# Implementation of Electronic Patient Records
# Lessons Learned from the Literature
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ACTION for Health

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This document is a list of best practices adapted from various research studies and reports on the implementation of electronic records in primary care settings.

*User Acceptance*

- Inherent to any system change is resistance. Use attentive listening, observations and midcourse correction to gain users' acceptance of the system. Continuous presence on site will help in obtaining feedback from users and making changes accordingly. Information should be collected from users at different levels and from different levels within the organization (individual level, unit level, divisional level).

- Bring clinicians together to discuss the care process and to map it out. This will enable them to gain a better understanding of the whole process of care, and how the EMR will help in the process as an information-sharing tool.

- One of the organizational barriers in the implementation of electronic medical records (EMR) is the lack of clear objectives for the development of the EMR, along with the lack of clear definitions of the functionality of the system. Prior to making a decision to implement an EMR system, clarify objectives and system requirements. This helps in gaining user acceptance of the system and provides criteria for assessing the success of the implementation and the system.

- Users are more accepting of a new system when they are able to understand its purpose. For example, if the EMR system is linked to clinical prevention goals, staff will be more enthusiastic about making change. When people learn about the benefits that can be gained from EMR, they will be more willing to get involved with the changes. Users need to know whether the challenges of the change process are worthwhile, and that the change will result in sufficient added value to justify the cost and challenges involved. This also applies to patients, who will be impacted by the new system implementation; as long as patients are aware that with the new system the services they receive will be improved, they will be more accepting of the system. It is thus, important for users and all those impacted by the implementation of electronic records to understand the benefits and advantages that will result from the change.

- With the implementation of electronic records in primary care settings, there is a need for Information Support Workers (ISW), who possess a mixture of clinical and information support skills. Part of the responsibilities of Information Support Workers (ISW) is to provide support to patients in understanding their health record and to also help with clinical administration.

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- Mobilize super users. The presence of strong leadership in the form of champion physicians or nurses is critical. These individuals help with the introduction of the new system and with the day-to-day system troubleshooting.

- Involve multiple stakeholders; users need to feel involved in the process to assume a sense of ownership and commitment.

- Keep staff informed and involved in the change process, and provide them with the tools to help them overcome problems.

- Mobilize the existing information relationships and networks between people within the organization.

- Develop incentive programs to keep staff motivated.

- It is important that all those impacted by the implementation of an EMR system understand that change is a process and not an event.

- During and after implementation, support facilities, such as a centralized help desk should be provided. These support systems should be over and above the general services available to users on a regular basis.

- Users will be more prepared for change if they know they are part of a group that is committed to having a learning organization.

- Obtain commitment from all physicians to use the new system. This will involve time commitment and the understanding that changes will have to be made to existing workflows and processes as a result of the implementation of the EMR.

- By maximizing electronic data exchange the benefits of the system will become more visible and there will be more of an incentive to use the system.

*Training*
- The education process should extend from clinicians to staff to patients.

- Assess user's readiness in terms of technological and organizational insight prior to implementation. This will allow for the preparation of training material that is more suited to users' needs.

- Educational efforts should show the benefits of EMR to physicians to help improve their perception of the capabilities of the system.

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- Training should include the following: use of technology (i.e. keyboard trays, using office programs, clinical systems, seeking help), data, information and meaning (i.e. use of coded and free text entry, how context impacts interpretation of data, understanding of the importance of data consistency and accuracy, data extraction), integrating electronic and interpersonal communication of information (i.e. awareness of how computer use impacts consultation process, how to use communication skills to relate to patient while using computer, facilitate shared reading from computer during consultation, share information and decision making, incorporate outside knowledge from the computer into consultation).

- Training should include the understanding of the importance of data quality and the wider range of information and information sharing that is available.

- Training should involve responses to the questions on the functionality of the system: what can the technology do, which manuals, help functions and helpdesk supports will be available and useful. Training should also include material on how to use the system. The type of support that is required for this purpose comes from users who work in the organization and can use the technology to solve situational problems. Training material should also include reasons behind using the system, which focuses on values and purpose. This allows for users to understand the collaborative work they are engaged in, and understand why the technology will help in the development of the organization and its goals and values. The support required at this stage would involve the reorganization of work, renegotiation of rules and norms, and learning and reflection with respect to the whole system.

