

The Electronic Health Record: What Every Information Manager Should Know

Records are a vital part of the patient care environment. Secure, accurate records are necessary, although increasingly challenging, as they migrate to an electronic environment.

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The need to better manage health information is indisputable. Since a 2000 report from the Institute of Medicine estimated that as many as 98,000 U.S. patients die annually due to preventable medical errors – many due to lack of access to complete patient information – subsequent studies have confirmed that inadequate information systems in U.S. clinics, hospitals, and physician practices affect the quality of care patients receive.

Recognizing that patient treatment information – electronic and paper – is often scattered at various locations and in unlinked computers, President George W. Bush has focused on digitizing the healthcare industry. In 2004, Bush appointed the nation’s first National Health Information Technology Coordinator with a 10-year goal of creating an interoperable health information infrastructure that would ensure that most Americans have secure electronic health records (EHR), and healthcare workers have quick, reliable access to them. This envisioned national health information infrastructure (NHIN) features electronic data exchange, which is dramatically changing the work of those

involved in communicating and disseminating personal medical information and can improve the quality of health care, reduce healthcare costs, and improve communication among healthcare providers.

Defining the ‘Electronic Health Record’

In the book *Electronic Health Records: A Practical Guide for Professionals and Organizations*, M. K. Amatayakul writes that

“[t]he electronic health record is not a simple computer application; rather it represents a carefully constructed set of systems that are highly integrated and require a significant investment in time,

money, process change, and human factor reengineering.”

To migrate from a hard-copy format to an EHR system, these components are needed:

- [Physician] order communication/ results retrieval (OC/RR)
- Electronic document/content management (ED/CM)
- Clinical messaging
- Point-of-care (POC) charting, or patient-care documentation
- Computerized physician/provider order entry and electronic prescribing
- Electronic medical administration record
- Clinical decision support
- Provider-patient portals and health information exchange
- Personal health records
- Population health

Currently, different configurations are being used to collect information for an electronic format. Some healthcare facilities collect information from multiple computerized programs throughout

At the Core

This article

- ▶ Defines the electronic health record and various electronic systems
- ▶ Describes the role information management professionals play in the medical field
- ▶ Outlines the challenges of migration and the corresponding security issues

the facility. For example, lab, pharmacy, radiology, POC documentation systems, and finance are connected. Here, the record is kept in an electronic format, and a physical medical record is not kept in the traditional file room of the health information department. The occasional stray hard copy form is scanned and then indexed into the electronic record.

Another model for EHR is a hybrid system in which parts of the record are electronic from the point of service (as those mentioned above), but hard-copy documents are used in some areas of the healthcare facility. In that case, the health information department acquires the hard-copy document and then scans and indexes the document into the electronic file.

Although all hard-copy and electronic systems are open to errors from humans entering information, the hybrid system has more possibilities for error. Its scanning and indexing process, for example, can more easily lead to indexing errors and misfiles when there is no bar code for indexing. Once “lost,” electronic documents are more difficult to find than hard copies.

Therefore, some facilities bar code documents to reduce human error. In those systems, scanning the document automatically places it in the correct section of the electronic record. In some hybrid systems, hard-copy documents contain bar codes that reduce human error in the placement of the scanned document.

Making the Transition to EHR

For information management professionals, the change process is a familiar part of daily work. Making the information collection more efficient, readable, and more easily disseminated is a natural and expected professional objective. However, for medical practitioners whose primary responsibility is to meet and care for a patient, record-keeping is not a happy task. For them, it is a necessary evil. To be successful, an EHR implementation requires that physicians and all other groups who will

contribute to or access the system participate in accurate recordkeeping.

Physicians

Documentation is primarily used as a communication tool for all persons treating a patient and as a legal document when needed. Physicians are expected, for example, not only to read a lab report and make a decision about

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medication, but also to link through documentation the thought process they used to make the decisions, according to *Medical Insurance: A Guide to Coding and Reimbursement*.

The response of healthcare workers to the migration of hard-copy documentation systems to electronic systems has been mixed. For physicians with keyboard dexterity, typing patient care comments into an electronic system is not an issue. However, for those limited to the “hunt and peck” method, it is not user friendly.

Systems that allow for scanning of handwritten notes also continue as a less-than-perfect communication tool. Hard-to-read handwriting on a hard copy is often even less readable when scanned, leaves the record open to legal criticism, and potentially reduces the quality of care because the communication is poor.

Some practitioners have embraced the POC documentation systems in which information is often collected in a point-and-click format that reduces word processing and potential errors in judgment. In the best of systems, for example, a pharmacy subsystem will include an intelligent monitoring system that catches potential medication interactions. These will be red flagged to alert physicians to consider different medication.

Because of the difficulty of making the transition to EHR, some healthcare facilities are developing positions such as chief medical information officer to champion and problem-solve physician processes related to this change.

Health Information Professionals

For systems to work smoothly in the EHR environment, registered health

information administrators (RHIA) or registered health information technicians (RHIT), who manage coders, scanners, and indexers, must be a part of the team. (See sidebar about health information professionals’ certifications.) To be effective, they must have in-depth knowledge of information technology (IT), and they must form strong working relationships with those in IT units and with other information management personnel and healthcare providers.

Although RIM and IT professionals have some common understanding of technology, working together successfully requires each to understand the other’s role and to find a common language that will level the field and allow meaningful discussion.

“Building an electronic health record requires the expertise of two camps – the health information management (HIM) professional and the technology vendor,” Lisa Kampa, RHIA, president-elect of the Minnesota Health Information Management Association, said. “Each has their own language and set of expectations. Both camps are experts in their respective areas. The key to a successful implementation is based on their joint ability to communicate clearly. As an HIM professional, I will often ask a vendor, ‘Who is your HIM person?’ or ‘How many HIM people are involved in the development

of your product? In turn, I would expect to receive the question, 'Who is your IT person?' Until we reach this level of collaboration between the two camps, organizations will continue to struggle with EHR implementation and joint expectations."

