chemotherapy, followed by 1 year of trastuzumab. The second one (NC: 18%; AC: 34%) included another type of 21-day cycle, combining both trastuzumab and chemotherapy. A third pattern (NC: 11%; AC: 25%) was only composed of trastuzumab. ***Conclusions:*** The TAK representation gave a precise, complete, and interpretable temporal view of the treatment sequences. It confirmed that the management of a large proportion of her2-positive eBC patients followed the recommendations and revealed the existence of other specific patterns.

PCN278
EVALUATION OF AN INDIVIDUALISED QUALITY OF LIFE QUESTIONNAIRE FOR USE IN PEOPLE WITH CANCER, THE CANCER DEPENDENT QUALITY OF LIFE ("CANCERDQOL") QUESTIONNAIRE

Davidson J,[1] Taylor M,[2] Gilbride CJ,[3] Romaine J,[3] Wolstenholme V,[4] Tipples K,[4] Powell M,[4] Harrison M,[4] Bradley C[3]
[1]*Royal Holloway University of London, London, UK,* [2]*Royal Holloway University of London, Egham, UK,* [3]*Royal Holloway, University of London, Egham, UK,* [4]*Barts Health NHS Trust, London, UK*

Objectives: Instruments currently used to measure QoL in cancer populations are neither individualised nor consistently condition-specific and focus overly on health status and functioning. Improved cancer survival rates and increased interest in its impact on QoL means accurate measures are needed. The current paper sought to validate for UK populations, a Cancer-Dependent QoL (CancerDQoL) questionnaire, originally designed with English-speaking Zimbabwean patients with cancer. ***Methods:*** Ten semi-structured interviews were conducted with people diagnosed with any type of cancer to adapt the CancerDQoL for UK use. Psychometric analyses were conducted on data from 159 people with cancer to: determine the factor structure of the CancerDQoL through Exploratory Factor Analysis (EFA); establish internal consistency reliability with Cronbach's alpha; and evaluate discriminant and construct validity through comparison with other measures (EQ-5D-VAS, EORTC-QLQ-C30 and W-BQ16) and health comorbidities. Based on pre-existing –DQoL templates (© Bradley), the CancerDQoL includes 4 overview items and 23 cancer-specific domain items. Domain items are rated for impact of cancer and importance for QoL. ***Results:*** Semi-structured interviews resulted in removal of one item and minor formatting and wording changes. The resulting CancerDQoL revision was used for the subsequent psychometric evaluation. A mean negative impact of cancer was found on all domains of life. EFA revealed a 22-item solution explaining 46.37% of the variance. Internal consistency was excellent (α=0.943) and robust to missing data. Assessment of construct and discriminant validity substantiated the CancerDQoL as a condition-specific measure of the impact of cancer on QoL. ***Conclusions:*** Support is provided for the validity and internal-consistency reliability of the CancerDQoL, the first individualised, cancer-specific QoL instrument. Test-retest reliability and responsiveness require future investigation. The CancerDQoL can provide an accurate assessment of the impact of cancer and cancer treatments: facilitating improved QoL and allowing for investigation of treatment cost-effectiveness, including comparisons across patient populations and treatments.

PCN279
COMPARING METHODS OF LONGITUDINAL SERUM TUMOR MARKER ANALISIS IN RESPONSE MONITORING OF IMMUNOTHERAPY TREATED NON-SMALL CELL LUNG CANCER PATIENTS

van Delft F,[1] Koffijberg E,[2] Retel V,[3] Schuurbiers M,[4] van Rossum H,[3] van den Heuvel M,[4] IJzerman M[5]
[1]*University of Twente, Enschede, OV, Netherlands,* [2]*University of Twente, Enschede, Netherlands,* [3]*The Netherlands Cancer Institute, Amsterdam, NH, Netherlands,* [4]*Radboud University Medical Center, Nijmegen, Netherlands,* [5]*University of Melbourne, Melbourne, VIC, Australia*

Objectives: Immunotherapy is known to provide a substantial survival benefit to a select group of non-small cell lung cancer (NSCLC) patients, therefore, early identification of progression provides a more beneficial treatment to these patients. Serum tumor markers can be used to monitor the response to treatment, however no clear guidance is available how to use and interpret their longitudinal results. Our study aims to evaluate and compare longitudinal biomarker analysis methods, in early detection of progressive disease in immunotherapy treated NSCLC patients. ***Methods:*** A cohort of 434 NSCLC patients treated with nivolumab or pembrolizumab provided bi-weekly analysis of CYFRA, CEA, CA125, NSE, and SCC as part of regular care. Disease progression was determined using RESIST criteria and clinical assessment. Six logical and statistical methods based on longitudinal biomarker analysis and interpretation were evaluated on their ability to identify patients presenting with progressive disease at six months, 1) two consecutive increments, using baseline or the first of two compared results as a reference, 2) biomarker doubling time, 3) the slope between two consecutive results, 4) the absolute change between the baseline measurement and the measurement at week-6, 5) a cox proportional hazards model, 6) a landmark model. ***Results:*** The sensitivity of each method was determined at a constant specificity of 95% to ensure false-positive rates remained low. On average, the sensitivity ranged from 0% for CEA in the cox model to 26% for CYFRA when looking at the change between baseline and week-6. ***Conclusions:*** Our research demonstrates that different models to interpret longitudinal serum biomarker measurements for NSCLC have different characteristics and resulted in different diagnostic performances. Models with the best diagnostic characteristics might be valuable monitor immunotherapy response in NSCLC patients.

