

## Human resource information systems in healthcare: a systematic review

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### Review question

1. To determine the prevalence and scope of existing research and evaluation pertaining to Human Resource Information Systems (HRIS) in healthcare organisations.
2. To analyse, classify and synthesise existing evidence on the processes and impacts of HRIS development, implementation and adoption.
3. To inform recommendations for future HRIS research and practice, with reference to the domains of eHealth, business IT systems and human resource management.

### Searches

Academic and grey literature will be searched, in order to identify and classify the existing evidence relating to the development, implementation, adoption and impacts of HRIS in health organizations worldwide. The topic lies at the intersection of Informatics, Management and Health, and for this reason the review will draw on a range of sources across the information systems, medical, and business literature. There will be no restrictions on language or publication year applied to the literature search.

### Search strategy

[http://www.crd.york.ac.uk/PROSPEROFILES/23581\\_STRATEGY\\_20150524.pdf](http://www.crd.york.ac.uk/PROSPEROFILES/23581_STRATEGY_20150524.pdf)

### Types of study to be included

Inclusion: Any study involving a formal or semi-formal approach to the investigation or evaluation of HRIS, whether led by academia, industry (e.g. consulting sector) or from within the healthcare sector. This includes studies of HRIS development, implementation, deployment, diffusion, adoption, use and impacts. Studies of broader business/administrative/Enterprise Resource Planning systems that explicitly examine their application to HR practices will also be included. Exclusion: Reports that are purely descriptive or are concerned only with the computational design aspects of systems or pure market research, will be excluded, as the aim of this project is to glean evidence, including both softer and harder forms (e.g. social studies, quality improvement projects and impact evaluations).

### Condition or domain being studied

This review concerns the effective development, implementation and use of information technology platforms and software for supporting the effective management of human resources within healthcare organisations and, in some cases, across healthcare systems. Basic HRIS provide a means of documenting personnel characteristics and roles, scheduling rotas and managing payment. More sophisticated HRIS can help to support internal quality improvement through responsive audit, provide intelligence for senior managers to enable smarter, learning health systems, and to inform future planning and strategy. While stand-alone systems exist, some HRIS are part of a more general health information or business system.

### Participants/population

There will be no exclusion based on participants/population group

### Intervention(s), exposure(s)

This review is not restricted to intervention studies, however it will include evaluations of interventions aimed at engaging personnel in the use of HRIS as well as evaluation studies where the implementation of the HRIS represents an intervention, whether or not this is part of an explicit experimental design.

### **Comparator(s)/control**

This is not a review of clinical trials, and we anticipate that most studies will be of the qualitative/investigative type. However for studies evaluating an intervention, relevant comparators will include baseline measures of efficiency, such as payroll processing time, and indicators of impact, such as staff absenteeism, which could theoretically be associated with workload, or patient morbidity, which may be theoretically associated with effective staff deployment. Our inclusion criteria encompass all types of research or evaluation.

### **Context**

Any health organization, including primary, secondary or tertiary care settings, or health systems where HRIS are implemented at scale.

### **Main outcome(s)**

Measured impacts on organizational efficiency, effectiveness, safety, quality and cost-effectiveness.

### **Additional outcome(s)**

- Effectiveness of change management processes;
- Indicators of implementation, adoption and use;
- Perceived benefits and disbenefits;
- Perceived facilitators and barriers;
- Satisfaction of managers and/or employees.

### **Data extraction (selection and coding)**

One reviewer will search the databases and extract data with the help of a professional librarian. Two reviewers will screen and code titles and abstracts for potentially eligible studies. Any disagreements will be resolved by consensus or by involvement of a third reviewer. Full text articles will be retrieved for studies that meet the inclusion criteria. Reasons for exclusion will be noted for the remaining articles. A PRISMA flow diagram will illustrate the study selection process in order to ensure transparency of the review. The following information will be extracted from the eligible studies:

Authors/Institutional Affiliation;

Year;

Setting (type of organization, country or region in which the study was conducted);

Technological innovation stage (e.g. Design, Piloting, Implementation);

Journal discipline;

HRIS function/activity;

Research purpose/questions;

Theoretical basis (if specified, or if this can be deduced from the author's description);

Study design;

Main findings;

Conclusions.

Other fields may be added as the analysis progresses.

### **Risk of bias (quality) assessment**

Two reviewers will independently assess included studies and the advice of the third reviewer will be sought in case of any disagreement.

### **Strategy for data synthesis**

Data synthesis will be descriptive only.

### **Analysis of subgroups or subsets**

None planned

### **Contact details for further information**

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### Organisational affiliation of the review

University of Molise; University of Edinburgh  
[www.unimol.it](http://www.unimol.it); [www.ed.ac.uk](http://www.ed.ac.uk)

### Review team members and their organisational affiliations

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### Anticipated or actual start date

01 May 2015

### Anticipated completion date

01 November 2015

### Funding sources/sponsors

Currently none

### Conflicts of interest

None known

### Language

English

### Country

Scotland, Italy

### Stage of review

Review Ongoing

### Subject index terms status

Subject indexing assigned by CRD

### Subject index terms

Delivery of Health Care; Humans; Information Systems

### Date of registration in PROSPERO

24 June 2015

### Date of first submission

### Details of any existing review of the same topic by the same authors

None. Emerging topic.

### Stage of review at time of this submission

Stage	Started	Completed
Preliminary searches	Yes	Yes

Stage	Started	Completed
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

#### Revision note

1. Term "scoping" was removed to reflect the true nature of the review; 2. IEEE Xplore database was added to the data sources to ensure that relevant studies from IT literature will not be missed; 3. "Review question(s)" text was slightly amended to avoid any potential confusion with the more technical part of IT development.

*The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.*

*The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.*

#### Versions

24 June 2015

#### PROSPERO

This information has been provided by the named contact for this review. CRD has accepted this information in good faith and registered the review in PROSPERO. The registrant confirms that the information supplied for this submission is accurate and complete. CRD bears no responsibility or liability for the content of this registration record, any associated files or external websites.