



The Journey to the Electronic Health Record

BY MARY LU LANDER & ANGELA DANIEL

Imagine you're on a family vacation on the other side of the world. Your daughter becomes suddenly ill and must be hospitalized. Immediately, her physician queries the Internet, entering her universal health identification number and, within seconds, accesses her complete medical history. Appropriate treatment is provided, and, within hours, she is on her way to a speedy recovery. Important? You'd probably have to be there!

This scenario definitely doesn't play out this way today. Access to one's complete medical history when needed for clinical decision making can still be time consuming and complex, and the records are often incomplete. But, a few years down the road, we will reach this destination. Healthcare professionals will depend on information technology to capture, manage, archive and deliver medical records anywhere in the world. Getting there is a long journey many of us are taking. When we reach our destination, the healthcare delivery system will never be the same again. There are many roads to our destination. One these authors believe to be the "superhighway" is the virtual electronic health record.

WHAT IS A VIRTUAL ELECTRONIC HEALTH RECORD?

A virtual electronic health record (EHR) is a collection of individual records that reside in a variety of information systems and locations and on multiple types of media. It contains information from many health-related encounters. When we reach our destination, these records will collectively reflect the current health status and lifetime medical history of an individual. The EHR is virtual in the sense that the information does not physically reside in one place. When viewed on a computer workstation, the EHR appears to be in one place. In reality, the individual records were retrieved from many information systems, such as laboratory, radiology, document imaging, anatomic pathology, anesthesiology, HIS, point-of-care, patient financial services and others. Additionally, some components of the virtual EHR are in enterprise-wide data, voice and image repositories. One important point about the virtual EHR is that it does not "own" information; therefore it avoids the extensive cost and complexity involved in establishing and maintaining large repositories and warehouses of information.

COMPONENTS OF THE VIRTUAL ELECTRONIC HEALTH RECORD

The virtual EHR comprises several important components:

- A "connectivity engine"
- A single sign-on
- Multi-system security
- Enterprise-wide Master Patient (Member) Index
- Electronic document management
- Workflow
- Image enabling capabilities

The "Connectivity Engine"

The "connectivity engine" is a cornerstone of the virtual electronic health record solution. It enables the EHR to reach out to a variety of disparate systems and repositories to retrieve and display the requested health records. The key benefit to using a connectivity engine is investment protection! Departmental and other legacy systems do not have to be replaced. The EHR solution simply connects to those systems to collect and display the requested records. Although this sounds like a simple task, it is quite formidable in

the large multi-system, multi-platform environments that exist in today's healthcare enterprises. Complex? Yes, but a very necessary component of the virtual EHR.

Single Sign-On

Gaining access to records located in multiple systems normally requires signing in and out of those systems—often moving from one workstation to another in the process. This is a frustrating and time-consuming task. An important aspect of the virtual EHR solution is that, through a single sign-on, authorized users are able to access information located in multiple information systems across the enterprise. The benefits of a single sign-on capability are obvious: simplicity and a great saving of time.

Multi-System Security

Providing secure access to health records located in multiple systems requires a transparent, multi-system security capability and is a significant responsibility the virtual EHR solution carries. Emerging security options such as biometric authentication (e.g. fingerprint matching) provide significantly enhanced security and eliminate the possibility of someone using another's user code/password combination. Additionally, a vital component of any security system is the maintenance of a concise audit trail of accesses to patients' records. Any time a record is viewed, annotated, printed, faxed or manipulated in any way, an audit record should be automatically created. Paper charts cannot be monitored this closely.

Enterprise-Wide Master Patient (Member) Index

The enterprise-wide Master Patient Index (MPI) accommodates multiple identification numbers for each patient—reflecting encounters at different health facilities. The numbers are cross-indexed within the MPI in order to locate and retrieve records from systems in multiple facilities. In much the same way as "connectivity" and "single sign-on", the MPI is complicated by the complex requirements of a multi-facility, multi-system enterprise environment. The importance of the MPI is well understood, as evidenced by the fact that the Health Insurance Portability and Accountability Act (HIPAA) of 1996 actually calls for the Secretary of the Department of Health and Human Services (DHHS) to adopt standards for a universal health identifier (UHI) for each individual, employer and health care provider within the healthcare system.



Electronic Document Management

Another cornerstone of the virtual EHR solution is electronic document management. Still in its infancy in terms of implementations, electronic document management eliminates paper, saves time, reduces costs and enables immediate and simultaneous access to patient records. Its associated "imaging engine" provides for the acquisition, storage, archival and retrieval of these electronic documents. Scanned images include pages from paper charts, insurance forms and other miscellaneous data. Additionally, electronic "documents" can be imported from other systems. Based on authorization levels, users can view, annotate, circulate and print patient records, clinical results and other chart documents, as well as perform chart completion assignments and sign documents electronically. The original document is always maintained, but an audit trail tracks every change. This ability to implement procedures to track

and effectively manage the electronic delivery of health records saves time and money, tightens control and wins a nod of approval from JCAHO.

Workflow

The reengineering and streamlining of departmental workflow takes place with automatic routing of electronic documents and medical images from one person or department to another throughout the process of completing a task. This automates once-manual tasks for efficient management, distribution and viewing of complex patient records and electronic documents by authorized staff throughout the entire healthcare enterprise. It is this radical redesign of the old manual processes that provides the real return on investment for implementing the virtual EHR.

Image Enabling Capabilities

Image enabling capabilities allow the virtual EHR solution to retrieve multimedia radiology information such as digitized x-rays, CTs, MRIs and other scans, as well as digital microscope images from pathology. It also enables one to listen to dictated reports and view full-motion ultrasound video recordings.

GETTING STARTED

For many healthcare facilities, starting the journey is a difficult step to take. All too often, a plan is developed, re-evaluated, studied again, and never started. Those that have successfully begun have put a plan in place, committed to the plan, and adjusted as changes in technology, requirements and resources occurred. Without exception, their advice is to "put a stake in the ground" and get started, knowing that mistakes will be made and that plans and priorities will change. Their vision to know where they want to go and their commitment to succeed are common threads among those successfully journeying to the virtual electronic health record.

IN SUMMARY

The road to the virtual electronic health record has been paved. It may still take years to reach the point where complete patient records are electronically available to all authorized healthcare professionals, anytime, anywhere. We all know it is a long journey, but when we reach the destination, physicians and caregivers across the continuum of care will be able to simultaneously review and collaborate on the entire spectrum of information available about a given patient--resulting in informed clinical decisions, and a higher quality of care at a lower cost.

Mary Lu Lander is Vice President of Marketing and Angela Daniel is a Marketing Associate for Dynamic Healthcare Technologies, Inc. Based in Maitland, Florida, Dynamic provides clinical, electronic health record and imaging solutions for the healthcare industry. They may be reached at 800-832-3020, ext. 4499, or www.dht.com.