Information Technology and Security

Security of the EHR is as fragile as any other electronic business record system. Headlines and newscasters tell of the security breaches of stolen laptops and vicious hackers. The success of sophisticated, professional hackers often depends on human error. Therefore, all information professionals must work on the premise (and promise) that they must tighten security to defeat social engineering, which generally involves tricking people into breaking their security protocols and allowing unauthorized access.

Although in-house audits of security breaches are important, the use of a consulting firm to audit security is warranted as well. Most security firms will look at the external and internal possibilities of breaking into the electronic systems. Increasingly used in patient care, wireless networks and laptops are particularly vulnerable. Common vulnerabilities of *sniffing* (capturing information going over a network), *phishing* (sending legitimate-looking e-mails in attempts to obtain personal customer information), and rogue access points threaten any electronic system. In addition to looking at the physical system holes, consultants will look at social engineering breaches of security, and their findings should be integrated into training sessions.

During a presentation at the Minnesota Health Information Management Association last May, Jerry Odegaard, a senior technical security specialist, itemized the top 10 security risks about which organizations should be concerned:

- Weak/incomplete policies and lack of policy awareness
- Malicious insider misuse

- External attack – e-mail phishing
- External attack – social engineering phone calls
- External attacks – website defacement
- Internal attack – social engineering
- Missing/weak incident response policy
- Weak disaster recovery/business continuity plan
- Patch management
- IT vendor management

Human Resources and Organization Development

When a change as large as implementing EHR occurs, the skills of organization development (OD) professionals, who are often part of the human resources team, are needed. Gary McLean notes several characteristics important in organizational development in his book, *Organization Development, Principles, Processes, Performance*. They include the following:

- A primary...goal of OD is to improve organizational effectiveness.
- The target of the change effort is the whole organization ...
- The major focus of OD is on the total system and its interdependent parts.
- OD uses a collaborative approach that involves those affected by the change in the process.
- It is an education-based program designed to develop values, attitudes, norms, and management practices that result in a healthy organization climate that rewards healthy behavior. OD is driven by humanistic values.
- It is guided by a change agent, change team, or line management whose primary role is that of facilitator, teacher, and coach rather than subject matter expert.

Health Information Professional Certifications

In health information, key information management personnel are credentialed health information managers with a certification as either a registered health information administrator (RHIA) or a registered health information technician (RHIT). These practitioners are responsible for the end process of ensuring the quality of data collection. They manage the coders, scanners, and indexers. Their professional association, the American Health Information Management Association, defines on its website (www.ahima.org), the roles of those who are certified.

RHIAs are skilled in the collection, interpretation, and analysis of patient data. Additionally, they receive the training necessary to assume managerial positions related to these functions. RHIAs interact with all levels of an organization – clinical, financial, and administrative – that employ patient data in decision making and every day operations.

RHITs are health information technicians who ensure the quality of medical records by verifying their completeness, accuracy, and proper entry into computer systems. They may also use computer applications to assemble and analyze patient data for the purpose of improving patient care or controlling costs.

EHR implementation is a dramatic change occurring in healthcare facilities. Developing a strong change management training plan is essential to its success. OD professionals need to be involved in this major change because all employees have new expectations around their jobs.

Giving Patients Access to Information

In July 2004, the Markle Foundation defined on its website (www.connecting-forhealth.org) the ideal personal health record (PHR) as

“... an Internet-based set of tools that allows people to access and coordinate their lifelong health information and make appropriate parts of it available to those who need it. PHRs offer an integrated and comprehensive view of health information, including information people generate themselves such as symptoms and medication use, information from doctors such as diagnoses and test results, and information from their pharmacies and insurance companies. Individuals access their PHRs via the Internet, using state-of-the-art security and privacy controls, at any time and from any location. Family members, doctors or school nurses can see portions of a PHR when necessary and emergency room staff can retrieve vital information from it in a crisis. People can use their PHR as a communication hub; to send email to doctors, transfer information to specialists, receive test results and access online self-help tools. PHR connects each of us to the incredible potential of modern health care and gives us control over our own information.”

Many hospitals and other healthcare facilities are beginning to provide patients access to their healthcare information, including lab results, immunization records, and resources for change management in particular diseases such as heart disease and diabetes. This concept of the *portable patient health record* is one promoted by the American Health Information Management Association through current practices related to e-health information. The U.S. Center for

Disease Control and Prevention has also promoted this concept, particularly after Hurricane Katrina, in an attempt to encourage the collection of new information for many who lost health records.

Some healthcare organizations are also allowing patients to have access to their healthcare providers, responding to patients' e-mails about such things as current issues and medication clarification.

The legal issues related to patient/provider communication, negligence, and the like will be tested to be sure. However, making it possible for patients to access information on such things as personal exercise programs and healthcare maintenance (e.g., diabetics' documentation on blood sugar results) encourages them to take more control of their healthcare issues.

Making the Future Certain

Although the goal is for all Americans

to have access to their electronic health records by the middle of the next decade, it will not be within easy reach. Some populations, including those in lower socio-economic levels, older Americans, and those whose healthcare providers cannot afford EHR technology, will be at a disadvantage. Communities need to work together to find ways to help those who do not have the resources to access this information, and government grants programs and private foundations need to make resources available so all healthcare organizations can make the transition to an electronic environment.

But even with those resources, the EHR initiative will be successful only with the contributions of information professionals to making secure access as user friendly as possible for those authorized personnel and patients who need to contribute and retrieve the information. ■

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