles 25, 50 and 75 were required to ensure that the extreme values found in the database were not to affect the average estimation. RESULTS: The results are presented as the sum of the expenditures in the application and use of inputs and resources, such as single drugs, medical services, hospitalization, laboratory tests, among others. The option of application for ambulatory or domiciliary care is in effect a systemic response to the increased needs of the Colombian health system, specifically the cost of beds occupancy and hospital rooms, which in some cases are not feasible to meet demand. Through the systematic review of the published data on the management of the application of a vasodilator pharmacological therapy for patients with PAD in the Fontaine III and IV stages, an exercise of economic cost was developed that allows comparing the options for application for ambulatory or domiciliary care which this procedure can be performed ambulatorily according to medical criteria. The costs of resources and inputs were taken from the SOAT 2001 + 30% tariff manual and were adjusted when quantities 25, 50 and 75 were required to ensure that the extreme values found in the database were not to affect the average estimation. RESULTS: The results are presented as the sum of the expenditures in the application and use of inputs and resources, such as single room of average complexity, macro drip equipment, intrahospital care by general medicine, among others. The option of application for ambulatory or domiciliary management represents a saving of about 28.14% to the Colombian health system in this specific therapy for PAD. CONCLUSIONS: The results of the exercise suggest the existence of thrifty alternatives of management options for the application of medications in an outpatient or domiciliary setting without having to carry costs to the health system directly with the occupation of spaces in hospitals that can be used in a more efficient way.

ASSOCIATION OF COMORBID DEPRESSION WITH HEALTH CARE EXPENDITURES IN ADULTS WITH RHEUMATOID ARTHRITIS

Kharin A

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OBJECTIVES: To estimate the incremental health care expenditures associated with depression in a nationally representative sample of US adults with rheumatoid arthritis (RA). METHODS: This is a pooled cross-sectional study of adults aged ≥21 years without severe PLE or without HIV were used to compare continuous cost variables. RESULTS: We identified 175 mesothelioma patients and 350 comparison subjects who were enrolled in Medicare Part B and did not have HMO membership. CONCLUSIONS: The incremental total annual cost for patients with RA and depression was $621, and the incremental annual prescription drug cost was $76, compared to those without depression. CONCLUSIONS: Depression is associated with higher annual health care expenditures in adults with RA. This underscores the importance of screening and treating patients with RA as a means to potentially lower the overall health care expenditures in this population.
the last 30 days of life for DLBCL patients <65 years. We evaluated adjusted and unadjusted costs among hospice and non-hospice users. RESULTS: We identified 12,469 patients with DLBCL. Hospice users were more likely to be non-whites (median 6 years, p < 0.001), more often white (p = 0.02), less often married (51.5 vs. 53.7%, p < 0.001), more often female (p < 0.001), and more often had advanced stage disease (p < 0.001). There were no significant differences in enrollment by urbanicity, poverty level, hospital type, and Charlson comorbidity index (CCI). Non-hospice patients received more transfusions (p < 0.001) and chemotherapy (p < 0.001) in the last 30 days of life. During the last month of life, costs continually increased among hospice users from $2,063 days 26-30 prior to death to $6,012 days 0-5 (p < 0.001). Hospice users’ costs decreased from $1,752 to $1,312 (p = 0.002). Our results were consistent after adjusting for age, CCI, disease stage, race, marital status and admission payer, the presence of poverty level (non-hospice: $2,043 days 26-30 vs. $3,109 days 0-5, p < 0.001; hospice: $1,800 days vs. $1,348, p = 0.001). For non-hospice patients, inpatient admissions drove costs ($2,289). Our propensity score weighted models provided similar results. CONCLUSIONS: We found, age, CCI, hospital and admission payer, and non-hospital use were stronger determinants of hospice use and non-AMB users. Earlier hospice intervention may reduce costs of the last 30 days of life.

**OBJECTIVES:**

1. To characterize cost differences between hospice and non-hospice users.
2. To examine the association between hospice use and cost differences.

**METHODS:**

We linked data from the Medicare Inpatient Death File, the National Death Index, and the Mortality Followback System to identify a sample of Medicare beneficiaries with DLBCL. We used a propensity score methodology to identify a matched sample of hospice and non-hospice users. We evaluated adjusted and unadjusted costs among hospice and non-hospice users. RESULTS: We identified 12,469 patients with DLBCL. Hospice users were more likely to be non-whites (median 6 years, p < 0.001), more often white (p = 0.02), less often married (51.5 vs. 53.7%, p < 0.001), more often female (p < 0.001), and more often had advanced stage disease (p < 0.001). There were no significant differences in enrollment by urbanicity, poverty level, hospital type, and Charlson comorbidity index (CCI). Non-hospice patients received more transfusions (p < 0.001) and chemotherapy (p < 0.001) in the last 30 days of life. During the last month of life, costs continually increased among hospice users from $2,063 days 26-30 prior to death to $6,012 days 0-5 (p < 0.001). Hospice users’ costs decreased from $1,752 to $1,312 (p = 0.002). Our results were consistent after adjusting for age, CCI, disease stage, race, marital status and admission payer, the presence of poverty level (non-hospice: $2,043 days 26-30 vs. $3,109 days 0-5, p < 0.001; hospice: $1,800 days vs. $1,348, p = 0.001). For non-hospice patients, inpatient admissions drove costs ($2,289). Our propensity score weighted models provided similar results. CONCLUSIONS: We found, age, CCI, hospital and admission payer, and non-hospital use were stronger determinants of hospice use and non-AMB users. Earlier hospice intervention may reduce costs of the last 30 days of life.
PHS47

DIRECT MEDICAL COSTS DUE TO HYPERTENSION IN A COLOMBIAN POOR POPULATION: A TOP-DOWN MACRO COSTING ANALYSIS
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OBJECTIVES: To estimate the direct annual medical costs of hypertensive patients from a Colombian cardiovascular risk management program of a state-subsidized health insurance company in 2015. METHODS: Retrospective cross sectional study of 61,611 patients affiliated to a cardiovascular risk management program of a state-subsidized health insurance company in Colombia 2015 was conducted. Direct costs were those incurred in inpatients and outpatients hypertensive patients were analyzed from the healthcare payer’s perspective using the top-down costing approach. Costs were quantified based on financial and hospitalization records of the insured patients during January 1 to December 31, 2015. Costs were described using the framingham risk score of the program. Medians and interquartile ranges (IQRs) were calculated and two groups of patients were defined based on the reported total cost. Low cost: TC < percentile75% + 1.5*IQR and high cost: TC > percentile75% + 1.5*IQR. RESULTS: Out of total patients at risk of a cardiovascular event, 62.9% (38,802) are hypertensive (non-diabetes). Of these, 8.5% are classified as high-risk (HR), 49.2% as low-risk (LR) and 3.58% as medium-risk (MR) according to the Framingham risk score (FRS). The remaining 42.2% were not classified by the program FRS. The median outpatient cost of a hypertensive patient was USD$102.3 (IQR US$45.9-US$237.4). The median inpatient cost per patient (MIC) for the low cost group of patients were: HR: USD$461.3 (IQR: US$265.3-USD$643.8), LR: USD$437.6 (IQR: US$231.8-US$528.8), MR: USD$636.7 (IQR US$251.3-US$500.1) and the MIC per patient for the high cost group of patients were: HR: USD$2,066.4 (IQR USD$2,031.7-US$3,902.3), LR: USD$2,664.2 (IQR: USD$137.5-US$645.41.2), MR: USD1,555.1 (IQR: USD$698.1-USD$2,501.1). CONCLUSIONS: In both groups of patients, in cost (non-diabetic) hypertensive patients increases as the risk level does. These findings may justify investments by the insurance company to control high blood pressure in order to save downstream health care budgets.

PHS48

EVALUATING THE ECONOMIC BURDEN AND HEALTH CARE UTILIZATION DUE TO DEPRESSION COMORBIDITY IN DEMENTIA
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OBJECTIVES: To assess the type and extent of health care utilization and medical care expenditures in adults with dementia and depression comorbidity. METHODS: A retrospective sample of 11,222 Medicare (MFS), dementia comorbid with and without depression were compared to determine differences in health care utilization and costs of health care with respect to intact care, ambulatory care, ER visits and prescription drug differences. Differences in utilization and costs stemming from demographic and socioeconomic variations in the two groups were examined. A series of Student’s t-test was carried out to discern differences in utilization and costs. RESULTS: In 2014, about 32 % of the 1.4 million adults (weighted) who had dementia were also diagnosed with depression. The extent of comorbidity was found to be greater in individuals aged 60 years and over (35.8%) than in the younger age group (18-59 years; about 4%). Compared to the main sample, the comorbid depression sample was found to have a greater proportion of females (48% vs 66%), Caucasians (85% vs 79%) and low income individuals (16% vs 8%, p < 0.0001). Depression comorbidity was also related to higher outpatient visits (0.91 vs 0.82, p < 0.0001), office-based provider visits (11.9 vs 9, p < 0.0001), and prescription drug use (67 vs 59, p < 0.0001). The group also had higher medical expenditures for outpatient services (1,357 vs 253, p < 0.0001), office based provider visits ($226 vs $198, p = 0.001) and prescription drug use ($450 vs $311, p < 0.003). CONCLUSIONS: Depression comorbidity in dementia is associated with greater utilization of medical care and higher medical costs in the United States. Such differences are found in use of prescription drugs and cost of outpatient care. Depression being both a risk factor and a prodrome of dementia, there is a strong need to identify high-risk individuals and emphasize screening for depression, especially in younger adults.

PHS49

ASTHMA-RELATED DIRECT COSTS AND HEALTH CARE UTILIZATION BY SEVERITY IN COLOMBIA
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OBJECTIVES: To estimate the direct annual medical costs of patients with asthma from a Colombian cardiovascular risk management program of a state-subsidized health insurance company in Colombia 2015. METHODS: Retrospective cross sectional study of 61,611 patients affiliated to a cardiovascular risk management program of a state-subsidized health insurance company in Colombia 2015 was conducted. Direct costs were those incurred in inpatients and outpatients. Asthmatic patients were analyzed from the healthcare payer’s perspective using the top-down costing approach. Costs were quantified based on financial and hospitalization records of the insured patients during January 1 to December 31, 2015. Costs were described using the Framingham risk score of the program. Medians and Interquartile ranges (IQR) were calculated and two groups of patients were defined based on the reported total cost. Low cost: TC < percentile75% + 1.5*IQR and high cost: TC > percentile75% + 1.5*IQR. RESULTS: Out of total patients at risk of a cardiovascular event, 62.9% (38,802) are asthmatic (non-diabetes). Of these, 5.1% are classified as high-risk (HR), 49.2% as low-risk (LR) and 3.58% as medium-risk (MR) according to the Framingham risk score (FRS). The remaining 42.2% were not classified by the program FRS. The median outpatient cost of an asthmatic patient was $60.8 (IQR $137.8). According to severity, cost was $35 (IQR $156.7), $81 ($172.7) and $1,184 (IQR $2,025.2-$5,724.1). Relative frequencies of prescriptions and services were: oral corticosteroids, 19.5%; inhaled corticosteroids, 24.5%; inhaled corticosteroids-long acting beta2-agonist combination, 47.4%; hospitalization visits, 27.8%; general physician visits, 55.7% and emergency department visits (ED), 3.4%. Median cost of ED visits and hospitalizations were $165.2 ($36.8) and $904.6 ($4,718.5), respectively. CONCLUSIONS: Health service utilization and direct costs of asthma in Colombia are high and related to severity of symptoms. Nationalwide health policies aimed at the effective control of asthma are necessary and will play an important role in reducing the associated economic impact.

PHS50

HEALTH CARE COSTS OF ACUTE MYOCARDIAL INFARCTION IN A COLOMBIAN POPULATION AFFILIATED TO A CARDIOVASCULAR RISK-MANAGEMENT PROGRAM: A MACRO COSTING ANALYSIS
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OBJECTIVES: To estimate the total annual medical costs of Acute Myocardial Infarction (AMI) from a Colombian cardiovascular risk management program of a state-subsidized health insurance company in 2015. METHODS: Retrospective cross sectional study of 61,611 patients affiliated to a cardiovascular risk management program of a state-subsidized health insurance company in Colombia 2015 was conducted. Direct costs were those incurred in inpatients and outpatients. AMI patients were analyzed from the healthcare payer’s perspective using the top-down costing approach. Costs were quantified based on billing inpatient records of the insured patients during January 1 to December 31, 2015. Costs were described using the Framingham risk score of the program. Medians and Interquartile ranges (IQRs) were calculated. RESULTS: 472 patients suffered an average of 1.08 AMI in 2015. Of these, all patients resulted to have hypertension (HP) as a cardiovascular risk factor and 58.3% resulted to have type2 diabetes mellitus (DM2) in addition to hypertension. Patients were divided into 4 different levels based on the Framingham risk level does. These findings may justify investments by the insurance company to control high blood pressure in order to save downstream health care budgets.

PHS51

PROXIMAL OPEN ANGLE GLAUCOMA: A REAL WORLD EVIDENCE ANALYSIS OF ASSOCIATED PREVALENT AND INCIDENT COSTS AND HEALTHCARE RESOURCE UTILIZATION
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OBJECTIVES: Assess total healthcare costs and resource utilization for primary open angle glaucoma (POAG) patients, examine real-world treatment patterns for POAG patients, including types and combinations of treatments for incident and prevalent patients, and assess the difference between incident and prevalent cases with POAG related medication. METHODS: Retrospective database analysis using administrative claims and eligibility records from Truven MarketScan Commercial and Medicare Supplemental Databases (2012-2014) for patients (aged ≥65 years old) with an ICD-9-CM 365.11 (POAG) diagnosis or one POAG-related surgery after January 1, 2013. Index date was that of the first claim identified. Incident cases were patients
results were $2,880 PPPM including MM drug prescription costs of $2,521 PPPM.

Inpatient costs were $4,204 PPPM, in the ambulatory and hospitalization financial records of 2015 and from the health system perspective. Medians and interquartile ranges were calculated and two 16% of patients were defined based on the reported total cost (TC). Low cost: TC > 75 percentile + 1.5 IQR and high cost: TC > 75th percentile + 1.5 IQR. Results were classified by stages of disease and converted to US dollars 2015. RESULTS: Out of 61,611 patients affiliated to the program, 22.4% (13,816) were found to have CKD. The estimated total direct cost of the different stages of HCV infection accounted for more than 39 million reais in 2014. Chronic hepatitis C, liver transplantation and liver fibrosis and cirrhosis were responsible for the largest portion of this amount, respectively 86.9, 12.1 and 0.6% of total direct medical costs. The non-direct medical, for all clinical conditions (CID), accounted for more than 1,400,000 reais. Where transport costs of patients and caregivers and health expenditures and transport costs of patients and caregivers in chronic hepatitis C accounted for 69.4% of the total cost. This estimated total direct cost for the indirect cost of hepatitis C and associated conditions was over 6 million reais in 2014. The clinical condition responsible for 50% of this value was liver fibrosis and cirrhosis. CONCLUSIONS: This study allowed to show the economic impact of HCV infection from the perspective of the Unified Health System and that of society. Health expenditures and losses evidenced the need for actions aimed at the prevention of HCV infection, as well as to reduce the price of antivirals; Which may be important strategies to reduce the consumption of resources in this reality. Both those used by the health service to defer the various actions and services, as well as the expenses or lost by society.

PHS54 DIRECT COSTS FOR PATIENTS WITH CHRONIC KIDNEY DISEASE FROM A CARDIOVASCULAR RISK MANAGEMENT PROGRAM IN A COLOMBIAN POOR POPULATION

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OBJECTIVES: To estimate costs of care for patients with chronic kidney disease (CKD) from an insurance company (IC) of a state subsidized in Colombia. METHODS: Patients with CKD were identified from a cardiovascular risk management program (IC) Outpatient and inpatient reimbursement records of the insurance company and converted to US 2015 dollars. Patients were analyzed by cardiovascular risk management program. The median outpatient health care cost of patients and caregivers affiliated to a cardiovascular risk management program. METHODS: A retrospective cohort of 61,611 patients affiliated to a cardiovascular risk management program of a Colombian state-subsidized health insurance company was followed during 2015. Direct medical annual costs in patients and outpatients with DM2 were analyzed from the third party payer perspective using the top-down costing approach. Costing information was obtained through the International Classification of Diseases (ICD 10). RESULTS: The estimated total medical direct cost of the different stages of HCV infection accounted for more than 39 million reais in 2014. Chronic hepatitis C, liver transplantation and liver fibrosis and cirrhosis were responsible for the largest portion of this amount, respectively 86.9, 12.1 and 0.6% of total direct medical costs. The non-direct medical, for all clinical conditions (CID), accounted for more than 1,400,000 reais. Where transport costs of patients and caregivers and health expenditures and transport costs of patients and caregivers in chronic hepatitis C accounted for 69.4% of the total cost. This estimated total direct cost for the indirect cost of hepatitis C and associated conditions was over 6 million reais in 2014. The clinical condition responsible for 50% of this value was liver fibrosis and cirrhosis. CONCLUSIONS: This study allowed to show the economic impact of HCV infection from the perspective of the Unified Health System and that of society. Health expenditures and losses evidenced the need for actions aimed at the prevention of HCV infection, as well as to reduce the price of antivirals; Which may be important strategies to reduce the consumption of resources in this reality. Both those used by the health service to defer the various actions and services, as well as the expenses or lost by society.

PHS55 HEALTH CARE COSTS DUE TO DIABETES MELLITUS 2 IN A COLOMBIAN POOR POPULATION AFFILIATED TO A CARDIOVASCULAR RISK MANAGEMENT PROGRAM

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OBJECTIVES: To estimate direct medical, non-medical and indirect costs related to Diabetes mellitus type 2 and associated conditions in Brazil. METHODS: The costs of diabetes mellitus and associated conditions were estimated using the base year 2014. The perspective of the Unified Health System (SUS) and that of society was considered. The data were obtained from universal access information systems provided by the Ministry of Health. Direct medical, non-medical and indirect cost were evaluated by the macro-concept methodology for a large number of technical classifications identified through the International Classification of Diseases (ICD 10). RESULTS: The estimated total medical direct cost of the different stages of diabetes mellitus type 2 accounted for more than 9 million reais in 2014. Chronic diabetes mellitus type 2 was the main contributor of the total cost, responsible for 86% of this value. The estimated total direct cost for the indirect cost of diabetes mellitus type 2 and associated conditions was over 6 million reais in 2014. The clinical condition responsible for 50% of this value was liver fibrosis and cirrhosis. CONCLUSIONS: This study allowed to show the economic impact of DM type 2 from the perspective of the Unified Health System and that of society. Health expenditures and losses evidenced the need for actions aimed at the prevention of diabetes mellitus type 2, as well as to reduce the price of antidiabetic drugs; Which may be important strategies to reduce the consumption of resources in this reality. Both those used by the health service to defer the various actions and services, as well as the expenses or lost by society.

PHS56 HEALTH CARE COSTS DUE TO DIABETES MELLITUS 2 IN A COLOMBIAN POOR POPULATION AFFILIATED TO A CARDIOVASCULAR RISK MANAGEMENT PROGRAM

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OBJECTIVES: To estimate the direct medical costs due to type 2 diabetes mellitus type 2 and associated conditions in Colombia. METHODS: A retrospective cohort of 61,611 patients affiliated to a cardiovascular risk management program of a Colombian state-subsidized health insurance company was followed during 2015. Direct medical annual costs in patients and caregivers affiliated to a cardiovascular risk management program. METHODS: A retrospective cohort of 61,611 patients affiliated to a cardiovascular risk management program of a Colombian state-subsidized health insurance company was followed during 2015. Direct medical annual costs in patients and caregivers and health expenditures and transport costs of patients and caregivers in chronic hepatitis C accounted for 69.4% of the total cost. This estimated total direct cost for the indirect cost of hepatitis C and associated conditions was over 6 million reais in 2014. The clinical condition responsible for 50% of this value was liver fibrosis and cirrhosis. CONCLUSIONS: This study allowed to show the economic impact of HCV infection from the perspective of the Unified Health System and that of society. Health expenditures and losses evidenced the need for actions aimed at the prevention of HCV infection, as well as to reduce the price of antivirals; Which may be important strategies to reduce the consumption of resources in this reality. Both those used by the health service to defer the various actions and services, as well as the expenses or lost by society.

PHS53 HEALTHCARE BURDEN AMONG PATIENTS NEWLY DIAGNOSED WITH MULTIPLE MYELOMA WITH COMMERCIAL AND MEDICARE INSURANCE COVERAGE IN THE US

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OBJECTIVES: To evaluate healthcare costs among newly diagnosed patients with multiple myeloma (MM) in the US. METHODS: Patients newly diagnosed with MM who did not receive stem cell transplant were identified from the MarketScan Commercial and Medicare claims databases (1/2009-9/30/2015). All patients had continuous medical prescription coverage 12 months before baseline and > 12 months after the index date of MM treatment initiation. Demographics and clinical characteristics were evaluated during the baseline period. Healthcare costs (payers, patient (insurance, patient copay and out-of-pocket (OOP) payments (copayments, co-insurance, and deductibles paid by patients) were determined among patients with age < 65 and ≥ 65 years old and were inflation adjusted to 2015 US dollars. RESULTS: Among younger MM patients (< 65 years, n = 1,515), mean age was 56.7 years and 55.6% were male. During the follow-up, total mean healthcare costs (inpatient, outpatient, outpatient prescription) were $15,183 per-patient-per-month (PPPm). Inpatient costs were $4,204 PPPM, total outpatient costs were $8,170 PPPM, and total pharmacy costs were $2,880 PPPM including MM drug prescription costs of $2,521 PPPM. Among older MM patients (≥ 65 years, n = 3,093), mean age was 76.6 years and 55.2% were male. During the follow-up, total mean healthcare costs were $18,777 PPPM, inpatient costs were $5,183 PPPM, total outpatient costs were $4,484 PPPM, total outpatient pharmacy costs were $2,245 PPPM including MM drug prescription costs of $2,004 PPPM. Approximately 2% of total healthcare costs were attributed to OOP payments (26% to Medicare, 23% to Commercial, 11% to private insurance). Approximately 16% of total OOP payments attributed to MM drug related out-patient services. CONCLUSIONS: Monthly total healthcare costs among both younger and older patients with MM are substantial with outpatient medical costs representing over half of the total healthcare costs.
of a high risk patient from the low cost group was USD$1,631.9 (RIC: USD$814.03-USD$2,449.0). CONCLUSIONS: Cardiovascular risk level is related to health care costs of DM2 Patients. These findings justify the investment to control DM2 high risk patients.

PHS57 EVALUATION OF MEDICAL RESOURCE USE AND COSTS AMONG PATIENTS WITH NON-CARDIOEMBOLIC ISCHEMIC STROKE IN BEIJING
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OBJECTIVES: To estimate medical resource use and direct medical cost of patients with non-cardioembolic ischemic stroke (NCS) in Beijing, China. METHODOLOGY: This was a retrospective cohort study using Beijing Urban Employee Basic Medical Insurance database. Patients (>18 years old) hospitalized with a primary diagnosis of non-cardioembolic ischemic stroke (index event) between Oct.01 2012 and Dec.31 2014 were included. High-risk patients were further identified by Essen Score ≥ 3, with absence of smoking information in the database. 2-years before and 1-year after index date was observed to analyse the baseline characteristics and direct medical cost. RESULTS: A total of 35,336 patients were included in the study, with mean age of 67.1 years and 68.7% male. 59.1% (N=19,962) were identified as high-risk patients. On average, patients experienced 1.7 hospitalizations including index event every year. For all patients, the mean length of stay (LOS) was 15.3 days and the mean medical cost was USD$16,767.8 (RIC: USD$12,134.7-USD$21,399.7). CONCLUSIONS: Persisting hospitalization costs associated with NCS-related medical care beyond the index event, suggest an urgent need for further research to mitigate the economic burden related to NCS.