- With the implementation of new electronic records there will be need for new clinical protocols, which should be included in the training material.

- Provide training close to time of go-live, so material remains more current to users.

- Trainers should be available on-site during and immediately following go-live.

- System glitches usually appear with real data, therefore, it is best to use real data for training purposes rather than dummy data.

- While Information Technology trainers can be used to cover the general material, specialist educators who are familiar with the clinical applications are more effective in providing clinically relevant training.

- It is best to provide training at the usual place of work.

- Provide training time slots for part-time workers, night staff, and volunteers.

- If possible, have staff from other facilities, who have already gone through the challenges of implementation, available on site to support training efforts.

*Work processes and Organization of Work*

- Conduct an intensive study of the manual system and business processes prior to implementation.

- Map processes prior to implementation to understand existing workflows and work practices and requirements for the new system.

- Physician data entry is one of the biggest changes in work patterns in a clinical setting. Physicians, who formerly wrote their patient encounter notes by hand, are now required to enter them into a computer system. And this is usually the primary bottleneck and results in documentation backlog. To extract reliable information from the system it is important to have complete patient records, therefore, it is critical to facilitate data entry at the point of care. The records need to play an "active" role in the delivery of health care. To accommodate physician work patterns and allow for their movement, workstations must be readily available to account for different locations where physicians may work on their notes or consult charts. This will help physicians in entering their notes in the system immediately following patient encounters.

- Ensure guidelines and templates are in place for data consistency (format, codes). Review system to obtain information on missing data and data that is not recorded consistently by users. This could be as a result of a technical difficulty users are experiencing or problems with the software design. Once the problem is identified you can take the necessary steps to resolve it. Furthermore, question what data comes from other sources and how that information is captured in the system. New work processes should also be designed for capturing data on new patients.

- Consider a baseline assessment on data recording, prior to implementation, to better understand what changes have to be made. New work processes will be required to monitor data quality and consistency. Furthermore, develop success indicators, using different forms of measurement to assess the change process.

- Work practices have to be developed for retrospective data recording, recording reading codes, direct data entry, indirect data entry, non-routine data capture, linking data items, use of templates and protocols, referrals, clinical letters and investigations, and contacts with outside practice.

- Ensure consistency between guidelines, protocols and new work processes.

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- The introduction of the system will require changes in the office layout. Workstations should be provided in each consulting room, treatment rooms, as well at locations where a receptionist normally interacts with patients (both directly and through phone).

- Vendors might suggest changes to practice that would accommodate the limitations of the technology, ensure these changes are consistent with the organization's values.

- Work processes should be designed to cope with system downtime.

- Develop processes for summarizing and shredding paper documents.

- Work processes have to be designed for system back up and handling of old data and files.

*Other*
- Plan early and be proactive in solving problems (form problem solving teams).

- Do not abandon manual systems immediately after implementation.

- Often times a phased approach is used in implementation, where system modules are gradually introduced in the practice. If a phased approach is employed, the challenge will be having paper and electronic records in use simultaneously.

- The system should not be designed such to make decisions for users, but rather to guide them through the decision making process.

- Some of the benefits noted by physicians using the system have been: time saving for renewing prescriptions, more efficient phone consultations, availability of patient data, and quicker access to greater amounts of information.

- Include maintenance arrangements with software suppliers for during and after implementation. To have a more successful partnership with suppliers, creating a cooperative group of suppliers and developing a shared vision with them will provide userful.

- Maximize electronic data exchange. This will save time, reduce data entry requirements, and will bring some of the benefits of EMR to the forefront.

- Staff should be included in discussions regarding changes to practice policies.

- Guidelines should be created for providing patients access to their information.

- Physical security, capacity and storage requirements, and accessibility to system and data, should be considered prior to implementation.

- Sufficient data storage capacity should be considered, based on the size of practice, patient turnover, complexity of software, and the degree of which the practice intends to operate paperless.

- Take into account locations for supporting hardware, such as printers, equipment necessary for security and remote network support, and those required for health and safety (i.e. ergonomic chairs and workstations

- Arrange for comprehensive support (issues relating to problems with hardware, software, operating systems, telecommunication and processes)