

Selection and Implementation of an Electronic Patient Record System: A non-evidence-based approach

Langton, KB^{1,2}, Keshavjee, K¹, Holbrook, AM^{1,2}

¹Centre for Evaluation of Medicines, St. Joseph's Hospital, Hamilton, Canada

²Faculty of Health Science, McMaster University, Hamilton, Canada

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INTRODUCTION:

Over the past several years we have witnessed a rapid increase in the number of software products for use in clinical settings. A vast majority of the software has been developed mainly for office administrative roles, such as billing and scheduling patients. Although the terms "Electronic Medical Records" (EMR) and "Electronic Patient Records" (EPR) are not new to clinicians, the number of clinical sites that actually make use of such systems is relatively small as of March 2000. We researched the clinical literature and shopped around considerably before settling upon a final EMR for our study. By the time we had fully implemented computer networks, installed the software, trained the clinical and clerical staff on the use of our chosen EMR at several primary care settings, we had learned much.

OBJECTIVE:

The objective of this presentation is to provide readers and conference attendees with a framework they can use for the selection and implementations of electronic patient record (EPR) systems in their own practices and clinics.

METHOD:

The literature in the MEDLARS database was searched from 1985 to the present identifying articles that had to do with electronic medical records, family medicine, computer systems, selection and evaluation (specific search terms available on request). Attendance at conferences and conference proceedings, reference lists of relevant articles, the Internet, and discussions with colleagues were used to develop an initial pool of possible software products that might meet our selection criteria. Selection criteria was: must be commercially available, must have a usable user interface (as determined by our group of family medicine evaluators), must have a searchable database (i.e., make use of discreet data items), must run on a popular operating system (e.g., Microsoft Windows 95 or Microsoft Windows NT, Mac OS - no DOS systems were allowed), and must come from a company that looks like it will be in business for a while (a tough one to determine).

RESULTS:

For more than one year we gathered material for our evaluation and eventual selection of the "ideal" EPR. From the pool of over 100 possible products, we short-listed 4 that almost met our expectations for an electronic medical record (see above selection criteria). From these 4 finalists we developed a framework that provides useful and structured criteria for the final

selection of an electronic medical record. In addition, we have compiled a collection of selection and implementation tips.

DISCUSSION:

After much time, effort and money was spent, we have discovered that there is no such thing as “the perfect EPR”. It’s difficult to imagine there ever being a perfect EPR since each different clinician and clinic has different expectations and requirements.

We have developed several tips that may be useful for people selecting and implementing EPRs. The following is a summary of recommendations for potential buyers of EPRs.

Before you buy:

- 1) Ask around to find out what other people are using.
- 2) Make a list of what you would like to see in an EPR and what you require.
- 3) Make a list of your business requirements – i.e., those functions that are critical to the success of your project. Make sure any product you choose can at least meet those requirements.
- 4) Go to at least one EPR conference or trade show (e.g., TEPR, HIMMS).
- 5) Test-drive the ones you like.
- 6) Make sure that you test-drive the product at your own pace, away from the sales people if possible – they can make even the worst system look good.
- 7) Get other people, especially the folks who will be using the EPR to test-drive it, as well. See what kinds of difficulties they experience.
- 8) Find out what your staff don’t like about the EPR – this information is useful too.
- 9) When you’ve narrowed down the software to one or two, find out:
 - a. Does the company have an installed user base?
 - b. If so, how many users do they have?
 - c. Are the physicians using the software?
 - d. Are the physicians happy with the system?
- 10) Visit the vendor’s company to ensure they aren’t operating out of a shoebox.

Before You Start Implementing:

- 1) Define your criteria for a successful project. For example, we defined our success criteria as ‘80% of physicians will be charting 80% of their patients in the EPR by 6 months’.
- 2) Make a list of services and support that you’ll require to make your project a success.

Choosing the Hardware:

- 1) If your chosen software vendor also sells hardware, buy the hardware from them. One-stop shopping means one-stop problem resolution.
- 2) If your software vendor does not sell hardware, choose to buy “1st Tier” hardware. The slightly more money you may spend could save you much time and aggravation in the future.
- 3) Make sure you have an on-site maintenance contract with fast turn-around time. A few extra dollars will go a long way towards data security and peace of mind.

Installation of the System:

- 1) Close your office or clinic during cabling and installation days. It's a hassle for you and your staff and it's a worse hassle for the installation crew. The chances of mistakes being made are greatly increased and can result in much greater delays and down time in the future.
- 2) Have technical professionals set up your system. Do not try to do it yourself.
- 3) Ensure that all the computers in your network are as similar to each other as possible – both the hardware and software. Doing so will make installation, configuration, repairs and re-configurations much simpler. Later, you can always switch a broken component on a mission critical workstation with one from a less important one – or switch the whole workstation.

Learning How to Use the New System:

- 1) Have the software vendor loan you a computer with the software installed or have the vendor install the software onto a computer of your own. It's good to practice using the system "at home in your spare time" until you have your system installed. Many vendors will refuse, stating that they will not release their product without training. Take the training, but insist on getting an extended trial run.
- 2) Take advantage of all the training you and your staff can get – the investment is worth the time. The better you know how to use the new system, the less frustrations you will have in the future.
- 3) Keep a written list of questions you need answered.
- 4) Consider starting a "user's group".
- 5) Have periodic "refresher" courses - especially when new versions are released.

Before Something Goes Wrong:

- 1) Make sure you have an on-site service contract with your dealer.
- 2) Ensure that the turn-around time the dealer is offering is reasonable (i.e., they must have the problem fixed within a specified number of hours).
- 3) Build into the contract penalties for when the dealer does not meet the agreed upon obligation.
- 4) Develop a contingency plan for your practice to hold you over while your system is down.

BIO:

Karl spent from 1989 to 1996 working with Drs. R. Brian Haynes and Robert Hayward at McMaster University. There he developed several innovative prototypes, including an expert system for preoperative assessment of patients (PREOP) and an electronic evidence-based medical journal (electronic ACP Journal Club). He was also the project coordinator for the very successful Clinical Informatics Network (CLINT) at McMaster University's Health Science Centre. Karl currently works as project and informatics manager for the Centre for Evaluation of Medicines' COMPETE project under the direction of Drs. Anne Holbrook and Karim Keshavjee and is assistant clinical professor at McMaster University's Faculty of Health Science.