PCN281
PROJECTING OVERALL SURVIVAL DATA FOR HEALTH-ECONOMIC MODELS: HOW UNCERTAIN IS IT BASED ON SEVERAL MATURITY LEVELS?

Borget I,[1] Bertrand N,[2] Eberst L,[3] Roze S[4]
[1]*Gustave Roussy Institute, Villejuif, France,* [2]*CHU Lille, Lille, France,* [3]*Centre Leon Bérard, Lyon, France,* [4]*VYOO Agency, LYON, 69, France*

Objectives: Lifetime horizon is recommended for health-economic evaluation of anticancer drugs. If overall survival (OS) is immature, extrapolation of the Kaplan-Meier (KM) using distributions is done. Depending on OS maturity, distribution chosen may impact estimation of life expectancy in months (LM) and of life months gained (LMG) between treatments. This study aimed to estimate the error induced by extrapolation distributions choice, for 2 levels of OS maturity (30% and 50%), as compared to full maturity. ***Methods:*** Fifteen phase 3 trials published between 2013 and 2017 containing OS KM curves were selected if maturity>70% (Full). To test 2 maturity levels, each KM was truncated at 30% and 50%. A 3-step process was performed: 1) KM was digitalized 2) individual patient-data was reproduced using the Guyot algorithm and 3) 5 parametric distributions were fit using the R-Survival package. For each study, the process was done for each treatment arm and each of the 3 maturity levels on the same time horizon (maximum follow-up of the study). For each curve, the best distribution was chosen by a board of 2 oncologists and 2 health-economists, based on visual inspection, AIC/BIC and external validity. ***Results:*** Based on the board review of the 90 KM curves, main distributions were Weibull (33%), Log-logistic (32%) and Log-normal (27%). As compared to LM at full maturity, LM was overestimated in 23% and 40% at 30% and 50% maturity, respectively. Mean absolute error was 2.12 months at 30% maturity, and decreased to 0.88 months at 50% maturity, *i.e.* estimation was 2.4 times better from 30% to 50% maturity. On average, at 30% maturity versus full, mean % of error in LMG was 126.4% and 62.4% at 50% maturity versus full. ***Conclusions:*** The use of immature OS data increases the risk of error when projecting long-term life expectancy.

PCN283
EXTENDING MULTIVARIATE NETWORK META-ANALYSIS OF SURVIVAL FUNCTION PARAMETERS TO FRACTIONAL POLYNOMIALS

Chan K,[1] Ayers D,[1] Jansen J,[2] Cope S[1]
[1]*PRECISIONheor, Vancouver, BC, Canada,* [2]*PRECISIONheor, Oakland, CA, USA*

Objectives: Recently, we developed a two-step network meta-analysis (NMA) for time-to-event data using alternative parametric distributions often used in health technology assessments (HTAs), including exponential, Weibull, Gompertz, log-normal, and log logistic. With these models the hazard ratio does not have to be assumed to be constant over time, thereby reducing the possibility of violating consistency in indirect comparisons. However, it is also possible to extend this approach to evaluate fractional polynomial distributions, which are increasingly being used in an HTA setting. ***Methods:*** First, for each arm of every randomized controlled trial (RCT) connected in the network of evidence simulated patient data were fit to alternative parametric distributions, including fixed and random effects first and second order fractional polynomials. Additionally, we compared these results to Weibull, Gompertz, exponential, log-normal, and log logistic. For each distribution, the resulting scale and shape parameters per arm were then included in a multivariate NMA, which preserved randomization and accounted for the correlation between the parameters. ***Results:*** An illustrative analysis is presented for a network of RCTs evaluating interventions for advanced melanoma. The NMA was assessed for overall survival using alternative distributions, which were compared using Akaike information criterion (AIC), which can facilitate model averaging to propagate structural uncertainty in a cost-effectiveness analysis. Based on the AIC, fractional polynomial provides a good fitting alternative to the more traditional parametric distributions that can all be compared in a straightforward manner based on goodness of fit as well as clinical plausibility for each trial. ***Conclusions:*** A two-step NMA of survival data for fractional polynomials allows for a straightforward and efficient comparison of alternative models using the individual event times in the frequentist framework in the first step rather than an approximation based on discrete hazards in Bayesian framework. This approach provides a more generalizable evidence synthesis framework for HTA.

PCN285
SURROGATE ENDPOINTS IN ADVANCED COLORECTAL CANCER IN SUBGROUPS OF PATIENTS DEFINED BY THE KRAS BIOMARKER STATUS

Poad H,[1] Sweeting M,[2] Bujkiewicz S[2]
[1]*University of Leicester, Ilkley, UK,* [2]*University of Leicester, Leicester, UK*

Objectives: To explore the validity of surrogate endpoints in subgroups of patients with advanced colorectal cancer (aCRC), defined by the KRAS biomarker status. ***Methods:*** A systematic review was undertaken to identify all randomised controlled trials (RCTs) of any pharmacological therapies for aCRC that were published between 2003 and 3rd April 2020 (PROSPERO registration CRD42020167075). Trials included