PHS58 MEDICAL COSTS ASSOCIATED WITH 30-DAY READMISSIONS AMONG PATIENTS WITH HEART FAILURE AND PERSISTENT HYPONATREMIA
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OBJECTIVES: To estimate the medical costs associated among hospitalized heart failure patients discharged with persistent hyponatremia (HN) defined as sodium level < 135 mmol/L, commonly occurs among patients hospitalized with heart failure (HF). Donzé et al. (Am J Med 2016,129(1):35-43) established an association between persistent HN (<135 at both admission and discharge) and increased risk of all-cause 30-day readmissions. Since readmission rate is an important quality measure, healthcare professionals may benefit from understanding the costs associated with discharging patients with uncorrected sodium. METHODS: An interactive microcosting economic model was developed to monetize (2016 $US) the installation of CO detectors in residences. The model used readmission rate inputs from Donzé et al. and hospitalization costs from the Healthcare Costs and Non-health-sector Costs. We also compared the costs and benefits of installing CO detectors in residences. RESULTS: We used 2009–2013 charges and costs. Total annual cost of CO detectors in residences ($6.8 million) and non-health-sector costs ($3.4 million). Hospitalizations, outpatient hospital visits, and emergency department (ED) visits accounted for approximately two thirds of the medical cost. CONCLUSIONS: Persisting hospitalization costs associated with NCS-related medical care beyond the index event, suggest an urgent need for further research to mitigate the economic burden related to NCS.

PHS59 ECONOMIC BURDEN OF VERY PRETERM BIRTH: A SYSTEMATIC LITERATURE REVIEW
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1North America (NA) and Europe. METHODS: Searches were conducted systematically in indexed literature databases for English-language articles published from January 2011 to July 2016. Eligible studies reported results on the economic burden (HCRU/costs) of very preterm birth in NA or Europe. RESULTS: 65 studies were identified for evaluation of medical resource use and costs among patients with very preterm birth in NA or Europe. Most studies reported on hospitalization costs and drug utilization costs, whereas limited data were found on outpatient HCRU/costs. Total direct costs (reported in 6 studies; NA, 2 Europe) among very preterm infants were generally high, particularly for those with lower GA at birth (e.g. >28 weeks gestation). Most studies focused on outcomes and costs associated with hospitalization in the first year of life, and did not assess costs beyond early childhood. CONCLUSIONS: Persisting hospitalization costs associated with NCS-related medical care beyond the index event, suggest an urgent need for further research to mitigate the economic burden related to NCS.

PHS60 ECONOMIC IMPACT OF UNINTENTIONAL CARBON MONOXIDE POISONING IN THE UNITED STATES
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OBJECTIVES: The purpose of this study was to estimate the morbidity cost of (Unintentional Carbon Monoxide Poisoning), including medical costs and non-health-sector costs. We also compared the costs and benefits of installing CO detectors in residences. RESULTS: We used 2009–2013 charges and costs. Total annual cost of CO detectors in residences ($6.8 million) and non-health-sector costs ($3.4 million). Hospitalizations, outpatient hospital visits, and emergency department (ED) visits accounted for approximately two thirds of the medical cost. CONCLUSIONS: Persisting hospitalization costs associated with NCS-related medical care beyond the index event, suggest an urgent need for further research to mitigate the economic burden related to NCS.

PHS61 COSTS OF THE ACUTE OTITIS MEDIA IN PEDIATRICS, IN A CITY OF THE COLOMBIAN CARIBBEAN COAST
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OBJECTIVES: To estimate the costs of acute otitis media (AOM) in pediatric patients in Cartagena Colombia. METHODS: Prospective study of microcosteo from 2014 to 2015. The direct and indirect costs of AOM were determined through forms applied to parents or caregivers. Loss of productivity was estimated based on the monthly legal minimum wage of 2014 (COP $ 636,000) (USD $ 308). RESULTS: A total of 62 episodes of AOM were present. Total economic costs attributed per OMA episode were COP $ 110,954 of which 95% (COP $ 111-148) more to be redetermined compared to patients discharged with corrected sodium. To translate the risk of readmission into a practical metric such as costs, the current economic model calculated the average cost for patients discharged with corrected sodium as: ([Number of patients discharged with corrected sodium X Hospitalization cost] + (Number of patients readmitted X Hospitalization cost))? / Number of patients discharged with corrected sodium. Similarly, average cost for patients discharged with uncorrected sodium was calculated. The numerical difference was the economic burden associated with discharging patients with uncorrected sodium. The model used readmission rate inputs from Donzé et al. and hospitalization costs from the Healthcare Costs and Non-health-sector Costs. Per the multivariable logistic regression analyses in Donzé et al., patients who were admitted and subsequently discharged with sodium < 135 mmol/L were 1.28 times (95% CI 1.11-1.48) more likely to be readmitted compared to patients discharged with corrected sodium. To translate the risk of readmission into a practical metric such as costs, the current economic model calculated the average cost for patients discharged with corrected sodium as: ([Number of patients discharged with corrected sodium X Hospitalization cost] + (Number of patients readmitted X Hospitalization cost))? / Number of patients discharged with corrected sodium. Similarly, average cost for patients discharged with uncorrected sodium was calculated. The numerical difference was the economic burden associated with discharging patients with uncorrected sodium. The model used readmission rate inputs from Donzé et al. and hospitalization costs from the Healthcare Costs and Utilization Cost Project and Premier Inpatient data, with an interactive functionality allowing users to specify costs for their own hospital. RESULTS: Discharging patients with uncorrected sodium increased costs from $488-$507 per discharge compared to patients with sodium ≥135 mmol/L. CONCLUSIONS: Due to outcomes improvements, the model supports the potential financial value of upfront monitoring and correction of low sodium before discharge.

PHS62 ASSOCIATION BETWEEN ASTHMA MEDICATION USE AND TOTAL HEALTHCARE COSTS AMONG PATIENTS WITH ASTHMA
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OBJECTIVES: To compare health care costs among persons with asthma who took daily asthma medications with those who did not. We also evaluated whether costs differed by age or race/ethnicity. METHODS: This cross-sectional study used data from the 2012-2013 Medical Expenditure Panel Survey (MEPS) to identify persons with asthma age ≥18 who reported taking one or more daily medication to prevent
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straegies to reduce these costs among persons with asthma. It would be useful for future research to identify factors that may be associated with higher costs and to explore racial/ethnic disparities. These results could help medical and public health practitioners better understand issues related to high healthcare costs, and may be useful to develop strategies to reduce these costs among persons with asthma.

PHS63

BULRD OF ILLNESS IN CYSTIC FIBROSIS: A RETROSPECTIVE ANALYSIS OF MEDICAL EXPENDITURE PANEL SURVEY (MEPS) DATA

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OBJECTIVES: Cystic fibrosis (CF) is a chronic lung disease occurring at a rate of 1 in 3,400 live births, affecting 30,000 people in the United States and 70,000 globally. Understanding the burden of CF within the health care system is lacking. The goal of the present study is to estimate the cost of illness of CF using publicly available data.

METHODS: The study is a retrospective analysis of Medical Expenditure Panel Survey (MEPS) data from 2001 to 2016. Costs are reported in 2016 US dollars using the consumer price index.

RESULTS: A total of 130 unique CF cases were identified, of whom 109 (83.8%) reported using a CF-related medical service. The mean annual per-patient cumulative cost was $65,903 ± 54,970. The cohort was predominantly female (n = 70, 62.4%), Caucasian (n = 71, 65.1%), privately insured (n = 73, 67.0%) and most commonly had comorbid hypertension (n = 45, 41.3%). Over 5 years, unweighted cumulative OOP costs were $31,828.58 and total healthcare costs were $455,539.70. Prescription medications accounted for 57.5% of OOP costs ($18,328.66) and 33% of total healthcare costs ($150,634.20). Using weighted data, annual cumulative out-of-pocket (OOP) costs and total health care costs were calculated. All statistical analyses were conducted using Statistical Analysis System 9.4 (SAS Institute; Cary, NC).

CONCLUSIONS: Descriptive analyses were conducted to assess patient demographics, clinical characteristics such as comorbidities and resource utilization, and responses to 2016 SF-36. Baseline conditions included expenditures occurring in inpatient, outpatient, office, home health and emergency visits, as well as prescription drugs utilization. Unweighted and weighted annual cumulative out-of-pocket (OOP) costs and total health care costs were calculated. All statistical analyses were conducted using Statistical Analysis System 9.4 (SAS Institute; Cary, NC).

PHS64

HEALTHCARE RESOURCE UTILIZATION AND COSTS OF RENAL IMPAIRMENT IN PATIENTS WITH MULTIPLE MYELOMA

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OBJECTIVES: Renal impairment (RI) is a common complication of multiple myeloma (MM). Up to 61% of MM patients experience RI. This study estimated economic burden associated with RI in MM patients in the US. METHODS: In this retrospective cohort study patients aged ≥ 18 years old with ≥ 2 outpatient MM diagnoses between 1/1/2008 - 9/30/2015 identified from MarketScan® Commercial and Medicare Supplemental Databases. RI patients had ≥ 1 diagnosis of chronic kidney disease (CKD) Stage ≥ IV (first CKD diagnosis date must be after the first MM diagnosis, and were propensity score matched 1:1 to MM patients without RI (controls). All patients had ≥ 6-month continuous enrollment prior to index date and were followed for ≥ 1 month from index date until the earliest of inpatient death, end of continuous enrollment, or end of the study period (9/30/2015). The average per-patient per-year (PPY) healthcare resource utilization costs and costs were measured during follow-up. Costs were total reimbursed amount in 2016 dollars. RESULTS: A total of 2,541 matched cohorts were identified with a mean age of 69.3±66.9 years; male: 55%; mean days in follow up: 533-572). They were well-balanced on baseline demographic, clinical characteristics and costs. Compared to controls, there was a significant higher proportion with RI (51% vs. 31%) and number (1.2 vs. 0.5) of inpatient admissions, emergency room visits (1.1 vs. 3.3), and total costs ($106,634 vs. $71,880). Sensitivity analyses found that patients with CKD stage III-IV had $38,412 higher costs and patients with CKD or end stage renal disease (ESRD) had $90,312 higher costs than controls. CONCLUSIONS: The economic burden associated with RI in patients with MM was estimated to be between $34,754 and $78,455 PPY. Given its substantial impact, preservation of renal function is important in MM patient care.

PHS65

TOTAL COST OF CARE AMONG PATIENTS WITH EXTENSIVE DISEASE SMALL CELL LUNG CANCER (ED-SCLC) TREATED AT A TERTIARY HOSPITAL IN BRAZIL

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OBJECTIVES: Cost-of-care information in ED-SCLC is limited. Most studies include only private patients and do not include outpatient chemotherapy. This study was designed to quantify total direct medical costs 90 days and 1 year post-diagnosis for a cohort of US Medicare patients with ED-SCLC (overall and according to treatment type: outpatient chemotherapy within 90 days of diagnosis). METHODS: Using Surveillance, Epidemiology, and End Results (SEER) data linked to Medicare claims, we identified patients aged ≥ 66 years with Medicare Parts A and B coverage and a first primary cancer diagnosis (pathologically confirmed). Patients were followed from diagnosis until death, second primary cancer, coverage change, or 12/31/2013. Treatment was determined using Medicare claims. Medicare-paid amounts were adjusted to 2013 US dollars using the Consumer Price Index medical component. RESULTS: In our cohort of 5488 patients with ED-SCLC, mean age was 75 years (median: 66-69), 49% were male, and 86% were white. Median survival time for all patients was 4.7 months. Mean cumulative total medical cost per patient was $29,213 (95% CI: $28,589-$29,838) at 90 days and $50,206 (95% CI: $49,151-$51,261) at 1 year. Hospitalizations accounted for 56% of first-year costs. In 2013, patients with ED-SCLC in Brazil reported having an asthma attack in the last 12 months. In adjusted results, total healthcare resource utilization and costs were measured during follow-up. Costs were calculated. All statistical analyses were conducted using Statistical Analysis System 9.4 (SAS Institute; Cary, NC).

CONCLUSIONS: The KT was considered cost-effective once it has generated enough incremental cost-effectiveness (ICER) and was acceptable in terms of QALY gained. Using weighted data, the cumulative OOP costs was $615,098,138 and total healthcare costs was $6,691,134,764. Of 2,541 patients with ED-SCLC, mean age was 69.3-69.6 years; male: 55%; mean days in follow up: 533-572). They were well-balanced on baseline demographic, clinical characteristics such as comorbidities and resource utilization, and responses to 2016 SF-36. Baseline conditions included expenditures occurring in inpatient, outpatient, office, home health and emergency visits, as well as prescription drugs utilization. Unweighted and weighted annual cumulative out-of-pocket (OOP) costs and total health care costs were calculated. All statistical analyses were conducted using Statistical Analysis System 9.4 (SAS Institute; Cary, NC).

CONCLUSIONS: Descriptive analyses were conducted to assess patient demographics, clinical characteristics such as comorbidities and resource utilization, and responses to 2016 SF-36. Baseline conditions included expenditures occurring in inpatient, outpatient, office, home health and emergency visits, as well as prescription drugs utilization. Unweighted and weighted annual cumulative out-of-pocket (OOP) costs and total health care costs were calculated. All statistical analyses were conducted using Statistical Analysis System 9.4 (SAS Institute; Cary, NC).

CONCLUSIONS: The economic burden associated with RI in patients with MM was estimated to be between $34,754 and $78,455 PPY. Given its substantial impact, preservation of renal function is important in MM patient care.
TRANSLATION AS FIRST LINE THERAPY FROM A US HEALTHCARE PERSPECTIVE

OBJECTIVES: To evaluate the cost-effectiveness of brentuximab vedotin in patients with relapsed/refractory Hodgkin Lymphoma as compared to Chemotherapy/Chemotherapy with stem cell transplantation as first line transplantation as first line therapy from a US healthcare perspective.

METHODS: An Excel based Markov model was developed with three health states to follow the clinical end points reported in the AETHERA clinical trial. Health states included were: Progression free survival, Progressed disease and Death. Progressed disease was defined as disease that progressed with time in scope and/or severity. Brentuximab vedotin was compared with the first line treatments like chemotherapy or chemotherapy with stem cell transplantation. The model outcomes were quality-adjusted life years (QALYs) and incremental cost-effectiveness ratios (ICERs). Further, the model was calibrated against the published SPRINT trial results at a median follow-up of six months.

RESULTS: Brentuximab vedotin cost-effectiveness findings appear to be in-line with or more favorable than many other newly approved anti-cancer therapies. At a willingness-to-pay of $100,000/QALY, brentuximab vedotin was found to be cost-effective more than 50% of the time.

CONCLUSIONS: Brentuximab vedotin cost-effectiveness findings appear to be in-line with or more favorable than many other newly approved anti-cancer therapies. At a willingness-to-pay of $100,000/QALY, brentuximab vedotin was found to be cost-effective more than 50% of the time.

PHS68
EVALUATE THE COST-EFFECTIVENESS OF BRENTUXIMAB VEDOTIN IN PATIENTS WITH RELAPSED/REFRACTORY HODGKIN LYMPHOMA WHO HAVE FAILED TO REACH A CR/PR WITH FIRST-LINE CHEMOTHERAPY/ CHEMOTHERAPY WITH STEM CELL TRANSPLANTATION AS FIRST LINE THERAPY FROM A US HEALTHCARE PERSPECTIVE

OBJECTIVES: To evaluate the cost-effectiveness of brentuximab vedotin in patients with relapsed/refractory Hodgkin Lymphoma as compared to Chemotherapy/Chemotherapy with stem cell transplantation as first line therapy from a US healthcare perspective.

METHODS: An Excel based Markov model was developed with three health states to follow the clinical end points reported in the AETHERA clinical trial. Health states included were: Progression free survival, Progressed disease and Death. Progressed disease was defined as disease that progressed with time in scope and/or severity. Brentuximab vedotin was compared with the first line treatments like chemotherapy or chemotherapy with stem cell transplantation. The model outcomes were quality-adjusted life years (QALYs) and incremental cost-effectiveness ratios (ICERs). Further, the model was calibrated against the published SPRINT trial results at a median follow-up of six months.

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PHS69
EVALUATE THE COST-EFFECTIVENESS OF BRENTUXIMAB VEDOTIN IN PATIENTS WITH RELAPSED/REFRACTORY HODGKIN LYMPHOMA WHO HAVE FAILED TO REACH A CR/PR WITH FIRST-LINE CHEMOTHERAPY/ CHEMOTHERAPY WITH STEM CELL TRANSPLANTATION AS FIRST LINE THERAPY FROM A US HEALTHCARE PERSPECTIVE

OBJECTIVES: To evaluate the cost-effectiveness of brentuximab vedotin in patients with relapsed/refractory Hodgkin Lymphoma as compared to Chemotherapy/Chemotherapy with stem cell transplantation as first line therapy from a US healthcare perspective.

METHODS: An Excel based Markov model was developed with three health states to follow the clinical end points reported in the AETHERA clinical trial. Health states included were: Progression free survival, Progressed disease and Death. Progressed disease was defined as disease that progressed with time in scope and/or severity. Brentuximab vedotin was compared with the first line treatments like chemotherapy or chemotherapy with stem cell transplantation. The model outcomes were quality-adjusted life years (QALYs) and incremental cost-effectiveness ratios (ICERs). Further, the model was calibrated against the published SPRINT trial results at a median follow-up of six months.

RESULTS: Brentuximab vedotin cost-effectiveness findings appear to be in-line with or more favorable than many other newly approved anti-cancer therapies. At a willingness-to-pay of $100,000/QALY, brentuximab vedotin was found to be cost-effective more than 50% of the time.

CONCLUSIONS: Brentuximab vedotin cost-effectiveness findings appear to be in-line with or more favorable than many other newly approved anti-cancer therapies. At a willingness-to-pay of $100,000/QALY, brentuximab vedotin was found to be cost-effective more than 50% of the time.
group, it had low weight in the final result. HFCP was dominant over CM. CONCLUSIONS: Compared to CMT, the HFCP yielded a higher total Quality of life to a lower mean total cost. Therefore, HFCP is dominant over CMT and is a cost-saving strategy that should be considered by policy makers.

PHS73

ESTIMATING HEALTH BENEFITS AND COST-SAVINGS FOR REDUCING THE INCIDENCE OF INVASIVE COLORECTAL CANCER IN THE UNITED STATES

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OBJECTIVES: Healthy People 2020 (HP 2020) Objective C9 is to reduce invasive colorectal cancer (CRC) incidence from 60.000/population in 2000 to 50.000/100,000 population in 2020. This study aims to quantify the aggregate potential life-years (LYs) saved and the aggregate healthcare cost-savings if this objective were met.

METHODS: Eligible patients, (n=6798) diagnosed with invasive CRC between 2001 and 2011 from the National Program of Cancer Registries and the Surveillance, Epidemiology, and End Results Program. We stratified these patients by sex, race/ethnicity, and age into 12 cohorts. Using these data and data from the 2000-2011 national Medical Expenditure Panel Survey, we estimated an aggregate of 150,000 LYs for males and 9,548 LYs for females would have been saved, which accounted for aggregate healthcare cost-savings of $584 million and $33 million, respectively. Per person, we estimated potential 6.3 LYs saved for both males and females, and healthcare cost-savings of $24,440 and $28,433, respectively. Among all racial/ethnic cohorts, non-Hispanic whites had the highest aggregate LYs saved and cost-savings. Among all age cohorts, patients age 65-69 years had the highest aggregate LYs saved and cost-savings, respectively. The objective for reducing invasive CRC rate by 15% by 2020 would potentially have public health impact by saving lives and healthcare costs.

PHS74

HEALTHCARE RESOURCE UTILIZATION ASSOCIATED WITH MANAGING DISEASE- AND TREATMENT-RELATED HEALTH EVENTS IN US MULTIPLE MYELOMA (MM) PATIENTS: REAL-WORLD ADMINISTRATIVE CLAIMS BASED ANALYSIS

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OBJECTIVES: To study healthcare utilization and costs associated with health events during Multiple Myeloma (MM) treatment.

METHODS: A retrospective descriptive study was conducted on CF patients hospitalized in the MedAssets health system data from October 2010 to September 2014. The sample included 7,936 unique patients. The 5 most common healthcare utilization events among MM patients were admitted as an inpatient with an average LOS of 10.4 days and an average cost of $25,749. The population averaged nearly three comorbidities which primarily fell into respiratory (64.3%), gastrointestinal (41.6%), cardiovascular (36.4%) and/or anxiety/depression (19.6%) diseases. Primary predictors of inpatient admission included malnutrition (OR 5.5, 95% CI 4.8 - 6.3), chronic lower respiratory disease (OR 3.4, CI 3.3 - 3.8), epilepsy (OR 4.3, CI 3.0 - 6.1), and anemia (OR 4.2, CI 3.6 - 4.9). Once admitted respiratory (RR 1.6, CI 1.5 - 1.7), malnutrition (RR 1.4, CI 1.3 - 1.4), and arthromyelopathy (RR 1.2, CI 1.1 - 1.4) contributed to longer LOS. Additionally, coagulation defects (RR 1.2, CI 1.1 - 1.3), and coronary artery disease (RR 1.5, CI 1.3 - 1.9) contributed to higher cost. CONCLUSIONS: Cystic fibrosis patients admitted to the hospital have a large number of comorbidities and complications. Improvements in disease management may lead to better patient outcomes and a reduction in hospital utilization and healthcare costs.

PHS75

THE IMPACT OF COMORBID CONDITIONS ON HOSPITAL RESOURCE UTILIZATION AMONG PATIENTS WITH CYSTIC FIBROSIS

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OBJECTIVES: Cystic fibrosis (CF) a common life-limiting autosomal recessive condition that arises from respiratory failure, also impacts the diagnosis and treatment of other comorbid conditions. One of the most common comorbid conditions among CF patients is respiratory failure. This study aims to identify the impact of comorbid conditions on hospitalization costs and length of stay among patients with CF.

METHODS: This study utilized the claims data of a large US-wide CF clinical trial (NEPHOS). The primary outcome was the length of inpatient hospitalization among patients with CF. Multivariate regression models were used to identify drivers of inpatient length of stay. Results: Respiratory failure (OR 1.8, CI 1.5 - 2.1), malnutrition (OR 2.9, CI 2.4 - 3.6), and anemia (OR 1.8, CI 1.3 - 2.3) contributed to longer inpatient hospitalization. CONCLUSIONS: Respiratory failure, malnutrition, and anemia are significant drivers of increased length of stay and cost associated with hospitalization among patients with CF.

PHS76

HEALTHCARE UTILIZATION AND COSTS IN LUNG CANCER PATIENTS WITH PRE-EXISTING COPD AMONG SEER-MEDICARE BENEFICIARIES

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OBJECTIVES: In 2010, lung cancer accounted for $12.6 billion in total direct medical costs. We examined the healthcare utilization and costs in elderly lung cancer patients with and without pre-existing COPD. METHODS: Using SEER-Medicare data, we identified patients with lung cancer from 2001-2010 who were continuously enrolled in Medicare Parts A and B in the 12 months prior to cancer diagnosis. Pre-existing COPD in lung cancer patients were identified using ICD-9 codes. Healthcare utilization and costs were estimated among patients with COPD and matched controls from the Non-COPD group using multivariable regression to account for demographic and healthcare utilization drivers. CONCLUSIONS: The adjusted analysis was performed using a generalized linear model for healthcare costs and a binary normal model for healthcare utilization. Pre-existing COPD was associated with 66,963 additional hospitalizations and $62,497 in additional cost per person. The adjusted objective for reducing COPD by 15% by 2020 would have potentially reduced healthcare costs in the U.S. population by $24 billion.
costs in HIV-positive patients, using the Quebec (RAMQ) public drug plan database. METHODS: Patients who had received antiretroviral treatment for at least six months from January 2006 to June 2012 were selected. HIV-positive patients with no comorbidities were matched 1:1 for age, sex and time of follow-up and compared to HIV-positive patients with at least one comorbidity. Index date was defined as the date of the diagnosis, diagnosis related group, or admission hospitalization, procedure related to comorbidities for the patient with at least one comorbidity, and the corresponding date of the case was defined for the controls. Cases and controls were compared with independent t-test for continuous variables and chi-square test for categorical variables. RESULTS: For the analysis of 1,336 HIV-positive patients with at least one comorbidity and 1,336 matched controls with no comorbidities, the average age was 45.1 years (SD=9.9) with 78.5% men. The mean total health care cost per patient per year in the 2 years following index date was higher in HIV-positive patients with at least one comorbidity than in HIV-positive patients with no comorbidities (22,057 CAN$ SD=16,874 vs. 15,093 CAN$ SD=8,870. p<0.001). The higher cost in HIV-positive patients with at least one comorbidity can be explained by the higher number of hospitalization days (3.4 SD=10.9 vs. 1.0 SD=4.5, p<0.01) and the higher number of prescriptions (151.3 SD=41.9 vs. 93.8, p<0.01) than in HIV-positive patients with no comorbidities. CONCLUSIONS: The presence of comorbidities has an impact on the burden associated with HIV leading to a significant difference in total health care cost observed between HIV-positive patients with at least one comorbidity and HIV-positive patients with no comorbidities.

