A review of the literature regarding the effectiveness of interventions to promote successful adoption of Electronic Health Records in healthcare professionals

Version 1.3

Topic Review Group

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Versions

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1.2	03/07/2010	**Reply comments BEME (2)**
1.3	21/08/2010	**Reply comments BEME (3)**

Background of the topic

In the literature concerning Electronic Health Records (EHRs) there is consensus that they have the potential to improve quality of care and patient safety by reducing medical errors, fostering quality measurement and improving communication.[1-4] Even though EHRs are currently already available in healthcare, healthcare professionals do not use their full potential.[5] Knowledge is lacking on conditions for successful integration of EHRs into practice. Several strategies have been tried to promote adoption of EHRs in healthcare professionals, but overall it is still uncertain which strategies are most effective in integrating EHRs in health workers.[6] Aiming to elucidate which approaches are effective for implementation of EHRs in health practice, we will review educational strategies that are used to promote successful adoption of EHRs in healthcare professionals. We will include all types of educational strategies, ranging from the simple provision of an EHR to the supply of written manuals, the provision of e-learning modules and face-to-face teaching in small tutorial groups.

Review objectives

To Review and to synthesize existing evidence in educational science that addresses the following questions:

1.) Which educational interventions are effective in promoting the correct and meaningful use of EHRs in healthcare professionals?

2.) What features of the interventions make them effective in these respects?

Search sources and strategy

Our search strategy will target several literature databases (ERIC, MEDLINE, PsychINFO, ISI Web of Knowledge, EMBASE, Ovid, DARE and CINAHL) and will employ a number of search terms and concepts and their Boolean combinations. Hand and internet searches will also be used including searching through grey literature.

Previously our Topic Review Group has compiled a database of relevant articles concerning the implementation of electronic health records in health care professionals. Articles in this database were collected over the course of several years to follow the developments in the implementation of information technology in healthcare and will serve as a gold standard, i.e.

our search strategy should retrieve at least 80% of the articles in this database. For each online database a search will be conducted using the search strategy mentioned hereafter.

Search terms

Health	Personal
Medical	Patient
System$	Record$
Electronic/	Computer/
Adopt/	Implement/
Automated	

Search filter

("Electronic Medical Record"[All Fields] OR "Electronic Medical Records"[All Fields] OR "Electronic Health Record"[All Fields] OR "Automated Medical Records Systems"[All Fields] OR "Computerized Medical Record System"[All Fields] OR "Computerized Medical Record Systems"[All Fields] OR "Computerized Medical Records System"[All Fields] OR "Automated Medical Record System"[All Fields] OR "Automated Medical Record Systems"[All Fields] OR "Automated Medical Records System"[All Fields] OR "Computerized Medical Records Systems"[All Fields] OR "Computerized Medical Record"[All Fields] OR "Computerized Medical Records"[All Fields] OR "Computerized Patient Records"[All Fields] OR "Computerized Patient Record"[All Fields]) AND (adopt[All Fields] OR adopting[All Fields] OR "adoption"[All Fields] OR adopted OR implemented OR implementing[All Fields] OR implement[All Fields] OR implementation[All Fields])

Study selection criteria

Any articles, published since January first 2000, concerning empirical research into the effectiveness of interventions to promote successful adoption of Electronic Health Records in healthcare professionals, will be considered subject to the following criteria:

- Any language
- Qualitative and quantitative outcome measures
- Failed efforts are of special interest
- Health care professionals providing clinical care
  - Physicians, Nurses, Residents, Fellows and Paramedics

Exclusion criteria

- Professions not providing clinical care

Procedure for extracting data

We have developed a new version of the BEME coding sheet. Two teams of reviewers independently and systematically assess characteristics of the studies and extract data using the BEME coding sheet. We contact study authors if data is missing or need clarification. We resolve discrepancies in ratings by consensus and involvement of a third reviewer where necessary. We assess the methodological quality of eligible studies using the criteria of the Cochrane Effective Practice and Organisation of Care Review Group (EPOC) for the RCT, CCT, CBA or ITS. The criteria of the BEME/ Health Evidence Bulletins Wales are used for all other study types.

Synthesis of extracted data

Outcomes of eligible studies will be clustered and organized into an explanatory structure, from which results can be compared, contradictory and confirmative studies can be contrasted and a narrative report will be written.

Projected timetable 2009-2010

Registration of topic	: September
Preparing protocol	: August
Literature search	: September
Data abstraction	: November
Writing draft report	: November - December
Writing final report	: January - February

Plans for updating the review

Establish a current awareness search using the same syntax as the main search and maintain an up to date bibliography relevant to the review. A major change in the evidence base would prompt a reanalysis and further report.

Conflict of interest statement

No member of the Topic Review Group has any conflict of interest to declare.

References

References

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3. Jha, A. K. *et al.* **Use of electronic health records in U.S. hospitals.** *N. Engl. J. Med.* **360, 1628-1638 (2009).**

4. Chaudhry, B. *et al.* **Systematic review: impact of health information technology on quality, efficiency, and costs of medical care.** *Ann. Intern. Med.* **144, 742-752 (2006).**

5. Laerum, H., Ellingsen, G. & Faxvaag, A. Doctors' use of electronic medical records systems in hospitals: Cross sectional survey. *Br. Med. J.* **323, 1344-1348 (2001).**

6. Marie-Pierre, G. *et al.* **in** *Gagnon Marie-Pierre, Légaré France, Labrecque Michel, Frémont Pierre, Pluye Pierre, Gagnon Johanne, Car Josip, Pagliari Claudia, Desmartis Marie , Turcot Lucile, Gravel Karine. Interventions for promoting information and communication technologies adoption in healthcare professionals. Cochrane Database of Systematic Reviews: Reviews 2009 Issue 1 John Wiley & Sons, Ltd Chichester, UK DOI: 10.1002/14651858.CD006093.pub2* **, 2009).**