PHS79 UTILIZATION AND COST OF HEALTHCARE SERVICES DURING EPISODES OF AFFECTIVE BACTERIAL SKIN AND SKIN STRUCTURE INFECTIONS (ABSSSI) INVOLVING ADULTS FROM UNITED STATES AND CANADA: A SYSTEMATIC OBSERVATIONAL ANALYSIS USING A LARGE HEALTHCARE CLAIMS DATABASE

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OBJECTIVES: To describe patterns of utilization and cost of healthcare during episodes of ABSSSI known/suspected to be due to meticillin-resistant Staphylococcus aureus (MRSA) involving admission to US hospitals. METHODS: We identified a representative sample from the database from May 11th 2010 to November 30th 2014 with a principal diagnosis consistent with ABSSI (ICD-9-CM codes 033.XX, 681.XX, 682.XX, 686.XX, 958.3, 998.5X). Among all such admissions, we selected those with continuous enrollment for 6 months prior to and 44 days following admission, and either hospital discharges for MRSA or receipt of anti-MRSA antibiotics. Admissions were excluded with secondary diagnoses of other infections. Care episodes were constructed, beginning with the first claim associated with ABSSI within 30 days of hospital admission and ending at the earliest of the end of 30 day gap in relevant claims; or (2) a claim for a non-ABSSI infection post discharge. We examined patterns of healthcare utilization and cost during the episodes (inpatient and outpatient). Reimbursed amounts were used in lieu of costs. RESULTS: Mean (SD) cost of ABSSI episodes (n=30,241) was £11,894 (±10,167), of which inpatient care represented 78% (£9,287 [SD 8,153]). ABSSI episodes lasted an average of 15.9 (6.0) days. Length of stay was >4 days for 25% of admissions. Patients and 73% received outpatient care during pre- and post-admission, respectively, 93% were discharged home. While 97% received antibiotics post discharge (primarily with anti-MRSA agents), only 7% had evidence of receipt of outpatient intravenous therapy. CONCLUSIONS: Results of our study suggest that annual total costs of care to US payers for ABSSI episodes known/suspected to be due to MRSA are £81.4 million. Treatment included limited use of outpatient intravenous therapy. Opportunity may exist to reduce costs for episodes of ABSSI by leveraging existing guideline-driven outpatient treatment pathways and/or novel, long-acting antibiotics.

PHS80 HEALTH CARE RESOURCE UTILIZATION AND COSTS IN HIV-POSITIVE VERSUS HIV-NEGATIVE PATIENTS

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OBJECTIVES: The study objective was to evaluate the impact of HIV on health care resource utilization and costs, using the Régie de l’Assurance Maladie du Québec (RAMQ) public drug plan database. METHODS: Patients who had received antiretroviral treatment (ART) for at least six months from January 2006 to June 2012 were selected. HIV-negative patients with no comorbidities were matched 3:1 with HIV-positive patients with at least one comorbidity. HIV-positive patients with no comorbidities, the mean age was 45.1 years (SD=9.9) with 78.5% men. The mean total health care cost per patient per year in the 2 years following index date was higher in HIV-positive patients with at least one comorbidity than in HIV-positive patients with no comorbidities (22,057 CAN$ SD=16,874 vs. 15,093 CAN$ SD=8,870. p<0.001). The higher cost in HIV-positive patients with at least one comorbidity can be explained by the higher number of hospitalization days (3.4 SD=10.9 vs. 1.0 SD=4.5, p<0.01) and the higher number of prescriptions (151.3 SD=41.9 vs. 93.8, p<0.01) than in HIV-positive patients with no comorbidities. CONCLUSIONS: The presence of comorbidities has an impact on the burden associated with HIV leading to a significant difference in total health care cost observed between HIV-positive patients with at least one comorbidity and HIV-positive patients with no comorbidities.
health care providers) with VOC related discharges from January to December 2013. The average all cause readmission rate for this institution was 42% and for VOC readmissions was 36% within these institutions and unadjusted patient discharges from January to December of these discharges 4,412 did not have a readmission, 8,179 discharges had an all cause readmission and 6,996 had a VOC. Of these patients 3,968 discharges from January to October in an inpatient setting resulted in 33% returning to an ER visit within 30 days. Of these discharges the average charges ranged from $1,589.54 to $20,036,824.40. **CONCLUSIONS:** Our findings suggest there is a high readmission rate of patients with SMA. It indicated the need for improvement in the management of pain during hospitalization and at home post discharge.

**PHS85**

**COST OF VISITS ASSOCIATED WITH MANAGEMENT OF INTERNATIONAL NORMALIZED RATIO (INR) RESULTS IN ATRIAL FIBRILLATION (AF) PATIENTS TREATED WITH VITAMIN K ANTAGONIST (VKA)***

**Assolabihere X,2 Augier G***

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In AF patients, VKA treatment requires a close follow-up and dose-adjustments to achieve target INR (2−3). Initiation phase is critical but medication adherence and compliance can be affected by the complexity of the treatment. Thus, pharmaceutical care (PhC) is crucial to improve quality of care in these patients. The aim of this study was to assess the costs attributable to pharmacist counseling (PhC) for patients treated with VKA. The impact of PhC on VKA adherence was measured using a PhC database. (N = 6,751) planned patients admitted to the hospital were included. The mean (SD) follow-up was 4.25 (1.72) years. Outcomes were compared between those with a PhC in the initial year vs those without. **RESULTS:** A total of 5,295 patients (50.4% female; mean [SD] age, 21.6 [17.45] years) were included. Mean (SD) follow-up was 4.25 (1.72) years (range, 2.00−7.80). During the study, 1,852% of patients had ≥1 PEx of any type, 52.8% had ≥1 PExOral. With each additional PEx in year 1 of patients without PEx during year 1; these patients also had 54 more hospital days during follow-up compared with patients with ≥1 PEx. With each additional PEx in year 1, patients had ≥3 more PEx, ≥1 more hospitalization, and ≥5 more hospital days over the follow-up period. Patients with an initial year 1 hospital stay had ≥11 more PEx, ≥6 more hospitalizations, and ≥42 more hospital days than patients with an initial year 1 PEx requiring oral anticoagulants. **CONCLUSIONS:** This study assessed insured patients with AF with experience of ≥1 PEx. It is found in AF patients treated with VKA a statistically significant difference (p < 0.05 level). The PEx in year 1, 4,103 patients in the analgesic (75%) migraine/headache, 27% bone pain) were included for PhC at SOC. Of the initial 4,103, 1,696 continued to refill analgesic prescriptions six months after SOC with 360 (21%) being in the PhC cohort. 81 of 1,696 (4.8%) patients at SOC reported having recently received a combination PEx and 360 (21%) being in the PhC cohort. Patients at SOC reported having recently received a combination PEx at six months follow-up, a statistically significant difference (p < 0.05 level). **CONCLUSIONS:** This SP MTM program incorporating PhC was associated with an 88% reduction in incidence of M/SD doses of non-narcotic analgesic use. Further research is recommended to determine the impact of pharmacist counseling and to identify sub groups of patients where counseling may be of particular value. Extension of the study to additional therapeutic areas and specialty drug classes is recommended.

**PHS88**

**SELF-REPORTED ADHERENCE OF VETERANS LIVING WITH HIV USING MAIL-ORDER PHARMACY***

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**OBJECTIVES:** The efficacy of HIV medication depends on near perfect adherence to medication regimens by individuals. The aim of this study was to examine the degree of adherence to antiretroviral medications for Veterans using Mail-Order Pharmacy (CMO) System at one Veteran Administration (VA) site. **METHODS:** A cross-sectional study design was used to assess self-reported Veteran’s adherence rates at one Midwestern VA Hospital Infectious Disease Clinic. A combination of administrative and in-person medication management was conducted for recruitment to reach maximum number of patients. Adherence was measured using the Brief Medication Questionnaire (BMQ) survey. All 57 Veterans who were contacted completed the survey (100%). The sample consisted primarily of white (66.7%), male (96.5%) respondents with a mean age of 54.4 years (SD=8.0) and an average of 4.3 comorbidities (SD=2.2) along with a positive diagnosis for HIV. More than half used a combination of two medications to keep their viral loads in check (57.89%). Almost 48% of patients were non-adherent (30% sporadically and 17.5% regularly non-adherent) with HIV medications. About 33% reported having refill issues for their HIV medications and 43% doubted how well the medication worked for them. Raletgavir was the most commonly used medication amongst Veterans, followed by a combination medication of trentinovir & emtricitabine. The combination drug with lopinavir and ritonavir was found to be the least well tolerated drug, followed by the combination drug with rilpivirine, tenofovir and emtricitabine. Adherence was significantly associated with finding the medication bothersome (p=0.031). **CONCLUSIONS:** The results suggest both practical issues and medication beliefs may affect adherence rates. Tailored interventions targeting these factors should be explored to address non-adherence by this vulnerable population, particularly given that the VA system is the largest single healthcare provider for patients with HIV.

**PHS89**

**EXPECTATION AND SATISFACTION OF HIV/AIDS PATIENTS TOWARD THE PHARMACY CARE PROVIDED AT GONDER UNIVERSITY REFERRAL HOSPITAL, NORTHWEST ETHIOPIA: A CROSS-SECTIONAL STUDY***

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**OBJECTIVES:** To assess human HIV/AIDS patients’ expectation from and satisfaction with the pharmaceutical service delivered at Gonder University Referral Hospital, Ethiopia. **METHODS:** An institution-based cross-sectional study was performed from May 11 to 25, 2015. A total of 291 patients living with HIV/AIDS were included using a
simple random sampling method. Data were collected using structured questionnaires measuring expectation and satisfaction of respondents using a Likert scale of 1-5. The results were analyzed using Statistical Package for Social Sciences. Comparison was made between those respondents who lived in and outside the town. RESULTS: The overall mean expectation and satisfaction of respondents toward pharmacy setting and services were 3.62 and 3.13, respectively. More than half (56.1%) of the participants were dissatisfied with the comfort and convenience of waiting area and private counseling room. Similarly, 69.3% of the respondents claimed that pharmacy professional did not give information about side effects and drug-drug and food interactions of antiretroviral medications. There was a statistically significant difference between respondents who live in and outside Gondar town in overall expectation (t = -4.85, P < 0.001, 95% CI: 3.235-14.013), HIV positive TB patients (AOR = 1.46, 95% CI: 1.231-2.656), and respondents aged 15-59 years (AOR = 1.81, 95% CI: 1.219-1.66). Expectation of respondents living in Gondar town was higher than those living outside in all indicators.

PHS90
TREATMENT OUTCOMES OF TUBERCULOSIS AND ASSOCIATED FACTORS IN AN ETHIOPIAN UNIVERSITY HOSPITAL
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OBJECTIVES: To assess the outcome of tuberculosis treatment and to identify factors associated with tuberculosis treatment outcome. METHODS: A five year retrospective cross-sectional study design was employed and data were collected through medical record review. This study uses the following operational definitions: Successful treatment outcome: If TB patients were cured or completed treatment with resolution of symptoms. Unsuccessful treatment outcome: If treatment of TB patients resulted in treatment failure, relapse, or death. Data were analyzed using Statistical Package for Social Sciences of software version 16, binary and multiple logistic regression methods were used. A p value of less than 0.05 was considered as statistically significant in the final model. RESULTS: Out of the 1584 pulmonary TB patients (882 males and 702 females) included all age group, 60.1% had successful outcome and 39.9% had unsuccessful outcome. In the final multivariate logistic model, the odds of unsuccessful treatment outcome was higher among patients weight category (30-39 kg) (odds ratio (OR) = 2.82 (95% CI: 1.70-4.66), compared to their respective groups. CONCLUSIONS: In this study high proportion of unsuccessful treatment outcome was documented. Therefore emphasis has to be given for patients with high risk of unsuccessful TB treatment outcome and targeted interventions should be carried out.

PHS91
IMPACT OF COLLABORATIVE CUSTOMIZED PATIENT EDUCATION IN PSYCHIATRIC DISEASES
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OBJECTIVES: To study the impact of Pharmacist-Psychiatrist Collaborative customized Patient Education in patients with depression, Bipolar Affective Disorder (BPAD), Schizophrenia and Alcohol/Drug Dependence Syndrome (ADS). METHODS: A prospective randomized control study was conducted in the psychiatry outpatient department of a tertiary care hospital for a period of 6 months. Eligible patients (225) were randomized into test group and control groups by simple randomization in each disease and followed for a period of six months. Customized patient education was provided to the test group with the help of patient education materials while the control group was on usual care. The medication adherence and QOL were evaluated in order to improve adhesion to the program. RESULTS: A total of 779 patients were discharged home after a stroke in this time period. Only 508 patients (67%) responded to the first telephone interview (30 days after discharge), 516 (79%) responded to the second interview (90 days after discharge), and 463 (78%) responded to the third interview (180 days after discharge). Patients with loss of follow up were: lack of answer to telephone contact and hospital readmissions at the time of the contact. CONCLUSIONS: A structured follow up of patients discharged after a stroke is feasible, however alternative methods of personal communication such as email protected digital networking should be further evaluated in order to improve adhesion to the program.

PHS92
ASSESSMENT OF BENEFITS SUITABLE FOR INCLUSION INTO AN ECONOMIC EVALUATION FOR CHILDREN WITH MOTOR SPEECH DISORDER IN CEREBRAL PALSY
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OBJECTIVES: To review the Quality of Life (QOL) tools suitable for capturing the benefits of an internet delivered speech therapy in children with speech and language difficulties in cerebral PALSY. METHODS: Published, Embase, Medline, PsyINFO, NHS Economic Evaluation Database and Cochrane Database of Systematic Reviews were searched to identify literatures on QOL tools for children with speech, language and communication disabilities aged 3-18 years. Full text articles were included with no restriction to language or study setting. RESULTS: 1052 studies were included from the review. A total of 76 studies were included in the HUI3 scores and level of impairment in children with cerebral palsy reinforcing it as the most suitable tool for the assessment of benefit in children with motor speech disorder and cerebral palsy. Another alternative for consideration would be PedSALQol, but further research would be required before this tool could be used as the basis of health state utilities.

PHS93
FACTORS AFFECTING PROXY REPORTING OF PATIENT OUTCOMES
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OBJECTIVES: Patient experience and health status measures are part of surveys which are included in pay for performance approaches and public reporting. If patient carers are unable to respond directly themselves, anchor respondents are used to report on their behalf. It is not known if proxy-specific information affects how proxies report on patient care experience and health status. The aim of this study was to evaluate if proxy-specificAnchor respondents can report on patient care experience, quality, and quality of life, and determine if these covariates are important for data collection. METHODS: Secondary analysis of data from the Cancer Care Outcomes Research and Surveillance (CanCORS) study, a cross-sectional survey. Respondents were proxies for living patients with colorectal or lung cancer. Outcomes included experiences with medical and nursing care, care coordination, care quality rating, physical and mental health. All outcomes were on 0-100 scales (0-worst, 100-best). Proxvaticities included relationship to patient, sex, education, frequency of proxy-patient contact, frequency of attending consultations, and frequency of discussing medical decisions and discussing the patients’ feelings with the patient. Analyses used linear regression models with patient sociodemographic and clinical characteristics and proxy-specific covariates. A multiple imputation was used for missing data. RESULTS: Of the 1,011 proxies, most were the patient’s spouse/partner (49%) or child (36%). Although most proxies (66.3%) always attended medical visits, a minority reported never attending (2.6%). Of the five tools identified as being suitable for this group of children but cannot be applicable because further work would be needed to assign utility scores to responses from this tool. CONCLUSIONS: HUI3 was identified to be the most suitable tool for the assessment of benefit in children with motor speech disorder and cerebral palsy. Another alternative for consideration would be PedSALQol, but further research would be required before this tool could be used as the basis of health state utilities.

PHS94
PATIENT EXPERIENCES WITH LOW-DOSE CT LUNG CANCER SCREENING IN THE VETERANS HEALTH ADMINISTRATION SYSTEM
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OBJECTIVES: To evaluate if low-dose CT lung cancer screening (LDS) in veterans with a history of smoking can detect lung cancer earlier than usual care. METHODS: A prospective cohort study of veterans with a history of smoking who were not eligible for Medicare. Veterans were randomized to receive either LDS or usual care. LDS volunteers were invited to undergo annual LDCT screening for 3 years. The LDS group was followed for 3 years and the control group was followed for 5 years. RESULTS: A total of 16,397 veterans were randomized, of which 4,137 were in the LDS group. The mean age of the subjects was 64.4 years and 91.4% were male. Of the 4,137 veterans in the LDS group, 131 (3.2%) were diagnosed with lung cancer during the study period. The overall mean age of the patients with lung cancer was 64.5 years and 92.3% were male. The mean age of the patients with lung cancer who were in the LDS group was 66.1 years and 90.1% were male. CONCLUSIONS: The results of this study suggest that low-dose CT screening detected lung cancer at an earlier stage, identified more lung cancers at an earlier stage, and identified more lung cancers overall than usual care.
OBJECTIVES: The Veterans Health Administration (VHA) was an early adopter of low-dose CT (LDCT) lung cancer screening for heavy smokers (≥30-pack-year history, age 55-80) in 2013, and continues to be a critical research resource in this area. The objective of this study was to use qualitative inquiry to understand patient experiences with LDCT lung cancer screening in the VHA system. METHODS: ODS (Office of Disease Prevention and Health Promotion) conducted qualitative interviews with 193 patients with a diagnosis of lung cancer who participated in LDCT screening at Portland, OR and Charleston, SC VHA sites. Participants met U.S. Preventive Services Task Force screening criteria and the sample was enriched for Lung-RADS positive results (50% of sample). Trained staff interviewed 20 participants in the summer of 2016. Interviews were recorded, transcribed, and independently evaluated by two study investigators using inductive content analysis methods to identify major themes. RESULTS: Among the 20 participants, 86% were female, 69% Caucasian, 6% Asian, 4% African-American, and 6% self-reported current smoking. Most participants were unaware of lung cancer screening before having it offered by their clinician. The majority of participants described screening benefits (early detection) when responding to open-ended questions, and few discussed any screening harms. Nearly all described the experience of the screening exam as “easy”, “quick”, and/or “painless”. Most participants with positive results expressed desire for more information about screening and results. Negative results did not. Participant quotes supporting these themes will be presented. CONCLUSIONS: Among participants who recently received LDCT screening in the VHA system, screening was frequently introduced by clinicians, screening benefits were noted more often than harms during the exam was often described as ‘easy’, and patients with positive results wanted more information about screening. Our findings provide insights to help VHA and other stakeholders understand patient perspectives on LDCT screening, and can be used to inform efforts to improve screening processes.

PHS96

EFFECT OF PATIENT INVOLVEMENT ON INTENTION TO INITIATE BREAST CANCER CHEMOPREVENTION

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OBJECTIVES: The purpose of this study was to test the effect of patient involvement levels, developed using different breast cancer risk scenarios on their intention to initiate breast cancer chemoprevention. METHODS: In this experimental field study involvement was manipulated at low and high levels and was developed using two scenarios. Breast cancer risk levels were considered using the Gail risk score. A breast cancer risk level of 16% with family history was used for low risk scenario and breast cancer risk level of 55% with family history and a breast biopsy was used for high risk scenario. Women across the hemophilia community were randomly assigned to one of two chemoprevention drug decision aids after reading scenarios simulating high and low involvement. A pre-validated, self-administered survey instrument was used to measure their intention to start chemoprevention using a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). ANCOVA and post-hoc analyses were done using SAS® 9.3. RESULTS: Of the 320 women included in the study (81.4% response rate) overall mean (SD) response rate for the low involvement scenario was 4.1 (0.9) and mean (SD) response rate for the high involvement scenario was 4.5 (0.9). (P = 0.002). Majorities 182 (58.52%) had at least one family member with a history of cancer. A univariate and post hoc analyses indicated women with high involvement level had significantly higher mean (4.14 ± 0.99) intention to start chemoprevention than those with low involvement (2.52 ± 1.1). CONCLUSIONS: Patient involvement manipulated using breast cancer risk levels plays an important role in intention to initiate chemoprevention. Interventions can be targeted among women emphasizing on their breast cancer risk.

PHS97

PATIENTS’ PREFERENCES AND TRADE-OFFS IN CHOOSING A SURGEON TO DECREASE WAITING TIMES


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OBJECTIVES: Patients face significant waiting times for hip and knee total joint replacement (TKR) in Canada. One waiting time management strategy is the single-entry model (characterized by pooled referrals, central intake and triage for referral) versus the entry model (characterized by pooled referrals, central intake and triage for referral). We conducted a field study to elicit concepts for a draft measure, and cognitive debriefing interviews to refine items and further establish content validity.

PHS98

WHAT MATTERS IN HEMOPHILIA? A QUANTITATIVE SURVEY OF PEOPLE LIVING WITH OR CARING FOR SOMEONE WITH HEMOPHILIA

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OBJECTIVE: Our study was conducted to better understand symptoms experienced, quality of care, and overall impact of Hemophilia. METHODS: An email invitation was sent to all U.S. members of MyHemophiliaTeam, a social community of 890 people with or caring for people with Hemophilia. In total, 47 members responded to a 16 question survey between July 18 and August 10, 2016. RESULTS: Both adults and children with hemophilia are impacted well beyond bleeding episodes. In fact, 65% of adults rank depression as having as much of an impact on their daily lives as bleeding. Overall (57% of adults, 30% of children) and physical limitations (57%, 15%) are also quite prevalent. Respondents are generally satisfied with management of bleeds (60% for adults, 85% for children), but play a significant role in the development of cancerous tissues. Our objective is to characterize healthcare utilization and associated hospitalization costs in LC patients with diabetes. METHODS: We conducted a cross-sectional study of LC patients (ICD-9-CM 250.xx) from the 2012 Nationwide Inpatient Sample. A prevalence estimate for LC patients with T2D was established using the discharge weight that was included in the NIS for each observation; however, all other analysis did not include the discharge weight. We compared patients with diabetes (ICD-9-CM 250.xx) to those without using a chi-square test of association. Finally, we assessed factors predicting increased LOS and inpatient mortality using logistic regression. RESULTS: We estimated US prevalence of inpatients with a diagnosis of LC and diabetes to be 41,240, with a mean age of 48±17 years. These data suggest that LC patients with diabetes have an opportunity to provide a more holistic, coordinated approach to treating Hemophilia and associated symptoms in this community. Understanding the range of symptoms and the impact in totality will better allow medical professionals to treat individual with hemophilia more effectively.

PHS99

ONE-YEAR PREVALENCE AND HEALTH CARE UTILIZATION OF DIABETES IN LUNG CANCER-RELATED INPATIENT ADMISSIONS IN THE UNITED STATES

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OBJECTIVES: The incidence of type 2 diabetes (T2D) in patients with lung cancer (LC) may vary from that of the general population, as there is a likely association with hyperinsulinemia, which is a result of insulin resistance characteristic of T2D. Insulin’s role in cell proliferation, through the action of insulin-like growth factor (IGF), plays a significant role in the development of cancerous tissues. Our objective is to characterize healthcare utilization and associated hospitalization costs in LC patients with diabetes. METHODS: We conducted a cross-sectional study of LC patients (ICD-9-CM 362.xx) from the 2012 Nationwide Inpatient Sample. A prevalence estimate for LC patients with T2D was established using the discharge weight that was included in the NIS for each observation; however, all other analysis did not include the discharge weight. We compared patients with diabetes (ICD-9-CM 250.xx) to those without using a chi-square test of association. Finally, we assessed factors predicting increased LOS and inpatient mortality using logistic regression. RESULTS: We estimated US prevalence of inpatients with a diagnosis of LC and diabetes to be 41,240, with a mean age of 48±17 years. These data suggest that LC patients with diabetes have an opportunity to provide a more holistic, coordinated approach to treating Hemophilia and associated symptoms in this community. Understanding the range of symptoms and the impact in totality will better allow medical professionals to treat individual with hemophilia more effectively.

PHS100

DEVELOPMENT OF AN EYE DROP COMFORT MEASURE FOR TOPICAL OCULAR DROP APPLICATION

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OBJECTIVES: To develop a new patient-reported outcomes (PRO) measure assessing the comfort of topical ocular drop applications - the Eye Drop Comfort Scale (EDCS) in an adult population who has an ophthalmologic condition. METHODS: In alignment with FDA PRO Guidance, development occurred across three ocular categories (inflamed, non-inflamed, and post-surgical) and included literature review, and the conduct of two sets of interviews with topical ocular drop users: focus groups interviewed to elicit concepts for a draft measure, and cognitive debriefing interviews to refine items and further establish content validity. RESULTS: Results from the nine
focus groups (n=61 eye drop users, 3 groups per category) provided concepts that were appropriate, comprehensive, and relevant to patient experiences with topical ocular drop products. Each group was engaged in a variety of activities. Qualitative results indicated that saturation was achieved for these concepts, resulting in a fifteen item measure assessing sensations or symptoms experienced after instillation of a topical eye drop. Patient input from the cognitive debriefing interviews supported patient standing of the items, response scale and recall period as well as confirmation of concept relevance. The interview results supported content validity of the tool. The EDCS is designed to be self-administered and may be completed in hard copy or on an e-tablet or smartphone. A patient-specific version designed to assess the comfort or discomfort experienced after the instillation of eye drops in patients with inflamed, non-inflamed or post-surgical conditions. Results of the qualitative phase were used to design the EDCS to improve the content validity of the EDCS. The next phase of development of the EDCS is psychometric evaluation. Future uses of the measure in clinical studies may facilitate identification of improved treatment modalities in development as well as allow comparison of topical ocular drop comfort and safety between products to inform patients, and prescribers.

**PHS101**

**ASSESSMENT OF KNOWLEDGE ATTITUDE AND PRACTICE OF FAMILY PLANNING AMONG MARRIED WOMEN ATTENDING TERTIARY CARE HOSPITAL QUETTA**

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**OBJECTIVES:** Study aimed to assess Knowledge Attitude and Practice of Family Planning among married women attending tertiary care hospital in Quetta.

**METHODS:** A cross sectional study was conducted in obstetrics & gynaecology wards from public sector hospitals of Quetta. Data was collected from February-September 2016 from 503 females who were sexually active, willing to participate and able to understand Urdu & English languages. Knowledge and family planning were assessed with the help of predesigned questionnaire. Statistical analysis was done by using SPSS version 20. Descriptive and inferential statistics used in the study. **RESULTS:** Result showed, 497(98.8%) were married, 501(99.8%) were no. of children, 497(98.8%) believed that use of family planning methods. 500(99.4%) had knowledge about family planning and their methods and its source was TV/Radio (28.8%) followed by health care personal (22.7%). 497(98.8%) followed by Spacing of birth (27.6%). The relationship between Knowledge and Attitude was investigated using Pearson product-moment correlation coefficient. There was a small, positive correlation between Knowledge-Attitude \[r = \text{0.064}\] Knowledge-Practice \[r = \text{0.04}\] Knowledge-Attitude-Practice \[r = \text{0.019}\] with paired sample t-test in all parameters. The study indicates that Knowledge and Attitude is correlated with Practice.**

**PHS102**

**ASSESSMENT OF HEALTH RELATED QUALITY OF LIFE AMONG PATIENTS WITH TUBERCULOSIS IN GOVERNMENT INFECTIOUS DISEASE HOSPITAL, GUNTUR**

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**OBJECTIVES:** Tuberculosis is one of the oldest infections known to affect humans. The objective of the study was to assess the quality of life including physical, general health perception and social role functioning among patients with tuberculosis in Govt.Infectious Disease Hospital, Guntur. **METHODS:** Total 180 Tuberculosis patients with tuberculosis who registered were included in the study by using multi stage sampling method. From DOTS Centre we had taken 10 Sputum positive newly diagnosed, 6 category II (2 for each defaulter, relapse, failure), 2 MDR and 2 HIV patients. We excluded pediatric patients. Thus, a total of 180 cases were interviewed using a pre-designed, pre-tested questionnaire. Socio-demographic data, perception and about the Quality of Life (QoL) was collected using RAND-SF 36 questionnaire. **RESULTS:** Mean age of cases was 33.3±11.7years and 124 (68.9%) were male and 56(31.1%). The mean score of all domains was 54.3±16.8. The worst affected domains were vitality (46.4±11.8), general health (46.7±18.7) and mental health (46.7±16.6). MDR patients had higher mean score for physical health (56.3±15.2), vitality (58.8±13.5) and pain (46.3±16.1) as compared to other TB category patients. Mean score of social functioning (43.6±13.8), emotional role (37.1±27.9) and emotional wellbeing (38.3±13.7) were lower in TB with HIV patients. In all domains female have better scores except two domains, which are emotional health and social function. **CONCLU-SIONS:** This study is recommended early diagnosis of tuberculosis and infectivity to other person and improve QoL. Health education during diagnosis and family support may reduce social stigma and improve the mental component of QoL.

**PHS103**

**EVALUATION OF AWARENESS, BENEFITS AND WILLINGNESS TO PAY FOR PHARMACEUTICAL CARE (PC) SERVICES AMONG OLDER ADULTS**

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**OBJECTIVES:** To evaluate the awareness, benefits and willingness to pay for Pharmaceutical Care (PC) services among older adults. **METHODS:** A consecutive cross sectional survey was conducted for 4 weeks among 300 older adults visiting four community Pharmacies in Ijebu Ode, South Western Nigeria using a self administered 4 sectioned, 30 item pretested structured questionnaire which inquired tool’s psychometric properties. Awareness of PC, benefits of PC (anchored on a Likert scale of 1 (Not Beneficial) to 5(Very Beneficial)), and willingness to receive and pay for components of PC. Services. Data were analyzed using SPSS Version 17. P value was set at < 0.05. RESULTS: Reliability of the instrument was 0.90, most respondents 133(44.3%), 167(55.7%) , 223(74.3%), 189(63.0%); 89 (29.7%); 153(51%); and 159(53%) were 50-59 years, females, married, Christian(s), Traders, had tertiary education, and had an average income of N50,000-N99,999 (63.0%), 96(31.3%), 67(22.3%), 90(30%), 95(31.7%), 102(34.0%), respondents knew about “Promoting increase in compliance/adherence to medications” was rated most beneficial 266(88.7%). Two hundred and seventy four (91.3%), 215(71.5%), and 252 (84.8%) respondents were willing to receive PC services. **CONCLUSIONS:** While there has been a lot of interest in ‘wrapping’ new FDA-approved new market entrants with digital wrap-arounds that tie-in with life sciences industry develops and promotes digital wrap-arounds that tie-in with new FDA-approved product introductions in order to optimize patient adherence, monitoring and health outcomes. **PHS105**

**HOW COMMON ARE DIGITAL WRAP-AROUND PRODUCT TIE-INS WITH FDA-APPROVED NEW MARKET ENTRANTS?**

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**OBJECTIVES:** The objective of this study was to evaluate the extent to which the life sciences industry develops and promotes digital wrap-arounds that tie-in with new FDA-approved product introductions in order to optimize patient adherence, monitoring and health outcomes. **METHODS:** A review of recent novel product approvals in 2016 and the presence of digital wrap-arounds associated with these product introductions was conducted. We defined digital wrap-arounds as any digitally-based mechanism such as a web-enabled device, platform or mobile application intended to improve patient outcomes, behavior, and treatment costs through enhanced monitoring, education, support and/or a feedback loop to providers. Literature review of scientific and medical literature; product package inserts; and lay media sources (internet, trade journals, tech websites, etc.) were searched to determine if the digital wrap-around was associated with a newly approved product. The study results were then compared to what was promoted concurrently with new product approvals. **CONCLUSIONS:** While there has been a lot of interest in ‘wrapping’ new therapeutic products with digitized tools to enhance outcomes, improve adherence and reduce costs; these efforts appear to be promising but largely unfulfilled.
INVESTIGATION OF RELATIONSHIP BETWEEN DEMOGRAPHICS AND TYPE 2 DIABETES MELLITUS.

OBJECTIVES: To study the relationship between T2DM mortality and demographic factors.

RESULTS: The study included 37 HIV ARV drugs marketed in the US in 2010-2015. There were 10 fixed-dose combination HIV ARV drugs and 27 single active ingredient HIV ARV drugs. There were 3 drugs subject to prior authorization and 1 drug subject to step-therapy during part of the study period. The median quantity limit ranged from 26.8 to 31.9 days. Most formulary plans required patients to pay a coinsurance and a higher percentage of HIV ARV drugs were placed in specialty tiers.

FINANCIAL INFLUENCE OF CURRENT AND ALTERNATIVE PRICING BENCHMARKS FOR PHARMACY DISPENSED MEDICATIONS IN CALIFORNIA WORKERS’ COMPENSATION SYSTEM

OBJECTIVES: To examine the financial influence of current Medi-Cal pricing benchmark and to identify efficient alternative benchmarks which improve price availability.

METHODS: Claims transaction-level data (2011-2013) from CWCS were used to estimate total annual pharmaceutical costs. Medi-Cal pricing data was from WCIS. Average Wholesale Prices (AWP), Wholesale Acquisition Costs (WAC), Direct Prices (DP), Federal Upper Limit (FUL) prices, and National Average Drug Acquisition Costs (NADAC) were from Medi-Span matching NDCs, pricing dates, and drug quantity. We report pharmacy dispensed (PD) claims frequency, reimbursement rate, and cost per claim. All results are expressed as a percentage of the reference price.

RESULTS: The cost analysis was combined with a previously validated measure of hospital quality for these hospitals through a correlation analysis. The distribution of the cost scores showed a positive skew towards hospitals with relatively few close to the mean. A small segment of hospitals were high-cost outliers. After matching cost scores with previously generated quality scores for correlation calculation, the correlation coefficient was 0.41 (95% CI: 0.32-0.50, P < 0.001). The study results suggest that high cost hospitals also tend to deliver higher quality care. Additional analyses are required to determine the validity of these results. This type of analysis can be used to set the optimal reimbursement level under the Medicare program and other value based health insurance reimbursement systems.

METABOLIC CONTROL IN PATIENTS WITH DIABETES MELLITUS TYPE 2 IN A DISEASE MANAGEMENT PROGRAM FROM PRIVATE HEALTH INSURER IN COLOMBIA

OBJECTIVES: To examine the metabolic control in patients with type 2 diabetes mellitus enrolled in a Disease Management Program from a private health insurer in Colombia.

METHODS: A retrospective analysis of electronic medical records of patients with type 2 diabetes mellitus enrolled in the program. The study included patients who had at least 12 months of follow-up. The main outcomes were metabolic control (HbA1c), number of hospitalizations, and patient satisfaction.

RESULTS: A total of 198 patients were included in the study, with a mean age of 56.2 years. The results showed that the program had a significant impact on metabolic control, with a reduction in HbA1c levels, a decrease in the number of hospitalizations, and an improvement in patient satisfaction.

CONCLUSIONS: A Disease Management Program can improve metabolic control, decrease hospitalizations, and improve patient satisfaction in patients with type 2 diabetes mellitus.
at least one chronic condition. Only 18% of health professionals were working in teams. Multivariable regression models showed that older age (0.59, 95% CI: 0.32–0.86), work in teams (0.24, 95% CI: 0.20–0.28), adherence to medications (0.81, 95% CI: 1.16–0.47), use of e-technology (0.29, 95% CI: 0.17–0.42), and patient involvement in decision making (0.42, 95% CI: 0.30–0.55) were significantly associated with PCC. Variables such as gender and years in practice were not significant.

**CONCLUSIONS:** The findings confirmed that perceptions of requiring health professionals to work in teams and the use of technology in healthcare are associated with support for patient-centred care from both the public and health professionals. Further research to accelerate the implementation of health care teams supported by information and communication technologies are needed, particularly for individuals living with chronic conditions.

**PHS112**

**CORRILATES OF GOOD DIABETES MANAGEMENT AMONG AMERICANS WITH TYPE 2 DIABETES**

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**OBJECTIVES:** This study aims to examine factors that are associated with diabetes management among United States adults. **METHODS:** Data from the 2011-2014 Behavioral Risk Factor Surveillance System (BRFSS), a random-digit-dialed telephone survey of the civilian, noninstitutionalized adult population aged 18 years, were analyzed for 78,698 individuals who self-reported diabetes. The outcome variable included good diabetes management. Programs to improve diabetes management were defined as monitoring blood glucose and foot sores daily as per the American Diabetes Association’s recommendation, and engaging in regular physical activity. The percentage of participants who were never married (aOR = 1.57; 95% CI: 1.48–1.67). Respondents who had a high school diploma (aOR = 0.90; 95% CI: 0.83–0.97) and did not graduate from high school (OR = 0.87; 95% CI: 0.79–0.98) were less likely to engage in good diabetes management compared to those that had a college degree or higher. Respondents who were never married (OR = 0.88; 95% CI: 0.80–0.98), who did not have a regular provider (aOR = 0.70; 95% CI: 0.60–0.81), and who self-reported poor/fair health (aOR = 0.77; 95% CI: 0.71–0.84) were less likely to engage in good diabetes management practices. The practice of self-medication was significantly associated with increased odds of poor medication adherence (aOR = 1.57; 95% CI: 1.48–1.67). Respondents who had a high school diploma (aOR = 0.90; 95% CI: 0.83–0.97) and did not graduate from high school (OR = 0.87; 95% CI: 0.79–0.98) were less likely to engage in good diabetes management compared to those that had a college degree or higher. Respondents who were never married (OR = 0.88; 95% CI: 0.80–0.98), who did not have a regular provider (aOR = 0.70; 95% CI: 0.60–0.81), and who self-reported poor/fair health (aOR = 0.77; 95% CI: 0.71–0.84) were less likely to engage in good diabetes management practices. The practice of self-medication was significantly associated with increased odds of poor medication adherence (aOR = 1.57; 95% CI: 1.48–1.67). Respondents who had a high school diploma (aOR = 0.90; 95% CI: 0.83–0.97) and did not graduate from high school (OR = 0.87; 95% CI: 0.79–0.98) were less likely to engage in good diabetes management compared to those that had a college degree or higher. Respondents who were never married (OR = 0.88; 95% CI: 0.80–0.98), who did not have a regular provider (aOR = 0.70; 95% CI: 0.60–0.81), and who self-reported poor/fair health (aOR = 0.77; 95% CI: 0.71–0.84) were less likely to engage in good diabetes management practices.

**OBJECTIVES:** The study was to assess community pharmacists’ management practice, and to identify potential barriers in the management of minor ailments presented in community pharmacies. Moreover, most participants of this study take in to consider sex, age pregnancy status and cost before dispensing drugs for minor ailments. However, lack of training, knowledge and poor community awareness were the barriers to implement the service in community pharmacies. **CONCLUSIONS:** In areas where there is shortage of physicians, the communities can access primary health care service in community pharmacies. Though community pharmacists have an important role in the management of minor ailments, lack of training, knowledge and poor community awareness hinders them from appropriately managing patients of various needs.

**PHS114**

**GENDER DIFFERENCES IN HEART FAILURE IN A REAL WORLD CONTEXT: IMPACT ON DRUG UTILIZATION AND COSTS FOR THE MANAGEMENT OF THIS CLINICAL CONDITION**

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**OBJECTIVES:** Heart failure has a high burden of morbidity and mortality, which imply substantial healthcare costs. It is the main hospitalization cause in elderly patients. Gender is important risk factor for CV diseases. Using data from a large Italian database, we analyzed drug utilization and healthcare costs of managing HF between men and women in “real world” scenario.

**RESULTS:** Hydrotherapy, for whom hospitalizations, specialistic visits, and drug prescriptions were valued. Health outcomes and costs were evaluated using Italian tariffs during the 1-year follow-up period: drugs, diagnostic and therapeutic procedures, hospitalizations. Mean cost was calculated per patient per year for 1-year follow-up or until death. Gender analysis were performed for a number of variables including drugs use and healthcare costs. **RESULTS:** Women medium age was 80.4 years (±10.1) and men 75.5 (±11.4). Distribution by age was different in the two genders: only 25% of women developed HF in before age 75% vs 82% for men. HF admissions were major determinant of costs for management of HF and were analyzed from a gender perspective. Women were more likely to be admitted to general medical services, while men to cardiology units. 54.6% and 15.2% of women were hospitalized in “cardiology in medicine” or “cardiology” units, respectively. Only 16.3% and 4.3% of women are admitted to “Cardiology” or “Coronary Heart Disease” units, compared to 23.5% and 9.4% of men, respectively. Men were more likely prescribed ACE’s or ARBs and BI.

**CONCLUSIONS:** Our data confirm, in a real world setting that gender makes difference in CV diseases. Moreover, costs for NHS are mainly driven by hospital costs and patient gender seems to influence them, so it must be taken into account.

**PHS115**

**MEDICINES SEEKING AND TAKING BEHAVIOUR AMONG INDIGENOUS PEOPLE IN THE STATE OF PENANG, MALAYSIA**

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**OBJECTIVES:** This study was conducted to evaluate the health seeking behaviour among general public and its associated factors; and to evaluate the medicine taking behaviour among the general public and the practice of self-medication. **METHODS:** A cross-sectional study was undertaken among general public in Penang Island, Malaysia. A convenience sampling of 888 participants successfully completed the survey. Self-administered questionnaires were distributed among the residents in the north east of Penang Island. **RESULTS:** The data was analyzed using Statistical Package for Social Science (SPSS) software. Chi square test was employed to compare the categorical variables. **CONCLUSIONS:** Increasing awareness of the public about the use of medicines among the general public and to enable them to make the right decisions relating to health problems.

**PHS116**

**TREND IN 30-DAY READMISSION RATES AMONG PATIENTS WITH CONGESTIVE HEART FAILURE: RESULTS FROM A LARGE, SINGLE HEALTHCARE ORGANIZATION**

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**OBJECTIVES:** Congestive heart failure (CHF) is the most frequent reason for hospital admissions and readmissions. Healthcare providers are striving to identify ways to reduce readmission rates to improve patient health outcomes and avoid penalties. We investigated the trend over time in all cause 30-day readmission rates among patients with CHF in a large, single healthcare organization. **METHODS:** Patients with primary diagnosis of CHF admitted between 2006 and 2016, ≥18 years and discharged to home, home health, or home infusion were included for analysis. Logistic regression model with Generalized Estimating Equations (GEE) was utilized to account for clustering of repeated admissions within patients adjusted for age, gender, race, insurance, length of hospital stay, and discharge disposition. **RESULTS:** The records of 29,107 CHF patients were reviewed with 14% of these patients having a 30-day readmission. Demographic characteristics define the population as primarily White (49%), more males (52%) and with an average age of 70.5 years (±14.5). The majority of patients had public insurance (77%) and were discharged to home (60%). Readmitted patients were younger (69 vs 74) and had longer length of hospital stay (5.4 vs 4.5 days). Males were more likely to be readmitted (14.5% vs 13.7%) and so were patients on public insurance (14.7% vs 12.5% for public vs private, respectively). Patients discharged to home health were predominately female compared to those discharged to home (15.1% vs 13.5%). A significant downward trend over time was observed in 30-day readmission rates in the fully adjusted model (OR = 36, 95% CI: 94 – 97) for this patient population. **CONCLUSIONS:** In an attempt to explore 30-day readmission rates over time in the CHF patient population, we found a steady reduction in 30-day readmission rates over time between the years 2008 and 2016, an encouraging finding from both medical and economic perspectives.

**PHS118**

**HOW EFFECTIVE ARE DIABETES DIGITAL HEALTH TOOLS? A REVIEW OF THE SCIENTIFIC AND MEDICAL LITERATURE 2011-2016**

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**OBJECTIVES:** The objective was to evaluate the effectiveness of diabetes digital health tools in improving diabetic patient outcomes when
PHS119
KNOWLEDGE AND PRACTICE OF NURSES TOWARDS PREVENTION OF PRESSURE ULCER AND ASSOCIATED FACTORS IN GONDAR UNIVERSITY HOSPITAL, NORTHWEST ETHIOPIA

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OBJECTIVES: This study was aimed to assess knowledge, practice and factors associated with pressure ulcer prevention among nurses in Gondar University Hospital, North-west Ethiopia. METHODS: An institution-based cross-sectional survey was conducted from March 15 - April 10, 2016 among 248 nurses in Gondar University Hospital. Structured self-administered questionnaire was used for data collection. Descriptive statistics was used to describe the study population. Bivariate and multivariate logistic regression was also carried out to see the effect of each independent variable on the dependent variable. RESULTS: In this study nearly half (54.4 %) of the nurses had good knowledge, similarly 48.4 % of them had good practice on prevention of pressure ulcer. Educational status, work experience and having formal training were significantly associated with knowledge and practice on pressure ulcer. While, shortage of nurse leaders, inadequate staff and inadequate facilities and equipment were found to be significantly associated with the practice on prevention of pressure ulcer. CONCLUSIONS: Knowledge and practice of the nurses regarding prevention of pressure ulcer was found to be inadequate. Having higher educational status, attending formal training and being experienced were positively associated with knowledge; while shortage of facilities and equipments, dissatisfaction with nurse leaders and inadequate staff number showed negative association with practice of nurse’s pressure ulcer prevention. In-service training and upgrading courses are some of the important steps to improve nurses’ knowledge and practice on prevention of ulcer pressure.

PHS120
A COMPREHENSIVE REVIEW OF ORPHAN DRUGS POLICIES, PROCEDURE, LEGISLATION, REGULATION, ESTABLISHED IN THE UNITED STATES AND AUSTRALIA

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OBJECTIVES: The objective of the study was to review and evaluate the policies and procedures of orphan drug programs in the US (FDA) and Australian (TGA). The availability of orphan drugs is a major global concern. It is essential to understand the dynamics and the efficiency of these policies to ensure those who require these resources can get them. According to their current position on orphan drugs in order to ensure easy access by patients who need them. METHODS: A comprehensive Orphan Drug database was reviewed and focusing on data from the FDA and biotech pharmaceutical companies and furthermore the actual information was gathered from the experts, research articles, policy documents, regulatory framework, regulations. Multiple databases such as PubMed, Google Scholar, Springer Links, Scopus, and the Cochrane Library were searched. RESULTS: The results of this study found that the “thresholds” or more clinical conditions were at particularly high risk for reaching coverage gap. The predictors of falling into coverage gap include race, income, having low income subsidy or other drug benefits, and number of chronic conditions. CONCLUSIONS: The majority of beneficiaries receiving oral chemotherapy drugs were unable to afford the out-of-pocket costs and reached coverage gap. Beneficiaries who had low socioeconomic status or more clinical conditions were at particularly high risk for reaching coverage gap.

PHS121
USE OF ORAL CHEMOTHERAPY DRUGS AND FALLING INTO THE COVERAGE GAP IN MEDITERRANEAN CANCER SURVIVORS

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OBJECTIVES: Given the high costs of oral chemotherapy agents, Medicare enrollees were particularly vulnerable to Part D coverage gap. However, few studies have focused on the economic burden associated with the initiation of oral chemotherapy. We examined the use of oral chemotherapy drugs and the extent of the coverage gap for elderly Medicare beneficiaries with cancer. METHODS: A retrospective cross-sectional study was conducted using national representative sample obtained from Medicare Current Beneficiary Survey. Cancer patients aged 65 who continuously enrolled in Medicare Part D during the beneficiary's initial coverage period were included in the analysis. Selected oral chemotherapy drugs were identified using pharmacy claims and self-reports. Drug costs and entry into the gap were compared between vs. without oral chemotherapy. Logistic regression analyses were used to estimate the probability of having drug costs associated with the gap. RESULTS: The study sample included 7,665 Medicare beneficiaries with cancer. Beneficiaries filling oral chemotherapy agents had significantly higher drug costs ($7,305 vs. $2,676; p<0.001) and out-of-pocket costs ($4,263 vs. $1,396; p<0.001), compared to those without oral chemotherapy. In 2006-2010, 38.8% cancer beneficiaries without oral chemotherapy reached the coverage gap, while 84.3% beneficiaries having oral chemotherapy reached the gap. After adjusting for socio-demographic and clinical characteristics, the use of oral chemotherapy drugs was associated with a 10.7 times increased risk in reaching coverage gap (Odds Ratio [OR]=11.7, 95% confidence interval [CI]=8.9-15.9), and $1,167 more in out-of-pocket costs for prescription drug. The predictors of falling into coverage gap include race, income, having low income subsidy or other drug benefits, and number of chronic conditions. CONCLUSIONS: The majority of beneficiaries receiving oral chemotherapy have been unable to afford the out-of-pocket costs and reached coverage gap. Beneficiaries who had low socioeconomic status or more clinical conditions were at particularly high risk for reaching coverage gap.
patients residing in 3022 counties of the United States were selected. About 27%, 56% and 36% of them had receiving nephrologist services, AECES/ARBS and experiencing hospitalization in 2014. CKD patients with non-white race, having mild and moderate damage, having onset of diabetes and hypertension were more likely using AECES/ARBS (all p < 0.05 in multivariate geographically weighted regressions). Patients with Part D Low-income subsidy were less likely using AECES/ARBS. Significant spatial clustering was observed in all of investigated health services. CONCLUSIONS: Findings from this study indicated there were spatial effects associated with use of nephrologist services, guideline-recommended AECES/ARBS, as well as hospitalization. Local interventions are needed to promote access to healthcare, healthcare utilizations, and in turn reduced CKD disparities.

PHS124

STATIN UTILIZATION AMONG PATIENTS WITH DIABETES IN AN EMPLOYEE SPONSORED PHARMACIST PROGRAM

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OBJECTIVES: On enrollment in the Patient Pharmacist Partnerships (P3) program, pharmacists conduct Comprehensive Medication Therapy Management (CMTM) monthly for the first three months, and then quarterly thereafter, with medications lists of F3 enrollees with diabetes. Use is recommended among patients with diabetes and utilization of this medication is indicative of good quality diabetes care. Quality metric NQF #2712 assesses the proportion of people with diabetes aged 40-75 years on a statin. The objective of this study is to characterize changes in the use of statin therapy among F3 enrollees with diabetes. METHODS: The dataset used includes medication lists of F3 enrollees from each encounter in the mid-Atlantic region from two participating employers. Patients were included in the study if they were between 40-75 years old and had diabetes defined by the presence of a hypoglycemic medication and followed-up in at least one additional time point. NQF #2712 is the proportion of statin utilized among diabetes patients. Therefore, we defined our population of interest as F3 enrollees with diabetes. RESULTS: There were 604 F3 enrollees with at least one encounter with mean age of 56.6 years (SD: 7.7), 215 (53.6%) female, and 203 (50.6%) white. The proportion of statin utilization (range 27.5-28.1%) increased from 24.24% at year 1 to 24.7% at year 2, 25.5% at year 1.5 and 2 years after entry, and was an additional 0.65% at year 2.5 years after entry. The model used includes medication lists of F3 enrollees from each encounter in the mid-Atlantic region from two participating employers. Patients were included in the study if they were between 40-75 years old and had diabetes defined by the presence of an

RACIAL AND ETHNIC DISPARITIES IN MEETING MTM ELIGIBILITY CRITERIA

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OBJECTIVES: This study sought to compare healthcare utilization rates and process of care measures between patient populations served by physicians affiliated with newly established medical homes (MH) and those not affiliated with a medical home. METHODS: This study utilized a population-based administrative healthcare data from the Local Health Authority of Parma, Emilia-Romagna, Italy included all residents ≥14 years old. Utilization measures included hospital admissions, including ambulatory care sensitive conditions (ACSCs) and hospitalization, pharmacy, specialty services such as diagnostic imaging, and emergency department (ED) visits. Process of care measures comprised diabetes care metrics (e.g., HbA1c monitoring, microalbuminuria, and 30-50mmHg). Negative binomial regression models and zero inflation-based count outcome models were fit. Final models per each outcome were fit. Final models per each outcome were selected using AICc. Findings from this study indicated there were spatial effects associated with use of nephrologist services, guideline-recommended AECES/ARBS, as well as hospitalization. Local interventions are needed to promote access to healthcare, healthcare utilizations, and in turn reduced CKD disparities.

PHS125

EVALUATING SCREENING STRATEGIES FOR PROSTATE CANCER PATIENTS

ESCAPE


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OBJECTIVES: Prostate cancer (PCa) screening has generated considerable controversy after recent recommendations to discontinue the use of the prostate-specific antigen (PSA). Our objective was to propose effective screening strategies for promoting early detection of PCa. METHODS: We applied generalized odds ratio hazards (GORH) model for interval-censored data to the PCa subset of the Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening trial data. The final regression model and the corresponding estimates of the time-dependent effects associated with the presence of signifcant risk factors for PCa and an estimate of the cumulative incidence function (CIF) which was used to propose the screening strategy. Participants with <2 PSA tests and those with missing values in important risk factor were excluded from further analysis. \textsuperscript{1}RESULTS: The CIF at year 1 was estimated to be 0.035. The CIF at year 2 was estimated to be 0.056. Participants with a family history of PCa were estimated to have a CIF of 0.025 at year 1 and 0.038 at year 2. CONCLUSIONS: Overall, screening strategy for PCa with PSA is a feasible approach to improve early detection of PCa.

PHS126

RACIAL AND ETHNIC DISPARITIES IN MEETING MTM ELIGIBILITY CRITERIA BASED ON STAR RATINGS COMPARISON TO MMA


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OBJECTIVES: Racial and ethnic disparities were found in meeting Medication Therapy Management (MTM) eligibility criteria implemented under Medicare Modernization Act (MMA). Therefore, the objective is to examine whether an alternative MTM eligibility standard based on Medicare Part D Star Ratings can reduce racial and ethnic disparities. METHODS: The study analyzed 2012-2013 Medicare beneficiaries with MTM eligibility. We estimated the percentage of beneficiaries eligible if they had any issues with measures of medication utilization in Star Ratings. Logistic regression and Blinder-Oaxaca approach were used to test discriminatory effects associated with Star Ratings of eligibility criteria of Star Ratings across racial/ethnic groups. Multinomial logistic regression was used to examine whether there was disparity reduction by comparing individuals who were MMA-eligible under MMA but not Star-Ratings and those who were MMA-eligible under Star-Ratings but not MMA. RESULTS: Disparities were found in meeting MTM eligibility criteria of Star-Ratings targeted chronic conditions. Main and sensitivity analyses were conducted for MMA-based thresholds (used in 2009 and 2013) by Part D plans, and proposed for 2015 and 2016. Among Medicare Special Needs plans, disparity reduction was achieved for each of the top ten MMA-targeted chronic conditions. Main and sensitivity analyses were conducted for African Americans, White patients, respectively, when using Star-Ratings compared to 2013 MMA criteria. Similar patterns were found in sensitivity and disease-specific analyses. CONCLUSIONS: Star-Ratings criteria would reduce racial and ethnic disparities in the general Medicare population and those with specific chronic conditions.

PHS127

THE EFFECT OF INSURANCE COVERAGE AND COPAYMENT LEVELS ON DILATED EYE EXAMS FOR PATIENTS WITH DIABETES MELLITUS IN AN US NATIONAL SAMPLE

An J

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OBJECTIVES: Insurance coverage has been suggested as a potential barrier of preventive-related specific eye examinations (DFEs). This study was to assess the associations between insurance coverage and/or copayment levels on performing DFEs among patients with diabetes. METHODS: Using the 2009-2014 Medical Expenditure Panel Survey (MEPS) two-year longitudinal file, diabetic patients aged 18-75 years old were identified. Insurance coverage was categorized into 1) none; 2) any private, 3) public insurance only, and the quartiles of copayments for ophthalmologist/optometrist visits (0, $1-$5, $16-$40, >$40) were investigated using year 2 and year 2 previous year data. RESULTS: The proportion of patients between 2 years increased from 0.0% (0.0%) to 6.1% (6.1%) for private insurance vs. uninsured. The copayment levels were also associated with DFEs. Less than $40 of copayments was associated with higher odds of DFEs compared to program compared to program with 0 copayment for ophthalmologist(optometrist office visits. Insurance coverage was highly associated with higher odds of DFEs [adjusted odds ratios (OR) (95% CI) = 4.09 (1.81-9.26) for any private insurance vs. uninsured]. The copayment levels were also associated with DFEs. Less than $40 of copayments was associated with higher odds of DFEs compared to program with 0 copayment for ophthalmologist(optometrist office visits. Insurance coverage was highly associated with higher odds of DFEs [adjusted odds ratios (OR) (95% CI) = 4.09 (1.81-9.26) for any private insurance vs. uninsured]. The copayment levels were also associated with DFEs. Less than $40 of copayments was associated with higher odds of DFEs compared to program with 0 copayment for ophthalmologist(optometrist office visits. Insurance coverage was highly associated with higher odds of DFEs [adjusted odds ratios (OR) (95% CI) = 4.09 (1.81-9.26) for any private insurance vs. uninsured]. The copayment levels were also associated with DFEs. Less than $40 of copayments was associated with higher odds of DFEs compared to program with 0 copayment for ophthalmologist(optometrist office visits. Insurance coverage was highly associated with higher odds of DFEs (IRR: 0.86; 95% CI: 0.81-0.91) and the ED visit rate (IRR: 0.86; 95% CI: 0.81-0.91) were similar. The hospitalization rate for chronic ACSCs (IRR: 0.86; 95% CI: 0.74-1.00) and the ED visit rate (IRR: 0.86; 95% CI: 0.81-0.91) were similar.
lower among patients in MH. MH patients had lower readmission rates for select chronic conditions. Rates of specialty service use and pharmacy utilization were comparable between the groups. CONCLUSIONS: Our findings add to the growing evidence that routine screening for cardiovascular disease risk factors can lead to a lower burden of care.豬肉的食用。但豬肉的食用可能與某些健康風險相關，包括心臟病和高血壓。這些風險可能因個人的飲食習慣和生活方式而不同。在治療心臟病或高血壓之前，應考慮進行詳細的健康評估。因此，豬肉的食用應當謹慎，並且應與個人的健康目標和生活風格相匹配。
PHS134
KEYS TO YOUR CARE: A MATERNITY HEALTH PROGRAM DRIVES IMPROVEMENTS IN PREGNANCY OUTCOMES, ADULT CARE AND INFANT BIRTHWEIGHTS
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OBJECTIVES: Early, periodic maternity care is important in managing risk for delivery complications, and connects high-risk members to maternity care management. METHODS: Outreach to pregnant Medicaid managed care members was followed by enrolllee engagement in English or Spanish up to twice weekly through text messaging and login to a mobile-optimized website. Gift cards, baby supplies, and portable cribs were sent to participating members who met the appropriate engagement criteria throughout the length of the program. Primary outcome measures included percent of members with a claim in first trimester (FPC), second trimester (FPC2), frequency of pregnancy care making ≥81% of recommended visits (FPC), and frequency of low BW events. RESULTS: Between April 2 and December 31, 2016, 2,654 subjects [median age, 27 years; interquartile range (IQR), 23–31 years] had claims for 5,049 prenatal and postpartum visits (median, 11 visits/subject; IQR, 8–14 visits; 1,426 deliveries). Importantly, 6.5% of participants enrolled in K2YC before their first prenatal claim. The median gestation ages were 23.1 weeks and 39.3 weeks during opt-in and delivery periods, respectively. Median infant BW was 3,203 g (IQR, 2,892–3,515 g; 55.9% delivered at normal BW (range, 2,500–3,999 g) versus 52.7% in the nonparticipating control cohort (N=3,948). High-, low-, and very-low BW babies accounted for 4%, ≥4,000 g, 5.8%, 1,500–2,499 g, and 1.1% (<1,500 g), respectively (control: 4.1%, 6.5%, and 2.8%, respectively). Other performance measures included: FPC1, 82.68%; FPC2, 59.78%; and FPC, 56.46% (control: 73.98%, 62.24%, and 48.52%, respectively). CONCLUSIONS: K2YC alerted care managers of pregnancies (often low risk, first member claim), increased the number of maternity checkups and BWs of delivered babies.

PHS135
TRENDS IN REALIZED ACCESS TO RECOMMENDED CARE AMONG US ADULTS WITH DIABETES
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OBJECTIVES: The Affordable Care Act may produce significant changes in preventive care and recommended care by improving access and eliminating barriers. The aim of this study was to (1) estimate realized access to recommended tests among adults with diabetes populations and (2) examine the equity of access to recommended care. METHODS: Data from the Medicare Current Beneficiary Survey from years 2012 and 2014 was used to determine annual realized access to recommended care among people with diabetes. Recommended care was defined per recommendations of American Diabetes Association. Access was measured as receipt of four or more bi-annual HbA1c testing and annual foot, eye, cholesterol test and flu vaccination (5 recommended tests/services). Population characteristics of diabetes populations during years 2012 and 2014 were compared using descriptive statistics. Hierarchical logistic models were generated to determine the trend of access. The outcome variable was defined as receipt of four or five of the preventive tests/services. The predictors were categorized into three broad categories: predisposing, enabling, and need. Access to care was considered equitable when need factors were the main determinants of healthcare use. RESULTS: In 2014, realized access was highest (86% [CI 84.0%-87.9%]) to annual cholesterol test followed by the foot exam (70.5% [68.22-72.87]). Similar trends were observed in 2012. Access to the bi-annual A1c test was lowest compared to all other measures in 2014 (58.1% [55.28%- 60.89%]) as well as 2012 (55.8% [52.94-58.74]). Realized access to four out of five tests/services in 2014 remained very low as well (23.3% [CI 20.87-25.69%]). Results obtained from hierarchical logistic models for both the years, 2014 as well as 2012, confirmed that access was driven still by predisposing and enabling factors rather than need. CONCLUSIONS: Despite policy changes that supported increased potential access to recommended care among people with diabetes, recommended care remained low.

PHS136
CANCER CENTRE FOLLOW-UP CARE OF CANCER SURVIVORS: A POPULATION-BASED ANALYSIS
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OBJECTIVES: To investigate (1) patterns of cancer centre routine follow-up (CC-FUP) care for breast, colorectal, gynecological, and prostate cancer survivors; (2) factors associated with receipt of CC-FUP; and (3) changes in CC-FUP over time. METHODS: From the Nova Scotia Cancer Registry, we identified all persons diagnosed in Nova Scotia, 18 years of age or older, with an invasive breast, colorectal, gynecological, or prostate cancer between 01/01/2006 and 12/31/2013. We linked this population-based dataset, at the patient level, to cancer centre/clinic and census data. Next, we identified a non-metastatic survivor cohort (n=12,267) and developed decision rules to differentiate routine follow-up visits from non-routine visits during the follow-up care period (commencing one year post-diagnosis). Descriptive statistics were computed to describe patterns of care by patient and provider characteristics. Negative binomial regression was used to determine the effect of factors associated with the number of CC-FUP visits received and changes over time, adjusting for other covariates. RESULTS: Nearly half of survivors (48.4%) had at least one CC-FUP visit, which varied by disease site (range: 30.2-62.4%). Variation existed across providers, with six oncologists providing 34.7% of the CC-FUP visits to the study population. Disease site and stage at diagnosis were associated with receipt of CC-FUP care. For instance, colorectal cancer survivors had more visits (mean ± standard error rate ratio=1.48, 95% confidence interval[CI]=1.34-1.64) whereas colorectal cancer survivors had less (IRR=0.45, 95%CI=0.40-0.51) compared to breast cancer survivors. Sex and geographic location did not impact the likelihood of receiving CC-FUP visits. Year of diagnosis was associated with receipt of CC-FUP care, with each successive calendar year associated with an 8% increase in visits (IRR=1.08, 95%CI=1.07-1.10). CONCLUSIONS: Despite evidence that follow-up care can be effectively and safely delivered in primary care, and intensifying demands on oncology services, many survivors continue to receive CC-FUP. Tailored interventions may improve survivors’ discharge to primary care post-treatment.

PHS137
HEALTH INSURANCE AND FEMALE LABOUR FORCE PARTICIPATION IN RURAL CHINA
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OBJECTIVES: In 2003, a heavily subsidized voluntary health insurance scheme - the New Cooperative Medical Scheme (NCMS) - was launched for rural residents in China. This paper investigates the impact of the NCMS policy on adult female labor force participation. METHODS: This study is based on data from the China Health and Nutrition Survey, which is a commonly used longitudinal Chinese dataset focusing on health and nutrition of Chinese. We use data from the 2004 and 2006 waves to cover the critical phase of the progressive introduction of the NCMS. We use propensity score matching combined with difference-in-difference estimation to estimate the “average treatment effect on the treated”. Our method adds the variable that selection bias results from the voluntary enrollment in the health insurance plan. RESULTS: Our results show that the NCMS has significantly increased the propensity of older Chinese needing care and has significantly increased the employment level of adult daughters/in-laws’ working hours. We also find significant impacts across household income groups. Older Chinese in low-income household group benefit more from NCMS enrolment in terms of care demand. CONCLUSIONS: Our results suggest that the NCMS helps to reduce health inequality in rural China. The paper contributes to the current findings to the heterogeneity of the benefit of government-sponsored health insurance on insurance, informal care and labour markets in developing countries.

PHS138
IDENTIFICATION OF PATIENTS AT-RISK FOR 30-DAY READMISSION WHO SHOULD BE INCLUDED IN PREVENTION INTERVENTIONS: ASSESSMENT OF HOSPITAL AND COMMUNITY HEALTHCARE PROVIDERS
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OBJECTIVES: Increasingly, big-data electronic health record warehouses are used for developing and implementing high-risk identification algorithms for targeted readmission prevention programs (RPPIs). However, the ability of these electronic tools to accurately detect the “appropriate” patients for RPP according to personal and community health care characteristics has not yet been established. The aim of the study is to examine the ability of electronic readmission prediction risk tools to detect care-sensitive patients for inclusion in RPPIs. METHODS: We validated physicians and nurses’ risk scores against 3,948 patients who were asked to complete a questionnaire on the clinical characteristics of discharged patients. The questionnaire assessed the degree to which each patient’s automated risk score for 30-day readmission was care-sensitive and the degree to which the patient should be included in RPPIs. We also assessed the correlations between hospitals’ and clinicians’ healthcare provider’s assessments and between physicians’ and nurses’ assessments. RESULTS: A total of 605 questionnaires regarding 276 patients were completed by physicians and nurses. Among patients with low risk scores (i.e., 0-39), both hospital physicians and clinic nurses found that 17% of the patients should have been included in RPPIs whereas hospital nurses thought 38% should have been included. Among patients with high risk score (i.e., 50+), 17%, 28%, and 42% should not have been included in RPPIs according to hospital nurses, hospital physicians, and clinic nurses, respectively. A significant correlation was found between hospital physicians and nurses’ patients’ risk score of 0.55 (P<0.018) and the appropriateness for inclusion into RPPIs (r=0.289, P<0.001). The most common reasons for patients to be included in RPPIs were polypharmacy, the need for continuing monitoring, and low adherence. CONCLUSIONS: Combining electronic data with patients recorded characteristics allows for better adaptability and synchronization across different healthcare providers and for better selection of patients for inclusion in RPPIs.

PHS139
PREVALENCE, INCREMENTAL COST AND RESOURCE UTILIZATION ASSOCIATED WITH OPIOID OVERDOSES IN THE UNITED STATES
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OBJECTIVES: The objectives of this study were to estimate the prevalence of opioid overdoses in prescription opioid users, their family members and in overdose victims with no identifiable source of prescription opioid (“others”), and to estimate incremental costs and resource utilization associated with
opioid overdoses in these groups. METHODS: This study was a retrospective analysis using claims data from SelectHealth, a not-for-profit health insurance organization for enrollees in the states of Utah and Idaho. The study period was from June 2010 through July 2015. We estimated the prevalence of opioid overdoses by year for each group. For cost estimation, family members and others were collapsed into the “non-medical users” category. We used an incremental cost approach whereby cases (patients who suffered from an opioid overdose) were propensity-score matched to controls (did not suffer from an opioid overdose) and estimated the direct medical costs and resource utilization incurred in each group. Generalized Linear Models were used to estimate incremental costs and resource utilization. RESULTS: The prevalence of overdoses increased by 84.6% in prescription opioid users (102.8 per 100,000 in 2010 vs. 232.7 per 100,000 in 2015) and by 179.9% in non-medical users group from 2010 to 2014 (23.1 per 100,000 in 2014). Incremental direct medical costs associated with opioid overdose were estimated to be $65,277 per patient per year in prescription opioid users and $41,152 (p-values <0.05) in non-medical users. Overdose-specific costs were estimated to be $12,111 for prescription opioid users and $11,070 for non-users. Resource utilization was significantly higher among those who experienced an overdose across all places of service. CONCLUSIONS: The prevalence of opioid overdoses increased steadily from 2011 to 2014. Differences between overdose-specific costs and total incremental costs may suggest that overdoses are associated with substantial downstream costs.

PHS140

HEALTH CARE UTILIZATION AND EXPENDITURES FOR CHILDREN WITH SPECIAL HEALTH CARE NEEDS: A CROSS-SECTIONAL ANALYSIS FOR MEDICARE AND PRIVATE INSURANCE ENROLLIES

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OBJECTIVES: To describe the differences in health care utilization and expenditures between Medicaid and privately insured children with special health care needs (CSHCN). METHODS: We conducted a cross-sectional analysis using 2013 insurance claims from a payer offering commercial and managed Medicaid coverage in the Upper Midwest. CSHCN were identified using an algorithm that applied the CSHCN screener to claims. Inverse probability treatment weighting was applied to balance Medicaid and private insurance cohorts. A decision-tree model developed in Microsoft Excel. The effect on inpatient and total care utilization cost. CONCLUSIONS: Compared to the general population, RF is associated with significant economic burden. Further investigation of the causes of higher utilization and expenses in this group is recommended.
saving at over $3 per member per month, translating into over $25 million in total healthcare cost savings over 2 years. These results were primarily driven by the estimated reduction in inpatient costs associated with the program, which were estimated at $20 million over the 2 years. Sensitivity analyses illustrated that within all the reasonable ranges of model input parameters, including the upper limit of 10%, the program resulted in cost savings to the health plan. CONCLUSIONS: The TOC program resulted in cost savings of over $25 million to the health plan over a period of 2 years.

**PHS145**

**ESTIMATES OF INCREMENTAL HEALTHCARE EXPENDITURES ASSOCIATED WITH DEPRESSION TYPE AND SYMPTOMS AMONG US ADULT POPULATION WITH DIABETES**

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**OBJECTIVES:** Produce national estimates and compare healthcare expenditures associated with depression among adult diabetes populations. **METHODS:** The 2014 Medical Expenditure Panel Survey was used. Presence of diabetes and depression among adult (≥18 Years) populations was confirmed using ICD-9-CM and Clinical Classification codes. Participants were classified by (1) presence of depression and (2) presence of diabetes. A random patient sample (n = 500,000) from each of the 2 groups on age, gender, region, payer type and months of service was set to 2,000 per patient referred, the TOC program resulted in cost savings to the health plan. CONCLUSIONS: The TOC program resulted in cost savings of over $25 million to the health plan over a period of 2 years.

**PHS146**

**MODELING BED NUMBER REQUIREMENTS FOR ISOLATED SURGICAL AORTIC VALVE REPLACEMENT CENTERS**

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**OBJECTIVES:** Modeling the number of hospital beds needed to cover a hospital patient population for isolated surgical aortic valve replacements (sAVR). **METHODS:** The 2014 Medicare Hospital Analytic Revenue Period (2013 cost report) database was used. The average hospital length of stay (LOS) distribution was estimated using a gamma distribution of hospital LOS was fit to the 2014 Medicare Medpar (N=18,889) reported data. Mean LOS was 8.4 days with a 6.4 day standard deviation. One thousand, four hundred simulations were created for each hypothetical hospital with volumes of 1, 5, 10, and 15 sAVR/week. RESULTS: For a center with 1, 5, 10, and 15 sAVR/week, the number of beds required to cover 100% of patients for every one of the simulated 364 day period was modeled to be 6, 13, 22, and 30 beds respectively. When reducing patient day bed coverage rates to 95%, 90% and 80%, every one of the simulated 364 day period was modeled to be 6, 13, 22, and 30 beds respectively. When reducing patient day bed coverage rates to 95%, 90% and 80%,

**PHS147**

**IDENTIFICATION OF TYPE 2 DIABETES COST DRIVERS USING MEDICAL BILLING CODES: COMPARISON OF CLAIMS AND EHR CLAIMS**

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**OBJECTIVES:** Medical billing codes were assessed using US administrative claims (Truven Health MarketScan® Database) between 1/1/2010-6/30/2015. Cost drivers were identified for Type 2 diabetes (DB) vs non-diabetes (NonDB) **METHODS:** Medical billing codes were assessed using US administrative claims (Truven Health MarketScan® Database) between 1/1/2010-6/30/2015. Cost drivers were identified for Type 2 diabetes (DB) vs non-diabetes (NonDB) Group 1 and complicated Type 2 diabetes (CompDB). ICD-9-CM—250-1XX-250.9X X where X = 0 or 2 vs Type 2 diabetes without complications (NoCompDB) [Group 2]. A random sample (n=500,000) from the DB and CompDB groups were matched 1:1 to the NonDB and NoCompDB groups on age, gender, region, payer type and months of eligibility. An empirical algorithm using code frequency (sensitivity, specificity, precision or accuracy between comparators and minimum claim counts) and cost parameters (cost ratios between comparators, minimum cost to include or exclude a code, diagnosis, diagnosis, diagnosis, diagnosis, diagnosis) were compared between the DB and NonDB cohorts. RESULTS: For Group 1, 194 codes accounted for 12.2% of the DB cohort costs and 3.9% of the NonDB cohort. The 12.2% of costs in the DB cohort represented a 36.4% of the difference between the DB and NonDB cohorts. The top qualitatively assigned categories in the DB cohort accounted for >90% of the identified costs and included diabetes-specific codes (51.5%), renal (18.7%), cardiovascular (14.5%), lipid (3.3%) and physician services (3.1%). For Group 2, 703 codes accounted for 17.0% of CompDB costs and 5.9% of NoCompDB cohort costs. The identified costs in the CompDB cohort accounted for 46.4% of the difference between cohorts. The top categories in the CompDB cohort were: codes (32.4%), diabetology services (20.5%). The top code categories in the NoCompDB cohort were: labor (6.9%), cardiovascular (5.5%) and wound care (4.2%) accounted for 81.3% of the identified costs. CONCLUSIONS: Small code sets accounted for disproportionately large percentages of costs. Use of empirically derived disease-related codes may provide an efficient approach for assessing disease-specific costs in administrative data.

**PHS148**

**COSTS OF HOSPITAL ACQUIRED PRESSURE ULCERS**

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**OBJECTIVES:** The purpose of this study was to calculate and analyze the costs of the treatment of the hospital-acquired pressure ulcer (HAPU). **METHODS:** The study was developed as a pair-wise matched (1:2) case control study. The cases were defined by patients who HAPU during the march, 2015 until march, 2016 and the controls were defined for patients who did not develop pressure ulcer at the hospital. After the same criteria, the clinical stage and the causative factors were compared in both groups. RESULTS: One hundred eight patients with HAPU were identified and fifty four were included in the final analysis. The incremental length of stay (LOS) of the cases was 83 days. Analyzing the results according to the last score collected the Braden Scale, the median costs were $314,105 for patients with very high risk, $39,940 for high risk, $110,339 for moderate risk and $9,464 for mild risk. Concerning costs, the average cost for cases was higher than for controls. The incremental cost associated with a HAPU episode was $7,531 and primary and secondary diagnoses and presence of the comorbidities. Sample were excluded patients who developed PU prior to hospital admission. Costs were obtained by means transferred to US dollars using the purchasing power parity and exchange rate. RESULTS: The estimated costs of HAPU was identifi ed and controllable for patients with HAPU and five were included in the final analysis. The incremental length of stay (LOS) of the cases was 83 days. CONCLUSIONS: This study demonstrated the excess LOS and high costs associated the treatment the hospital acquired pressure ulcer. This result can be avoided with the revision of the protocol for prevention of pressure ulcer by the use of evidence-based practice, adoption of new technologies and the multidisciplinary team based care (nurses, physicians, nutritionist, physiotherapist). In addition, the protocol has the potential to eradicate enormous suffering and save thousands of lives.

**PHS149**

**COST-EFFECTIVENESS ANALYSIS OF SOLAR ORGAN TRANSPLANTS IN A PRIVATE, PHILANTHROPIC AND TERTIARY HOSPITAL IN BRAZIL**

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**OBJECTIVES:** To perform a cost-effectiveness analysis of solid organ transplants carried out in a private philanthropic hospital in Brazil. **METHODS:** For cost analysis we included all patients that underwent kidney, liver, heart and lung transplants in 2013-15 at our hospital. We collected data about costs per patient including the pre-transplant phase (eligibility evaluation for the transplant, listing and outpatient follow up), the transplant and post-transplant phases until 1 year of follow up. Unit costs were associated to each health resource, obtained from the hospital costing system. For the survival analysis we used Cox model, using all the transplants performed from 2002 to 2016 in our institution. For the cost-effectiveness analysis we used the following calculations: 1. Calculation of average cost for each year of life — (average total cost/mean survival time); 2. Calculation of life years in years for the repayment of the transplant by the recipient — (average total cost/ GDP per capta). 3. Calculation of wealth production after the transplant [(mean survival time) - (average total cost/ GDP per capta/GDP per capta)]. The values of GDP per capta and dollar exchange rate were the same for the period 2013-15, being estimated at U$ 3,800 and U$ 1,382 per year respectively. RESULTS: All types of transplant analyzed here were cost-effective, all of which had a cost of life saved per year less than 3x GDP and the dialysis treatment cost. Considering all of them together, there will still be a wealth production after paying off the treatment, in mean of U$ 32,672.67. CONCLUSIONS: In a private Hospital, where the Transplant Program is funded by the Public Health System, kidney, liver, heart and lung transplants were considered cost-effective therapies. This analysis can support our Hospital Managers and transplant teams to take the best decision in an era of growing chronic diseases.

**PHS150**

**COSTS AND RESOURCE UTILISATION ASSOCIATED WITH COMORBID CONDITIONS OF TYPE 2 DIABETES PATIENTS IN A SOUTH AFRICAN PRIVATELY MANAGED HEALTHCARE ORGANISATION**

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**OBJECTIVES:** Type 2 diabetes (T2DM) is rapidly becoming one of the most common non-communicable diseases of lifestyle. Managed healthcare organisations view the estimated reduction in inpatient costs associated with the program, which were estimated at $20 million over the 2 years. Sensitivity analyses illustrated that within all the reasonable ranges of model input parameters, including the upper limit of 10%, the program resulted in cost savings to the health plan. CONCLUSIONS: The TOC program resulted in cost savings of over $25 million to the health plan over a period of 2 years.
T2DM as a discrete condition, with little interaction with comorbid conditions. Coronary artery and cerebrovascular diseases are the predominant outcomes in T2DM. The impact of comorbid conditions such as cancer, rheumatoid arthritis and CNS diseases, referred to as discordant comorbidities are rarely considered in resources utilization studies in T2DM. We compared the costs and resource utilization of T2DM patients that were either enrolled on a Capitation Model (CM) or a standard Fee for Service Model (FSM). Comorbidities were defined as concordant such as cardiovascular diseases or discordant (e.g.: cancer, major depression). METHODS: Data was extracted retrospectively from claims database of adult T2DM patients (n=1060) for the year 2014. Costs per annum for one chronic and discordant comorbidity were identified using ICD10 codes. RESULTS: The cohort of patients in the CM (n=714) were older than in the FSM (n=346). The resource use per diabetic patient was USD 4,075 in the CM USD 4,405 in the FSM. When the capitation fee of USD 1,368 per patient annum was accrued, the average cost per patient was USD 5,443 in the CM. The estimated expenditure per patient for the concordant comorbidities was USD 2,059 (CM) and USD 2,177 (FSM) and USD 928 (CM) and USD 666 (FSM) for the discordant conditions. Prevention and management of CVDs are highly recommended. The all comorbidity costs (CM vs USD 15,604 (FSM) and cancer that cost USD 1,089 (FSM) and USD 2,356 (CM) per affected patient. CONCLUSIONS: While capitation models are well-established, our data suggests that in this limited setting, CM accrued similar costs to a traditional FSM. Healthcare systems need to focus on combined integrated multiple disease management in T2DM patients to lower the financial burden.

PHS151

PERSONAL HEALTH DEVICES AND THEIR IMPACT ON HEALTH CARE COSTS AND UTILIZATION AND MEMBER ENGAGEMENT


OBJECTIVES: To determine self-monitoring of physical activity using PHDs (Garmin, Fitbit, etc.) affects patient health care costs and utilization. METHODS: Study assesses latest trends of emergency department (ED) visits and studies, population and medical statistics data. RESULTS: Of patients that used PHDs, and the share of costs attributable to preventive services. RESULTS: office visits increased 7% for members who used the devices 9 months, 9% for those who monitored their physical activity with PHDs for at least 9 months, and 12% for those who monitored their physical activity for at least 12 months. CONCLUSIONS: Providing PHDs to health plan members resulted in increased usage and spending on health care services, increased preventive services, and in decreased ED visits. Follow-up research is needed to determine if the increase in preventive services associated with PHD usage, drives down the need for costly ER and inpatient visits.

PHS152

ECONOMIC EVALUATION OF DIABETES MELLITUS TYPE 2 BURDEN AND ITS MAIN CARDIOVASCULAR COMPLICATIONS IN THE RUSSIAN FEDERATION

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OBJECTIVES: Diabetes Mellitus Type 2 (DM2) is a complex medical and social problem in the world and in the Russian Federation also due to prevalence (5,4% in 2014). Coronary artery and cerebrovascular diseases are the predominant outcomes in T2DM. The impact of comorbid conditions such as cancer, rheumatoid arthritis and CNS diseases, referred to as discordant comorbidities are rarely considered in resources utilization studies in T2DM. We compared the costs and resource utilization of T2DM patients that were either enrolled on a Capitation Model (CM) or a standard Fee for Service Model (FSM). Comorbidities were defined as concordant such as cardiovascular diseases or discordant (e.g.: cancer, major depression). METHODS: Data was extracted retrospectively from claims database of adult T2DM patients (n=1060) for the year 2014. Costs per annum for one chronic and discordant comorbidity were identified using ICD10 codes. RESULTS: The cohort of patients in the CM (n=714) were older than in the FSM (n=346). The resource use per diabetic patient was USD 4,075 in the CM USD 4,405 in the FSM. When the capitation fee of USD 1,368 per patient annum was accrued, the average cost per patient was USD 5,443 in the CM. The estimated expenditure per patient for the concordant comorbidities was USD 2,059 (CM) and USD 2,177 (FSM) and USD 928 (CM) and USD 666 (FSM) for the discordant conditions. Prevention and management of CVDs are highly recommended. The all comorbidity costs (CM vs USD 15,604 (FSM) and cancer that cost USD 1,089 (FSM) and USD 2,356 (CM) per affected patient. CONCLUSIONS: While capitation models are well-established, our data suggests that in this limited setting, CM accrued similar costs to a traditional FSM. Healthcare systems need to focus on combined integrated multiple disease management in T2DM patients to lower the financial burden.

PHS153


IMPEDIMENT TRENDS OF EMERGENCY DEPARTMENT (ED) VISITS, AND FACTORS PREDICTING NON-UrgENT AND SEMI-UrgENT ED VISITS IN THE UNITED STATES

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OBJECTIVES: To assess recent trends of emergency department (ED) visits and associated socio-demographic and factor levels of non-urgent and semi-urgent ED visits to explore if non-urgent ED visits deserve special attention anymore and if semi-urgent visits should be discussed more closely. METHODS: A retrospective cross-sectional analysis of a nationally representative ED visit data from National Hospital Ambulatory Medical Care Survey (NHAMCS) 2006 through 2011. Trend analysis, designed based f test, and weighted multilevel logistic regression were performed as statistical tools. RESULTS: Proportion of non-urgent ED visits were decreased each year until 2009 from 14% to 8% and almost got stuck for rest of the years. Most of the non-urgent visits received some sort of diagnostic or therapeutic services. Percentage of semi-urgent ED visits increased larger than the study period (25% to 36%), while proportion of urgent cases receipt of care, little, and immediate and emergent acuity level decreased. In cross tabulation, residence type, source of payment, episode of care, availability of non-urgent fast track, and use of ED to get primary care provider all ED visits. In multivariable analysis, patients with Medicare, no insurance, younger, male, non-Hispanic Black, and who visit in nonurban hospitals are highly likely to visited ED for non-urgent health conditions, whereas, self-pay patients, younger, male, and who visited voluntary non-urgent care are less likely to visit ED for non-urgent health conditions. CONCLUSIONS: Non-urgent ED visits, along with semi-urgent visits deserve close attention and efforts to identify some particular groups who pose higher risks rather than blocking access to EDs.

PHS154

COST-EFFECTIVENESS ANALYSIS OF EARLY CANCER SURVEILLANCE FOR PATIENTS WITH LI-FRAUMENI SYNDROME

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OBJECTIVES: To compare the cost-effectiveness of an early cancer surveillance strategy versus no surveillance for patients with TP53 germline mutations. METHODS: A Markov decision analytic model was developed to estimate costs and outcomes over a lifetime from a US third-party payer perspective. The model described 4 possible health states: no cancer, cancer, post-cancer survivorship, and dead. Model probabilities and costs were populated from a published literature. Model outcomes included costs (2015 USD) and effectiveness (life years [LY] gained) of each surveillance strategy and incremental cost-effectiveness ratios (ICERs) comparing surveillance versus no surveillance strategies. Sensitivity analyses examined the impact of parameter uncertainty. RESULTS: The model showed a mean cost of $46,469 and $117,102 and yielded 23 and 27 LY for the non-surveillance and surveillance strategies, respectively. The ICER for early cancer surveillance versus no surveillance was $17,117 and costs and outcomes additional LY. Decision analysis showed that probability of cancer in the first 3-4 years and immediate and emergent acuity level decreased. In cross tabulation, residence type, source of payment, episode of care, availability of non-urgent fast track, and use of ED to get primary care provider all ED visits. In multivariable analysis, patients with Medicare, no insurance, younger, male, non-Hispanic Black, and who visit in nonurban hospitals are highly likely to visited ED for non-urgent health conditions, whereas, self-pay patients, younger, male, and who visited voluntary non-urgent care are less likely to visit ED for non-urgent health conditions. CONCLUSIONS: Non-urgent ED visits, along with semi-urgent visits deserve close attention and efforts to identify some particular groups who pose higher risks rather than blocking access to EDs.

PHS155

IMPACT OF AFFORDABLE CARE ACT COVERAGE EXPANSION ON WOMEN’S PREVENTIVE SERVICES

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OBJECTIVES: The Affordable Care Act (ACA) expansion mandated the private health plans to cover women’s preventive services starting August 2012. With limited prior evidence, this study examined the effects of the ACA on the utilization rates and the cost burden of women’s reproductive preventive service. METHODS: A pre-post analysis was conducted using nationally representative sample of females (aged 15-44 years, n=4,397) participating in 2011-2013 National Survey of Family Growth. The utilization rates and cost burdens were compared for six services used by bivariate and multivariate logistic regression models. RESULTS: After the ACA expansion, there wasn’t a significant increase in the utilization rates of birth control/preconception (33.7% vs. 30.7%), birth control counselling (17.7% vs. 16.9%), sterilization counselling (3.3% vs. 3.5%), STI counsel/test/treat (15% vs. 14.6%) and HIV screening (24.1% vs. 23.1%). Respondents paying through insurance increased 19% for these services. Out-of-pocket spending (cost-sharing) didn’t decrease for respondents. Type of insurance was an important predictor of utilization rates with publicly insured having significantly higher Odds Ratio (OR) likelihood of receiving birth control counselling (OR:1.71), sterilization counselling (OR:2.67), STI counsel/test/treat (OR:1.54) and HIV screening (OR:1.69) compared to privately insured. CONCLUSIONS: The early-on impact of ACA expansion on utilization rates of women’s reproductive preventive services didn’t appear to be significant decrease. However, policy makers might have expanded their coverage but burden of cost sharing still existed. Future research should evaluate the long term impact of ACA expansion on women’s health and the economic gains.

PHS156

CHARACTERIZATION OF SPINAL MUSCULARATROPHY POPULATION IN A LARGE USA FULLY-INSURED HEALTH PLAN POPULATION

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OBJECTIVES: Characterize a spinal muscular atrophy (SMA) population to identify SMA utilization patterns based on demographics within a large US
**HEALTH CARE PROVIDER AND HEALTH CARE FACILITY FOR ADULT FILIPINO
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usefulness of claims data for identifying and characterizing patients with this and health services utilization considerations for managing SMA and the.

This analysis provides insight into real-world SMA patient journey through costs SMA, greater concentration of younger members, and/or increased SMA HRU. These health services differences may be due to increased likelihood of having inpatient and ER visits, and less outpatient claims, health resource utilization (4).

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HEALTH CARE PROVIDER AND HEALTH CARE FACILITY FOR ADULT FILIPINO

**OBJECTIVES:** To describe the available health care providers and the number and type of health care facilities where Congestive heart failure (CHF) patients were hospitalized in 2014. **METHODS:** This is a cross-sectional descriptive study of patients aged ≥ 19 years old, admitted for heart failure in Philippine Health insurance (PhilHealth) accredited hospitals. Data were collected from the PhilHealth database and from the website of three specialists, namely: Family physicians, Internists and Cardiologists. Qualitative data were expressed as frequency and percentage.

**RESULTS:** There were 17 regions in the Philippines. The highest number of CHF hospitals was in Region IV-B (28.9%), followed by 14% tertiary and 13.4% secondary hospitals. Region IV-B had the highest number of CHF patients to attend to across 16 regions in the Philippines (NCR) had the most number of the cardiologists (58%), Internists (49%) and specialists, Internists had the number of members (56%) practicing in the medical and interventional study plans along with risk reduction strategies should be implemented. The information can help the health advocates/policy-makers identify areas that need more attention in terms of health care providers and facilities.
In part 2, no significant differences were observed between the CME care model and number of pediatric ID visits or hospitalizations. CONCLUSIONS: Reduced pediatric ID visits and hospitalizations among eligible patients in the ID requiring admission were offered a choice of hospital at home versus inpatient treatment. Patients were transferred home from the ID or acute ward under the hospital at home team. News is recorded at admission and daily thereafter on a tablet by the nurse attending the patient at home. All patients’ record and NEWS data are available electronically to the doctors at the base hospital, who have been provided 24/7 day to review deteriorating patients. We reviewed NEWS data from 502 patients cared for at home and for the period of the study. Of the 502 discharged from home, 58 (11.5%) required transfer to hospital. Mean NEWS at admission of those who were discharged from home was 1.77 ± 1.90 versus 1.02 ± 1.54 on discharge, mean NEWS for the transfer group was 2.22 ± 2.17 at admission and 3.10 ± 2.79 on transfer. We compared day to day change in NEWS (ΔNEWS) of those to that of the discharge group. At 95% confidence level there is no significant difference in the ΔNEWS between both groups. However, at 90% confidence level the discharge group (n = 502) had a mean NEWS of 1.00 ± 0.796, whereas the transfer group (n = 50) had a mean NEWS of 2.67 ± 2.521 (t = 3.5, p = 0.001). Spearman rank correlation was used to identify the association among study variables and p < 0.05 was considered as significant difference. The results indicated that NEWS correlates well with clinical deterioration at home. As well as being an efficient track and trigger mechanism, NEWS in the first 4 days of admission may be used to predict which patients will require transfer.

The evaluation of medical benefit specialty medication utilization management program- 1-year experience

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OBJECTIVES: To evaluate the effectiveness of a real-time, multidisciplinary medical benefit management (MBM) program for specialty drug on utilization and cost. METHODS: A holistic end-to-end MBM program for specialty drugs was implemented by a Medical Services Organization (MSO) that manages multiple independent practice associations (IPAs) in Southern California which are at financial risk for specialty drugs. Specialty drug require of the samples were evaluated by a team of medical specialists, sub-specialists and clinical pharmacists using nationally recognized evidence-based guidelines and peer-reviewed journal publication. All dollar values were reported in 2016 dollars spend per-utilizer-per-month (PUPM) metric was applied for the comparison. Claims from the MSO were collected to analyze the specialty drug spend before and after MBM program implementation during the period from 2014 to 2016. A dollars spend per-utilizer-per-month (PUPM) metric was applied for the comparison. All dollar values were reported in 2016 terms.

RESULTS: 2684 patients in Southern California utilized the MBM service during the study period. After a 1-year program implementation, the average spend per-utilizer-per-month (PUPM) decreased 11% among top-10 diagnoses by specialty drug spend: pre-term labor ($1529, -34%, p < 0.001), neonatal intensive care unit ($107, -52.7%). The total number of medications prescribed to all patients were 1036 and the average number of prescribed medicine per patient was 5 with 4 being the most frequent number (21.7%). The results indicated that NEWS correlates well with clinical deterioration at home. As well as being an efficient track and trigger mechanism, NEWS in the first 4 days of admission may be used to predict which patients will require transfer.

Breast cancer screening practices in Asian-American compared to non-Hispanic White women: a behavioral risk factor surveillance system analysis

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OBJECTIVES: To examine the racial and ethnic disparities in breast cancer screening among Asian-American (AA) and non-Hispanic White (NHW) women in the United States. METHODS: The study was a cross-sectional analysis, using pooled data from the 2014 Behavioral Risk Factor Surveillance System. Women aged 40-80 years were included. Descriptive analysis was conducted to describe sociodemographic and economic characteristics (age, education, marital status, household income), general health, access to health insurance, health care cost burden, routine health checkups, and mammography screening rates of the analytic sample (means(SD), percentages). Bivariate analysis was used to examine relationships between independent and outcome variables. Multivariable logistic regression was used to assess relationships between variables of interest and mammography screening as a function of race independent of potentially confounding factors. RESULTS: The analytic sample included 179,127 NHW and 2,959 AA women, respectively. The mean age was 63.18 (SD 11.56) years, 41.91% had household incomes < $35,000, and 38.30% had less than or equal to high school education. About 96% of the sample were aged 40-80 years and 94.12% had 1+ type of health insurance. Among NHWs, 92.99% have ever had mammography and 72.73% have had a mammography within the past 2 years. Among AA women, only 90.04% have ever had a mammography and 49.36% of them have had a mammography within the past 2 years. After adjusting for potential confounders, AAs were significantly less likely to have ever had a mammogram compared to NHWs (OR 0.68 [95% CI 0.67, 0.68]). CONCLUSIONS: Our study finds that AA women were less likely than NHWs to receive recommended mammograms. Given the increased prevalence of breast cancer among AA women, future research should examine reasons leading to lower mammography rates in this population.

Impact of introduction of new technologies for maternal-fetal monitoring in the epidemiological indicators at the Clinic

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OBJECTIVES: Establish the impact of the introduction of new technologies for maternal-fetal monitoring in the epidemiological indicators at the Clinic.
HOSPITALIZED POPULATION IN PUNJAB, PAKISTAN

To understand the associations between PCMH adoption and physician compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of physicians was released in August 2015, which reports physician compensation for the calendar year 2014. This study was performed for physicians who were not affiliated with a hospital, and those who were affiliated with a hospital were further divided into those who were affiliated with a hospital that had implemented the PCMH model and those who were not. The NAMCS dataset was used to construct a medical home infrastructure score and to examine the associations between PCMH adoption and physician compensation with characteristics of primary care practices.

At PIPC 2 hospitals per an walk round. CONCLUSIONS: Although the working hours of pharmacists for infection control was limited due to the routine practice at a pharmacy, pharmacists play an important role in infection control by contributing to the walk round and the confirmation of permission and registration system.

PHS173

A NATIONAL SURVEY ON INFECTION CONTROL ACTIVITIES WITHIN HOSPITALS ALLOWED TO IMPLEMENT PREFERENTIAL INFECTION PREVENTION COUNTERMEASURE FEE IN JAPAN

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OBJECTIVES: The preferential infection prevention countermeasure fee (PIPCF) was revised in April, 2012 in Japan, and it was divided into PIPC 1 and 2 in case of meeting the requirement for securing infection prevention within a hospital. This study aims to explore the current status of infection control activities in hospitals allowed to calculate the PIPC. METHODS: We nationwide surveyed the situation of infection control activities in hospitals implementing the PIPC by using a nationwide questionnaire. RESULTS: Of 2015, when the nationwide survey began in 2015, 718 hospitals responded, and the statistical analysis was performed for 708 eligible hospitals. 304 hospitals with PIPC 1 and 404 hospitals with PIPC 2. With respect to five major assignments for infection control of physicians, nurses, pharmacists and laboratory technicians, full-time nurses were working at 277 hospitals (91.9%) of hospitals with PIPC 1. However, full-time nurses were working at only 38 hospitals (9.5%) of hospitals with PIPC 2. More than 90% of any health care professionals were participating in hospital walk round at 404 hospitals with PIPC 1. However, less than 70% of physicians were participating in hospital walk round at 404 hospitals with PIPC 2, and the participation rate of in-hospital walk round for pharmacists was the lowest among all health care professionals. Pharmacists and pharmacy technicians participated in hospital walk round for infection control at 404 hospitals with PIPC 2. CONCLUSIONS: The hospitals with implementing PIPC 2 were owned by small-scale and private corporations, and it was difficult for hospitals with PIPC 2 to set up the hospital infection control system. This suggested that this issue has to be considered when performing infection control in near future.

PHS172

ANALYSIS OF CHANGES IN COSTS AND CLAIMS FOR CAPSULE ENDOSCOPY FOLLOWING THE INTRODUCTION OF SELECTIVE HEALTH BENEFIT IN KOREA

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OBJECTIVES: This study attempted to examine the changes in costs and the use of capsule endoscopy after the medical service became a selective health benefit. METHODS: This study investigated the changes in costs and use of capsule endoscopy since September 2015, when the National Health Insurance began to cover it as a selective health benefit (with a coinsurance rate of 80%). As such, this study examined the results of a 2014 survey on the prevailing charges for medical services for physicians during the study period. The study period was defined as the period from January 1, 2013 to April 30, 2016. The information on this population was extracted from the Korea Medical Care Survey (KAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices.

CONCLUSIONS: This study performed the first analysis of costs, coinsurance rate, and use of a medical service that has become a selective health benefit. However, this study could not point out that the selection of a selective health benefit has reduced patient burden considerably and made it easier to manage the use of the service within the National Health Insurance program, indicating that the new system is successfully achieving its purpose.

PHS173

ASSOCIATION OF FINANCIAL INCENTIVES WITH PATIENT-CENTERED MEDICAL HOME ADOPTION AMONG PRIMARY CARE PHYSICIANS

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OBJECTIVES: To understand the associations between PCMH adoption and physician compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices. The National Ambulatory Medical Care Survey (NAMCS), a nationally representative, annual dataset of compensation with characteristics of primary care practices.

PHS171

A NATIONWIDE SURVEY ON IN-HOSPITAL CLINICAL PHARMACIST’S ACTIVITY IN INFECTION CONTROL TEAM AT A HOSPITAL ALLOWED TO CALCULATE PREFERENTIAL INFECTION PREVENTION COUNTERMEASURE FEE IN JAPAN

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OBJECTIVES: The preferential infection prevention countermeasure fee (PIPCF) requires the full-time assignment of a pharmacist at the infection control team of a hospital with PIPC 1 in 2012. This study aims to investigate the actual situation of the infection control activity including the role of a pharmacist at hospitals with PIPC. METHODS: A nationwide survey was performed at hospitals with the PIPC under the social medical fee schedule by using a questionnaire. The questionnaire was reviewed sales of companies that manufacture devices for endoscopy. Finally, it utilized the KHA Service’s data on claims to measure the use of capsule endoscopy. The results were that the adoption of PCMH is at the first analysis of costs, coinsurance rate, and use of a medical service that has become a selective health benefit. However, this study showed that the life of a selective health benefit has reduced patient burden considerably and made it easier to manage the use of the service within the National Health Insurance program, indicating that the new system is successfully achieving its purpose.

If you have more questions or need further assistance, feel free to ask! 😊
PHS174

ASSESSMENT OF KNOWLEDGE, ATTITUDE AND PERCEPTION AMONG FUTURE PHARMACISTS TOWARDS PHARMACOVIGILANCE IN PAKISTAN, PAKISTAN

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OBJECTIVES: The present study was aimed to evaluate the knowledge, attitude and perception of future pharmacists towards pharmacovigilance. METHODS: A cross-sectional study was conducted for a period of 5 months from December 2015 to April 2016 using a pre validated self-structured and semi-structured questionnaire. The annual response rate was 84.4%. The mean score for knowledge about pharmacovigilance was 95.2 out of 18. Students of private institutions had a lower score (8.86) than those of state Government i.e. 96.3. 44.9% responders were able to define the pharmacovigilance correctly while 53.1% (448) participants knew about the pharmacovigilance as a part of National Drug Policy and 48.3% knew about the organization. RESULTS: The sample size was 2218 students. Pearson's χ² test was applied to assess the association of gender, practical approach towards ADR detection and reporting. However, pharmacy undergraduates have a positive and significant attitude towards pharmacovigilance and are willing to report ADRs in future.

PHS178

HOSPITALIZATIONS AND THE PRIMARY HEALTH PROVIDER IN THE NC MANAGED MEDICAID POPULATION

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OBJECTIVES: Patients’ involvement in a medical home is thought to advance the objective of minimizing client hospitalizations, a key objective of managed care. We investigated the association between a client’s relationship with a personal health provider (PHP) and overnight hospitalizations in the adult North Carolina Medicaid population. METHODS: A 2015 survey of 3,596 Medicaid patients using the Consumer Assessment of Healthcare Providers and Systems provided 6 previous months’ utilization and health status information on 406,046 patient-months. Patients with at least one overnight hospitalization from 285 hospitals were predominantly female (89.0%) with an average age of 61.7 years and average Charlson comorbidity score of 2.8. The most common comorbid conditions were diabetes (19%), chronic pulmonary disease (19.0%) and renal disease (13.9%). Only 17% of patients who were admitted as an inpatient, however the average length of inpatient stay was 7.3 days and the average cost of inpatient admissions was $16,697. In the inpatient population 4.7% expired during the hospital stay. Hepatic encephalopathy (OR: 7.6, p < 0.001), myocardial infarction (6.0, p < 0.001), portal hypertension (OR: 5.7, p < 0.001), osteoporosis (OR: 3.2, p < 0.001), and plegia (OR: 1.6, p=0.016) were the largest predictors of patient admission. The large majority of mortality included hepatic encephalopathy (OR: 13.3, p < 0.001), old myocardial infarction (OR: 9.2, p < 0.004), cerebral vascular accident (OR: 3.4, p= 0.018), and renal disease (OR: 3.1, p < 0.004). CONCLUSIONS: Patients diagnosed with PBC have a large number of comorbidities and comorbid conditions, particularly chronic conditions. Improved in-disease management may lead to better patient outcomes and a reduction in hospital utilization and healthcare costs.

PHS179

HOSPITAL UTILIZATION PATTERNS AMONG PATIENTS DIAGNOSED WITH PRIMARY BILIARY CIRRHOSIS

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OBJECTIVES: Primary biliary cirrhosis (PBC) is an autoimmune disease in which the bile ducts in the liver are slowly destroyed. The objective of this study is to examine drivers of hospital utilization in patients diagnosed with PBC. METHODS: A retrospective descriptive study was conducted on a cross-section of PBC diagnosed adult patients with health system data for inpatient and outpatient (N=6043) visits from October 2015 through September 2016. Multi-variable logistic regression was used to identify significant drivers of inpatient admissions and driver strength. RESULTS: The sample consisted of 3,076 hospitalizations from 285 hospitals. The population was predominantly female (89.0%) with an average age of 61.7 years and average Charlson comorbidity score of 2.8. The most common comorbid conditions were diabetes (19%), chronic pulmonary disease (19.0%) and renal disease (13.9%). Only 17% of patients who were admitted as an inpatient, however the average length of inpatient stay was 7.3 days and the average cost of inpatient admissions was $16,697. In the inpatient population 4.7% expired during the hospital stay. Hepatic encephalopathy (OR: 7.6, p < 0.001), myocardial infarction (6.0, p < 0.001), portal hypertension (OR: 5.7, p < 0.001), osteoporosis (OR: 3.2, p < 0.001), and plegia (OR: 1.6, p=0.016) were the largest predictors of patient admission. The large majority of mortality included hepatic encephalopathy (OR: 13.3, p < 0.001), old myocardial infarction (OR: 9.2, p < 0.004), cerebral vascular accident (OR: 3.4, p= 0.018), and renal disease (OR: 3.1, p < 0.004). CONCLUSIONS: Patients diagnosed with PBC have a large number of comorbidities and comorbid conditions, particularly chronic conditions. Improved in-disease management may lead to better patient outcomes and a reduction in hospital utilization and healthcare costs.

PHS167

ADULT PATIENT SATISFACTION WITH INPATIENT NURSING CARE AND ASSOCIATED FACTORS IN AN ETHIOPIAN REFERRAL HOSPITAL, NORTHEAST, ETHIOPIA

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OBJECTIVES: The aim of the study was to assess adult patients’ satisfaction with inpatient nursing care and associated factors in an Ethiopian referral hospital, Northeast Ethiopia, 2013. METHODS: Institution based qualitative cross- sectional study was conducted on patients admitted in medical, surgical, orthopedics, gynecology and ophthalmology wards of Desse referral hospital from March 24 – April 30, 2013. All admitted patients who stayed in the wards for at least two days during the data collection time were interviewed. The data were collected and interpreted by the principal investigator. RESULTS: 62% of the patients had lower rate of disenrollment compared with non-RA members (rate ratio = 1.30, 95% CI: 1.18, 1.46). The odds ratio of having a PHP for at least 6 months (vs. none identified), health status, and patient demographics. We conducted binary logistic regression of hospitalizations on PHP presence alone and after adjusting for patient clinical and demographic factors. RESULTS: The presence of a PHP was associated with hospitalization (odds ratio(OR)=1.409; p<0.001; unadjusted). Adjustment for the number of specialist visits (compared to 0) was associated with hospitalization at OR of 1.668 (95% CI:1.29,2.14) and 4.157 for 1, 2-3 and 4 or more visits, respectively (p<0.001). Receiving care for the same condition >3 times (OR=1.761; p<0.001) and overall health status of fair/poor (OR=1.399; p=0.001) were also associated with hospitalization. The final adjusted model failed to show an association between PHP and hospitalization (OR=0.946; p=0.683), patient sex, age, race, or education. CONCLUSIONS: The strong positive association between a PHP relationship and hospitalizations was surprising given the belief that quality primary care exists in hospitals compared with similar populations lacking a PHP. The adjusted model noted very significant positive associations between 3 measures of chronic illness and hospitalization but could not determine the impact of a PHP. Further research might consider whether in similar Medicaid populations, PHP diagnostic acumen can overcome long-term health deficits, leading to fewer short-term hospitalizations for those with provider relationships.
mainly driven by higher disenrollment during the first 12 months in the non-RA group, with the difference between the cohorts weakening over time. CONCLUSIONS: Number of variables converging with statistical efficiency was higher than non-RA patients. This may be due to phenomenon called job-lock in which patients with chronic disease are reluctant to leave their job due to the fear of losing their health insurance.

PHS180
RACIAL AND ETHNIC DISPARITIES IN THE UPTAKE OF THE COLORECTAL CANCER SCREENING
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OBJECTIVES: To evaluate whether the provision of ACA has increased being up-to-date on colorectal cancer (CRC) screening (blood stool test, sigmoidoscopy, or colonoscopy) among age-eligible population with private insurance and to examine racial and ethnic disparities in the uptake of CRC screening METHODS: This was a quasi-experimental study using data from the Medical Expenditure Panel Survey 2007-2014. We examined changes in the prevalence of being up-to-date on the CRC screening by race/ethnic groups between pre-ACA (2007 to 2010) and post-ACA (2011 to 2014). Our study population included nonelderly US adults aged 50 to 64 years with family income at 338% or more of the Federal Poverty Level (FPL) and private insurance plans. We included the uninsured as a comparison group not directly affected by the ACA. RESULTS: Our study sample comprised 25,298 individuals, representing 303,358,483 US adults aged 50-64 years with private insurance (weighted n=165,187,558 in pre-ACA and 176,782,642 in post-ACA period). Overall prevalence of being up-to-date on the CRC screening increased from 59.8% in the pre-ACA to 63% in the post-ACA period (p<0.001). By race/ethnicity, we observed significant increases ranging from 46.7% among non-Hispanic whites in both Pre-and Post-ACA (44% vs. 61.4%, p<0.0001 in the pre-ACA and 48.5% vs. 64.5%, p<0.0001, respectively). NH black had the highest prevalence (65.4%) followed by NH white (55.5%) in the post-ACA (p<0.0001). However, using difference-in-differences analysis, we found that those changes in screening uptake were not associated with the provision of the ACA, i.e., elimination of the cost-sharing. Prevalence of being up-to-date was significantly lower among NH Asians, compared with NH whites in both Pre- and Post-ACA (44% vs. 61.4%, p<0.0001 in the pre-ACA and 48.5% vs. 64.5%, p<0.0001, respectively). CONCLUSIONS: Although the prevalence of being up-to-date on CRC screening among age-eligible US population increased slightly after the implementation of the ACA, the ACA has not reduced racial and ethnic disparities in screening uptake.

PHS181
PHARMACISTS’ PATIENT SAFETY CULTURE IN JAPAN
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OBJECTIVES: This study aims to explore pharmacists’ factors of patient safety culture in Japan using Hospital Survey on Patient Safety Culture developed by ASRO. METHODS: We surveyed nationwide the situation of the patient safety culture in 37 hospitals by using a questionnaire in 2011 and 2012. The questionnaire consists of four composites including the communication, organization, orientation for patient safety, organizational learning-continuous improvement and free-treatment outcomes and assessing them precisely in a consistent manner is essential for patient centered care (PCA). However, the recognition of individual heterogeneity by current DCE studies usually confounds estimates of the aggregate (population) mean and variance of random uncertainty, ignoring the patient’s specific scale of random components based on their clinical condition and other personal characteristics. The purpose of this study is twofold: 1. Recognize individual level estimation techniques based on systematic literature review, tracing back to basic linear probability estimation since the inception of discrete choice model. 2. Provide empirical evidence by simulation, which tests the applicability of estimation techniques for PCA in terms of decision rules associated with convergence properties, statistic efficiency and practical value. METHODS: Systematic review of individual level estimation techniques of DCE was conducted to determine the use of linear probability estimation and nested logit estimation. Simulation was constructed for 1000 pseudo patients in the routine care setting under two most common scenarios of individual decision rules (lexicographic and compensatory). Based on previous qualitative results from clinical setting, each pseudo patient answered 6-12 question in a well-balanced orthogonal DCE design, including up to 27 attributes, each attribute has two levels. RESULTS: Considerable heterogeneity remains, as evidenced by the range of the estimates and standard deviation. The linear probability and the pattern of nested compensatory model did not offer a good fit. CONCLUSIONS: Since we are not aiming at predicting choice probability but understanding patient’s trade-offs of treatment outcomes, linear estimation can be served better at individual level. The preliminary results are the subject of ongoing research, further research are needed because the applicability of estimation techniques in PCA is conditioned on survey design and clinical environments as well.

PHS182
APPLICATION OF INDIVIDUAL LEVEL DCE MODEL IN PATIENT CENTERED CARE: LITERATURE REVIEW AND SIMULATION TEST
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OBJECTIVES: Measuring individual patient’s true preferences(trade-offs) across treatment outcomes and assessing them precisely in a consistent manner is essential for patient centered care (PCA). However, the recognition of individual heterogeneity by current DCE studies usually confounds estimates of the aggregated (population) mean and variance of random uncertainty, ignoring the patient’s specific scale of random components based on their clinical condition and other personal characteristics. The purpose of this study is twofold: 1. Recognize individual level estimation techniques based on systematic literature review, tracing back to basic linear probability estimation since the inception of discrete choice model. 2. Provide empirical evidence by simulation, which tests the applicability of estimation techniques for PCA in terms of decision rules associated with convergence properties, statistic efficiency and practical value. METHODS: Systematic review of individual level estimation techniques of DCE was conducted to determine the use of linear probability estimation and nested logit estimation. Simulation was constructed for 1000 pseudo patients in the routine care setting under two most common scenarios of individual decision rules (lexicographic and compensatory). Based on previous qualitative results from clinical setting, each pseudo patient answered 6-12 question in a well-balanced orthogonal DCE design, including up to 27 attributes, each attribute has two levels. RESULTS: Considerable heterogeneity remains, as evidenced by the range of the estimates and standard deviation. The linear probability and the pattern of nested compensatory model did not offer a good fit. CONCLUSIONS: Since we are not aiming at predicting choice probability but understanding patient’s trade-offs of treatment outcomes, linear estimation can be served better at individual level. The preliminary results are the subject of ongoing research, further research are needed because the applicability of estimation techniques in PCA is conditioned on survey design and clinical environments as well.

PHS183
DECREASED RATES OF HEALTH PLAN DISENROLLMENT FOR PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE
Kern EM, Willey V, Qiubiao Zhang H, Deshpande G, Cochetti PT
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OBJECTIVES: To quantify the time to and rates of health plan disenrollment for patients with Chronic Obstructive Pulmonary Disease (COPD) compared with a matched comparison group not directly affected by the ACA. METHODS: COPD cases were identified from the HealthCore Integrated Research Environment (HIRE) as having COPD if they had ≥1 inpatient claim with primary diagnosis of COPD, or, ≥1 ED claim within 12 months of the index COPD diagnosis. The index date for COPD cases was the earliest date at which they met the criteria for COPD during 1/1/2007-12/31/2014. Non-COPD patients include those who did not meet the criteria for COPD. COPD patients were matched to non-COPD patients using nearest-1 to 1 matching according to age, gender, health plan type, region, primary policy holder status, ACA plan, and length of pre-index enrollment. Non-COPD patients were assigned an index date equal to that of their matched COPD case. All patients were required to have ≥12 months of pre-index enrollment. RESULTS: In the pre-ACA period, 7,766 patients disenrolled were matched (328,883 per cohort). Median follow-up time was 2.5 years for COPD and 1.7 for non-COPD patients. During follow-up, 55% of COPD patients disenrolled compared with 63% of non-COPD patients (rate ratio=0.89, 95% CI=0.80, 0.99), within those who disenrolled, time to disenrollment was longer for COPD patients (median=688 vs 346 days). Accounting for censoring, Cox regression showed similar results (hazard ratio [HR]=0.71) and were consistent across sensitivity analyses: (1) including death as a disenrollment event (HR=0.77), (2) excluding patients who died during the first 30 days of follow-up (HR=0.77). CONCLUSIONS: Presence of COPD was found to be associated with a longer duration of health plan enrollment and decreased risk of disenrollment. This may be due to job-lock, in which patients with chronic medical conditions do not leave their employer due to the threat of losing their health insurance.

PHS184
FIVE DIMENSIONS TO EVALUATE BREAST CANCER DIAGNOSTIC PROCESS
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1Cuenta de Alto Costo, Bogota DC, Colombia, 2Cuenta de Alto Costo, Bogotá, Colombia, 3HOERT, Bogota, Colombia
OBJECTIVES: Determine the minimum variables to be taken into account to perform an integrated breast cancer diagnosis process that facilitates decision-making under care characteristics of the Colombian Health System. METHODS: A literature review was made with the following terms: Breast Neoplasms"[Mesh] AND "Quality Indicators, Health Care"[Mesh]. Based on the review of original articles, observational studies and Clinical Practice Guidelines, a panel of experts defined the variables and established the categories of measurement for each. RESULTS: 110 determinant variables were defined in breast cancer diagnostic process, grouped into 5 dimensions: 1) Histopathological diagnosis (37.2%), (2) First time care (attending and primary care physicians, 26.7%), (3) Imaging diagnosis, 14.5% (7); (4) Staging, 11.8% (13). Finally, Sociodemographic variables 10%, (11) were taken into account. Approximately, 13.6% (5) were dates variables related with request and registration of histopathological and images, as well as, dates of the first attending physician care. About 31% of histopathological diagnosis (13 variables) were related with treatment defining biomarkers as Her2. CONCLUSIONS: The analysis by dimension will make it possible to evaluate and give them weight, so through consensus, the impact of their evaluation can be determined within the diagnostic process. Evaluation of breast cancer diagnostic process through dimensions will enable decisions-making in order to improve the health care of women with breast cancer.

PHS185
COMPARATIVE ASSESSMENT OF THE BRICS HEALTHCARE SYSTEM
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OBJECTIVES: Brazil, Russia, India, China, and South Africa (BRICS) bear half of the population burden at the same time are the fastest growing economies of the
Objective: To assess the effectiveness of knowledge translation (KT) interventions to improve patients and community adherence to clinical practice guidelines (CPG).

Methods: Systematic review of KT interventions compared with a classical developed guideline for patients or community. The risk of bias (ROB) was tested with the Risk of Bias Cochrane tool and the quality of evidence was tested with the Grading of Recommendations, Assessment, Development and Evaluation (GRADE). Two independent raters qualified relevance, ROB and quality of included studies. Results: 2653 (CPG) papers were initially scanned. After deleting duplicates 2607 (CPG) papers were tested. Seven studies were finally included related with CPG. The follow-up time of interventions was between 6 and 18 months.

Conclusions: There was a high heterogeneity because of the variability of the population and of interventions and tools. Randomized controlled studies had low ROB in the majority of the categories. We did not find in the studies the inclusion of costs or equity issues of the interventions, considering potential inclusion of disadvantaged populations or potential differences in results to a different effectiveness of the intervention on them. Conclusions: Research is required to improve KT using KT interventions are recent. The use of KT strategies improves the outcomes in the implementation of the guidelines. However, new studies with less heterogeneity are necessary to confirm these results.

PHS189
KNOWLEDGE OF RISK FACTORS REGARDING THYROID CANCER AMONG COMSATS UNIVERSITY STUDENTS IN Abbottabad PAKISTAN
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Objective: To assess the hospitalization episode cost, and the clinical / demographical determinants from the payer perspective, for patients in dialysis currently treated in RTS Disease Management Program. Methods: Data collection episodes of hospitalization, demographic and clinical variables were identified and validated data base was built with 59 variables and 752 episodes. Analysis: To assess the hospitalization episode cost, and the clinical / demographical determinants from the payer perspective, for patients in dialysis currently treated in RTS Disease Management Program.

Results: The results show a clear need of health educational activities for educating more people about thyroid cancer knowledge, risk factors, early detection signs and prognosis of early detected thyroid cancer which will eventually lead to better health outcomes and decreased prevalence of thyroid cancer in Pakistan.

PHS189
PREDICTION OF HOSPITALIZATION COST IN DIALYSIS PATIENTS
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1BAGOTA, Bogota, Colombia, 2Renal Therapy Services, BOCOTA, Colombia, 3Mederi, BOCOTA, Colombia, 4RTS, Bogota, Colombia, 5Ecoanalitica, BOCOTA, Colombia

Objective: To assess, the hospitalization episode cost, and the clinical / demographical determinants from the payer perspective, for patients in dialysis currently treated in RTS Disease Management Program. Methods: To collect the costs to episodes charged to the payer. A harmonized, adjusted and validated data base was built with 59 variables and 752 episodes. Descriptive analysis: measures of central tendency and variability were applied for continuous variables, and proportions for categorical variables. Correlations among episode cost and other explicative variables were assessed. Inferential analysis: A log linear and quantile regression analysis was used to study covariates that influence the hospitalization episode costs. Results: Hospitalization cost estimation: mean COP 7,088,009, median COP 3,507,080 and 1st quartile COP 484,397. The variables related with hospitalization costs are the demographics of patients and the diagnostic of disease. Conclusions: Covariates with downsized effect on cost: hypertension uncause of renal disease (p < 0.05), high socioeconomic level (p < 0.05), albumin > 4 mg/dl (p < 0.05), hemoglobin > 9 mg/dl (p < 0.01), normal KTV (p < 0.05), and cardiovascular diseases (p < 0.05). Covariate with downsized effect on cost: diabetes mellitus (p < 0.05), cardiovascular disease (p < 0.05), and diabetes mellitus (p < 0.05).

PHS188
EFFECTIVENESS OF KNOWLEDGE TRANSLATION (KT) INTERVENTIONS TO IMPROVE PATIENTS AND COMMUNITY ADHERENCE TO CLINICAL PRACTICE GUIDELINES (SYSTEMATIC REVIEW)
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National University of Colombia, Bogota, Colombia

Objective: To assess the effectiveness of knowledge translation (KT) interventions to improve patients and community adherence to clinical practice guidelines (CPG). Methods: Systematic review of KT interventions compared with a classical developed guideline for patients or community. The risk of bias (ROB) was tested with the Risk of bias Cochrane tool and the quality of evidence was tested with the Grading of Recommendations, Assessment, Development and Evaluation (GRADE). Two independent raters qualified relevance, ROB and quality of included studies. Results: 2653 (CPG) papers were initially scanned. After deleting duplicates 2607 (CPG) papers were tested. Seven studies were finally included related with CPG. The follow-up time of interventions was between 6 and 18 months. Patience adherence to recommendations was observed in 2 studies. There was a high heterogeneity because of the variability of the population and of interventions and tools. Randomized controlled studies had low ROB in the majority of the categories. We did not find in the studies the inclusion of costs or equity issues of the interventions, considering potential inclusion of disadvantaged populations or potential differences in results to a different effectiveness of the intervention on them. Conclusions: Research is required to improve KT using KT interventions are recent. The use of KT strategies improves the outcomes in the implementation of the guidelines. However, new studies with less heterogeneity are necessary to confirm these results.

PHS186
ASSESSMENT OF HEALTHCARE QUALITY AND PATIENT SATISFACTION LEVEL TOWARDS HEALTHCARE SERVICES PROVIDED IN THE HOSPITALS: A CROSS-SECTIONAL SURVEY
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Objectives: The study aimed to determine the health care quality in public and private hospitals of Pakistan and to recognize patients’ satisfaction level. Methods: A cross-sectional questionnaire based survey was conducted from December 2015-March 2016. A total of 424 patients from various hospitals in Pakistan were admitted and utilizing the services of different public and private hospitals of selected cities using systematic random sampling technique. Results: Results of study demonstrated that patients were more satisfied with the services provided by private hospital services but respondents were especially dissatisfied from the inefficient time given by the doctors for their proper examination and diagnosis.

PHS187
STUDENTS’ HEALTH STATUS IN A PRIVATE UNIVERSITY OF MALAYSIA: A CROSS-SECTIONAL STUDY
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Objective: To access health status of medical and paramedical students and find out current major and minor illnesses and also evaluate the correlation of illnesses with last year illnesses. Methods: A cross-sectional, descriptive study carried out using convenience sampling. A pre-validated questionnaire is distributed in university to access health status of medical and paramedical students. Descriptive statistics (SPSS version 20) is applied, means, standard deviations, and frequency distributions calculated. Pearson coefficient of correlation to also used to analyze data and p < 0.05 is considered a significant for study variables. The reliability of the questionnaire was assessed via Cronbach’s Alpha measure (0.704). Results: 400 students of a various departments were participated (50% females, 50% males, 37% 20-24 years, 44% 25-29 years, 20% 30-35 years, 20% 35-40 years). 117 students (29.25%) from BDS, 12 students (3.0%) from Nursing department, 61 students (15.3%) found that their health was excellent, 101 students (25.3%) found that their health was very good, 191students (47.8%) found that their health was good, 42 students (10.5%) found that their health was fair, and 5 students (1.3%) found that their health was poor. From Pearson bivariate correlation analysis, this study found that illnesses in last one month has a correlation with last one month (r = 0.60, p < 0.05). Conclusions: The Cross sectional study indicates that most of the students of surveyed university were healthy and their health statuses were still in the scale of excellent or good and with a definite correlation as last year illness.
PHS191
THE EVIDENCE BEHIND ‘CHOOSING WISELY’ RECOMMENDATIONS: A BIBLIOMETRIC ANALYSIS
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OBJECTIVES: To evaluate the current list of Choosing Wisely recommendations, and assess the quality and quantity of evidence used to characterize ‘low value’ services. METHODS: All recommendations presented on the Choosing Wisely initiative’s website were identified, along with the references that accompany each recommendation. In addition to standard referencing elements, Medical Subject Headings and MEDLINE publication type assignment data were collected. References not indexed in PUBmed were verified using online websites to obtain complete details pertaining to the source and type of publication. RESULTS: The Choosing Wisely initiative has published 145 recommendations over 7 years by 74 specialty societies. Each specialty society describes recommendations in detail and presents evidence supporting that determination. All included specialty societies describe the process by which recommendations were identified. Analysis of the quality of clinical evidence targeted by Choosing Wisely recommendations. The majority (238, 50.1%) were clinical trials that relate to patient diagnosis, prognosis, or monitoring. The quality, quantity, and applicability of the cited evidence were highly variable. A total of 1,368 citations were retrieved. Only 1,548 peer-reviewed references, 77.71% were published between 2005 and 2016. Clinical guidelines (578, 32.7%) and real world evidence (405, 22.9%) represented the most common types of evidence. 89 (18.7%) specialty society recommendations made economic claims of cost or value; however, only 20 (22.47%) cited supporting economic evidence. CONCLUSIONS: These findings suggest that the Choosing Wisely initiative’s recommendations should be based on systematic review of the evidence and should be developed in a structured, clear, and transparent manner. Clear evidentiary justification for the selection of low value services is necessary for the ongoing success and sustainability of the Choosing Wisely initiative. Potential explanations for the observed variation include the amount of evidence available, the thoroughness of the relevant specialty society, and the evolving nature of the clinical evidence base.

PHS192
A QUALITATIVE STUDY EXPLORING PERCEPTIONS OF POLICY MAKERS ABOUT COMMUNITY PHARMACY PRACTICE AND EXTENDED PHARMACY SERVICES IN LAHORE, PAKISTAN
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OBJECTIVES: This study examined the shift of pharmacy practice has shifted from product- to patient-focused services. This transition of role is least reported from developing countries. The present study aimed to explore the perception of health policy makers (PMs) about pharmacy practice and provision of extended pharmacy service (EPS) by community pharmacist (CP) in the city of Lahore, Pakistan. METHODS: A qualitative approach was used to gain an in-depth knowledge of the issues. Government officials involved in regulation and policy making were targeted for the study. Seven conveniently sampled respondents were interviewed through a validated semi-structured interview guide. All interviews were audio-taped, transcribed verbatim, and were then analysed for thematic contents by the standard content analysis. RESULTS: Thematic content analysis (TCA) yielded four major themes, (1) Current standard of community pharmacy practice, (2) Current knowledge of EPS, (3) Practice change and readiness of CPs toward practice change and (4) Barriers towards professional change. Only one respondent had knowledge about EPS while for majority of them, EPS was a new concept. They were not confident about the current status of community pharmacy practice in Lahore, however, in Lahore the standard was perceived to be slightly better. In their view the practice should be changed as government had recently introduced new rules and regulations. The barriers and limitations indicated were the lack of pharmacists’ professional attitude, mindset and interest, academia, and lack of acceptance of pharmacists as health team member in society and by other health professionals. The prevailing disease, back pain, enthesitis, or no reported symptoms currently. The quality, quantity, and applicability of the cited evidence were highly variable. A total of 1,368 citations were retrieved. Only 1,548 peer-reviewed references, 77.71% were published between 2005 and 2016. Clinical guidelines (578, 32.7%) and real world evidence (405, 22.9%) represented the most common types of evidence. 89 (18.7%) specialty society recommendations made economic claims of cost or value; however, only 20 (22.47%) cited supporting economic evidence. CONCLUSIONS: These findings suggest that the Choosing Wisely initiative’s recommendations should be based on systematic review of the evidence and should be developed in a structured, clear, and transparent manner. Clear evidentiary justification for the selection of low value services is necessary for the ongoing success and sustainability of the Choosing Wisely initiative. Potential explanations for the observed variation include the amount of evidence available, the thoroughness of the relevant specialty society, and the evolving nature of the clinical evidence base.

PHS193
DISEASE STATUS, SYMPTOMLOGY, AND REMISSION RATES OF NON-RADILOGIC AXIAL SPONDYLOARTHRITIS AND ANKYLING Spondylitis Patients in the United States
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OBJECTIVES: To better understand the symptoms and clinical characteristics of non-radiographic axial spondyloarthritis (nr-axSpA) patients and how they compare to ankylosing spondylitis (AS) patients in the United States. METHODS: We used data from the 2015-SPaP Disease Profile Programme, a cross-sectional multi-national survey of patients and rheumatologists conducted in the United States were analyzed. Rheumatologists (n=92) completed forms containing patient demographics, clinical results and symptomology. Symptoms, disease activity and diagnostic factor variables (defined as improving (stable, unstable, and deteriorating) of ankylosing spondylitis and non-radiographic axial spondyloarthritis were compared. RESULTS: A total of 980 patients (AS: 498; nr-axSpA: 482) were included in this analysis. A higher proportion of AS patients were male (77% vs. 56%), older (Mean Age: 46.1 vs. 42.6), had a higher mean BMI and were employed when compared to nr-axSpA patients. Nr-axSpA patients’ current disease status were less likely to be stable (p=0.0259) in comparison to AS patients and also ISPA patients less likely to be 0.0207). AS patients had more axSpA symptoms, such as sacroiliitis, spinal fusion, and loss of movement, however, nr-axSpA patients were more likely to have inflammatory back pain, enthesitis, or no reported symptoms currently. Only 10% of the US, nr-axSpA and AS patients share many similar clinical features with few differences between them. In spite of these similarities, nr-axSpA patients show lower rates of stability and are less likely to be in remission. These findings may support that nr-axSpA is as burdensome as AS, and that both conditions may warrant similar treatment approaches from an early stage.

PHS194
AVAILABILITY OF ESSENTIAL OBSTETRIC DRUGS AND EQUIPMENT AND MATERNAL MORTALITY IN PRIMARY HEALTH CARE SETTING IN INDIA
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OBJECTIVES: Primary health centers (PHCs) are important source of maternal health services in India. The average maternal mortality ratio in India is 178 per 100,000 live births. This study aims to find out whether the drugs and equipment in PHCs are adequate according to Indian Public Health Standards and whether there is any effect on maternal mortality. METHODS: A cross-sectional study on maternal mortality. Data from the 2015 SpA Disease Specific was analyzed. Rheumatologists (n=498; nr-axSpA: 482) were included in this analysis. A higher proportion of AS patients were male (77% vs. 56%), older (Mean Age: 46.1 vs. 42.6), had a higher mean BMI and were employed when compared to nr-axSpA patients. Nr-axSpA patients’ current disease status were less likely to be stable (p=0.0259) in comparison to AS patients and also ISPA patients less likely to be 0.0207). AS patients had more axSpA symptoms, such as sacroiliitis, spinal fusion, and loss of movement, however, nr-axSpA patients were more likely to have inflammatory back pain, enthesitis, or no reported symptoms currently. Only 10% of the US, nr-axSpA and AS patients share many similar clinical features with few differences between them. In spite of these similarities, nr-axSpA patients show lower rates of stability and are less likely to be in remission. These findings may support that nr-axSpA is as burdensome as AS, and that both conditions may warrant similar treatment approaches from an early stage.

PHS195
FACTORS OF CARDIOVASCULAR DISEASE RISK SCREENING UPTAKE AMONG POPULATIONS WITH LOW SOCIOECONOMIC STATUS: A SYSTEMATIC REVIEW
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OBJECTIVES: Populations with low socio-economic status (SES) are at higher risks of cardiovascular morbidity and mortality. This systematic review aimed to identify the factors and present evidence to identify low value in health 20 (2017) A1 – A187. CONCLUSIONS: PHCs in India show poor availability of essential drugs and delivery equipment even after 5 years of full implementation of PHIS of National Rural Health Mission. Availability of emergency obstetric drugs and supplies significantly reduce maternal mortality. India should ensure continuous availability of emergency obstetric drugs, supplies and equipment for rapid improvements in maternal mortality.

PHS196
CONTRIBUTING FACTORS TO THE INCIDENCE OF CARDIOVASCULAR DISEASE AMONG POPULATIONS WITH LOW SOCIOECONOMIC STATUS (SES) IN SINGAPORE
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OBJECTIVES: To determine factors that contribute to the incidence and prevalence of cardiovascular disease (CVD) risk screening uptake among the adult population with low SES. We excluded review articles, book chapters and those not published in English. We extracted study characteristics, classification factors and recommend CVD risk factors for each factor with screening uptake, as well as the strength of the evidence for the association. RESULTS: Five out of 136 articles were included which examined screening conducted in healthcare facilities, participants’ homes or nearby community centers, as well as screening conducted as an outreach program. We identified and categorized 33 factors positively or negatively associated with screening uptake into 6 themes. Besides lack of awareness and poor health beliefs, the factors influencing the screening uptake of low SES population include opportunity cost from missed work, concerns about judgmental screening staff and absence of companion to attend screening together. CONCLUSIONS: Our findings provide a comprehensive overview of factors associated with CVD risk screening uptake among population with low SES. The findings are particularly useful for clinicians, researchers and policy makers who are developing interventions and screening programs targeting the low SES group. Studies are required to identify other unique factors associated with CVD risk screening in this group.

PHS197
CONTRIBUTING FACTORS BETWEEN ACCESS TO HEALTH-PROMOTING FACILITIES AND PHYSICAL ACTIVITY IN CARDIOVASCULAR DISEASE AMONG POPULATIONS WITH LOW SOCIOECONOMIC STATUS (SES) IN SINGAPORE
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OBJECTIVES: Little attention has been given to associations between physical environment and screening participation. This study examined associations between minimum distances (proxy of access) to health-promoting facilities and door-to-door, cardiovascular disease risk screening participation, among
CONCLUSIONS: These findings could be important for the planning of facilities in urban cities, for efficient prioritization of resources. To increase participation rates among this low SES population, access to health-promoting facilities in each region and their perception of such facilities should be considered.

EVALUATION OF RISK FACTORS AND THE PERCEPTION OF PREGNANT FEMALES REGARDING FACTORS ASSOCIATED WITH CAESAREAN IN DIFFERENT HOSPITALS OF QUETTA, PAKISTAN

OBJECTIVES: The current study was done to evaluate the risk factors and the perception of pregnant females regarding factors associated with caesarean in different hospitals of Quetta.

METHODS: Face-to-face guided interviews of eight hospital pharmacists was Clostridium difficile management remains a challenge. In this cross-sectional study, we explored the different roles and contributions of hospital pharmacists to summarize approaches that could be adopted by pharmacists and pharmacy direct care providers. We also repeated the multi-variate analyses, to test if the regression were used to test associations between minimum distances to facilities and block screening participation rate and minimum distance to polyclinics – which disappeared in multi-variate analyses. After adjusting for interaction, 3 independent variables, minimum distance to subsidized private clinics (IRR 0.92, 95% CI 0.88–0.96) and parks (IRR 1.42, 95% CI 1.11–1.81) in the North-North East regions were shown to be significant. No association was observed for healthy eateries for all 3 regions. CONCLUSIONS: These findings could be important for the planning of facilities in urban cities, for efficient prioritization of resources. To increase participation rates among this low SES population, access to health-promoting facilities in each region and their perception of such facilities should be considered.

AVAILABILITY AND ALLOCATION OF HEALTHCARE SERVICES AND THE EFFECT ON HEALTH OUTCOMES IN FLORIDA: A SPATIAL PERSPECTIVE

OBJECTIVES: To evaluate the availability and allocation of healthcare services in the State of Florida with respect to their effect on health outcomes. A cross sectional study was conducted from March to September 2016 in the public and private hospitals of Quetta by using a pre-validated questionnaire. Five hundred and ten (510) women were registered in the different hospitals at the time of the study out of 310 agreed to participate. The primary source of data was revaluated self-administrative questionnaire. Inferential statistics (p < 0.05) were used to assess the significance among study variables by using SPSS vs 20. RESULTS: A total of 381 pregnant women who were in their third trimester and expected to deliver within one month were enrolled in the study. The results show that increase number of pregnancies was associated with caesarean (67.1%). Majority of the females (n=229, 73.1%) preferred to caesarean as their current type of birth. Most of the females (n=157, 48.5%) had their first pregnancy and 70.9% (n=218) of them had no knowledge regarding the risk factors associated with cesarean. But the small number of respondents (n=89, 28.7%) were not familiar with the factor that the age of the mother can affect the complications which leads to caesarean birth. CONCLUSIONS: The study concludes that females preferred caesarean rather than a vaginal delivery. And large number of females had poor knowledge regarding risk factors associated with cesarean. The factors associated with high Caesarean rates may be reduced if females were provided with better education, facilities, & ante natal care that care which provided throughout the pregnancy. It is also important to educate woman that childbirth is a normal process and vaginal birth can be achieved in women safely.

ANALYSIS ON THE CURRENT SITUATION OF HEALTH EDUCATION OF REPRODUCTIVE AGE WOMEN IN SHANGHAI

OBJECTIVES: To investigate the health education state among reproductive age women and explore improvement strategy of health service in Shanghai. METHODS: From September to December in 2015, convenience sam- pling was adopted to investigate reproductive age women in nine districts, who accorded with the inclusion and exclusion criteria. The general condition (age, occupation, education, income, pregnancy, childbirth, household register) and health education channels (number, type, content) were surveyed by self- designed questionnaire. RESULTS: We distributed 226 questionnaire and recover 204 questionnaire, with an effective returning rate of 90.3%. Among the women, the age ranges from 18 to 24, 60.3% for 21 to 30, 68.5% for enterprises, 81.3% for college degree or above, 61.3% for income over 5000 CNY, 71.6% for non-pregnancy, 64.7% for unemployment, 97.1% for ready pregnant and 83.3% for local maternity hospital registration. The rate of hospital registration was higher than local women (P < 0.05). Education channels of nonlocal women were less than local women (P < 0.05).The channels were no statistical difference (P > 0.05) between different age women. The utilization rate of web education was higher than traditional media, family member and social activities among 21 to 30 and 31 to 40-year-old women in education channels (P < 0.05). The utilization rate of traditional media was less than social activities among 21 to 30-year-old women (P < 0.05). And the level of utilization of education channels in 14 active channels. Magazines or books, friends and mother or mother-in-law were the top three channels in 14 passive channels. CONCLUSIONS: The health education of the reproductive age women was lower than local women. In all education channels, the utilization rate of internet was higher than traditional media, family member and social activities among 21 to 30 and 31 to 40-year-old. The government should explore multi-sectoral cooperation mechanisms and supervise the credibility of internet information to improve maternal health care services.

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OBJECTIVES: The Centers for Medicare and Medicaid Services (CMS) Hospital Compare website provides information about the quality of care at over 4,000 Medicare-certified hospitals nationwide. One of the goals for these data is to encourage hospitals to improve the quality of care they provide. The purpose of this research was to examine the Hospital Compare database HCAHPS Patient Survey to observe trends in patient satisfaction with care over time. METHODS: We accessed HCAHPS Patient Survey data from 2011-2014. Patients rate their overall satisfaction on a scale from 0 (lowest) to 10 (highest). We defined the lowest ranking hospitals as those with the highest percentage of patients rating their hospital a score of 6 or lower. Low ranking hospitals were tracked for four years to determine whether any specific survey components contributed to overall improvement in satisfaction with care. RESULTS: In 2011, there were 3,572 hospitals with reported data on HCAHPS scores. In the lowest 30 ranking hospitals, 22% of patients gave their hospital a rating of 6 or lower. Of these hospitals, 25 had data available in 2011-2014 to follow trends. Of the hospitals examined, 21 showed improved patient satisfaction in 2012. Of these 21 hospitals, 18 improved further in 2013 and 10 improved even further in 2014. Only two hospitals showed a downward trend in patient satisfaction from 2011 to 2014. CONCLUSIONS: When examining a publicly available, self-reported database, the majority of hospitals with high rates of infection in the initial year then went on to have lower rates of infection in subsequent years. This would support the hypothesis that hospitals modify their behavior to increase patient satisfaction, though more research is needed to determine what other factors impact hospital infection rates over time.

HOSPITAL-LEVEL TRENDS IN CENTRAL LINE ASSOCIATED BLOODSTREAM INFECTIONS: ANALYSIS OF HOSPITAL COMPARE DATA 2011 - 2013
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OBJECTIVES: The Centers for Medicare and Medicaid Services (CMS) Hospital Compare website provides information about the quality of care at over 4,000 Medicare-certified hospitals nationwide. One of the goals for these data is to encourage hospitals to improve the quality of care they provide. The purpose of this research was to examine one data element of the Hospital Compare database (central line associated blood stream infections – CLABSI) to observe trends in rates over time. METHODS: We accessed hospital-level Hospital Compare CLABSI rates for the years 2011 – 2013. We then ranked hospitals based on their 2011 CLABSI rates to identify hospitals with the highest rates of CLABSI and tracked those hospitals for the subsequent two years to observe trends in data. A subgroup analysis was performed to determine whether there were any specific hospital demographics or other quality of care measures that may contribute to these trends. RESULTS: There were 1,937 hospitals with reported data on CLABSI rates in 2011. Of those, 46 hospitals had both a CLABSI rate of 2.0 per 1,000 discharges or greater in 2011 and data available in 2012 and 2013 to examine trends. Of the 46 hospitals examined, 43 hospitals had lower CLABSI rates in 2012 compared to 2011. Of those 43 hospitals with lower CLABSI rates in 2012, 19 hospitals then had increased CLABSI rates in 2013. By 2013, one of those hospitals had higher CLABSI rates in 2013 than in 2011. CONCLUSIONS: When examining a publicly available, self-reported database, the majority of hospitals with high rates of infection in the initial year then went on to have lower rates of infection in subsequent years. This would support the hypothesis that hospitals modify their behavior to increase patient satisfaction, though more research is needed to determine what other factors impact hospital infection rates over time.

PHS203 THE PREVALENCE OF CANCER RELATED DISTRESS AMONG URBAN-DWELLING VETERANS: A PILOT STUDY
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OBJECTIVES: The National Comprehensive Cancer Network and American College of Surgeons Commissions on Cancer requires cancer centers to evaluate psycho-social distress and provide appropriate triage and treatment for all patients (Standard 3.2). Clinically-significant distress includes biopsychosocial stressors which are highly prevalent in individuals with cancer and lead to negative health outcomes. Currently programs identifying veteran’s distress are limited and can help clarify treatment needs and improve future outcomes. METHODS: Participants were screened during their initial oncology consult visit utilizing the biopsychosocial “NCCN Distress Thermometer and Problem List for Patient- s” (N=53). The majority of patients were men (87%), mean age 70 (SD=8.16) presenting with cancer of the lung (23%), prostate (15%), GI (13%), ENT (19%), and others. Distress scores ranging between 0 and 3 resulted in documentation in the electronic medical record; those ≥4 received telephone follow-up and triage to compare. Results: The median distress score was 3.72, falling below the “significant distress cutoff” with the median of 4.00, meeting significant distress. Overall, 47 percent reported significant distress related to physical, psychological, and social distress. Eight percent reported a high level of significant distress (score≥7). Further analysis identified fatigue (46%), pain (43%) worry (41%), and insurance/financial concerns (31%) as primary symptoms of distress. For the 47% who reported significant distress, symptoms included significant worry (67%), pain (50%), fatigue (51%), nervousness (48%), sleep (44%), and loss of interest (41%), with primarily emotional health symptoms and physical health symptoms secondary. Interestingly, 33% reported distress scores below 4, yet many were experiencing significant symptoms physical and psychological symp- toms. Three patients reported active suicide ideation/plan and were provided care accordingly. CONCLUSIONS: A large majority of veterans receiving oncological care reported significant cancer-related distress and unmet needs, with elevated symptoms of emotional and physical demands. There may be a continued trend towards under-reporting among veterans, such as that individuals reporting low scores of distress nevertheless endorsed emotional and physical symptomatolo- gies to marked degrees.