Drive for an EHR Standard Picks Up Speed

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2003 was a busy year for the electronic health record. And if the federal government and the HIM industry have their way, 2004 will only get busier.

In 2003 a number of electronic health record (EHR) issues active in the previous decade all intersected at the same time. Behind the synchronization are new federal programs that require industry standards before taking effect. This article summarizes the previous year's remarkable chronology of events and discusses what's just around the next curve for the current concept of the EHR.

A Brief Look at the Road Behind

The vision of the EHR has existed for more than a decade. While many in the HIM profession had a concept of electronic record functionality in the late 1980s, it was the Institute of Medicine's (IOM) 1991 seminal work *The Computer-Based Patient Record: An Essential Technology for Health Care* that brought the issues to the forefront and helped crystallize the concept.[1] Of the seven key recommendations in that report, two are relevant to this article: (1) that "Congress authorize and appropriate funds to implement . . . research and development" and (2) that "the full costs of implementing and operating . . . systems should be factored into reimbursement levels or payment schedules of both public and private sector third party payers." In the new decade, IOM's 2000 report *To Err Is Human: Building a Safer Health System* established the idea that information technology could help improve patient safety and reduce medical errors.[2]

There have been varying names for the EHR concept. In the late 1980s and early 1990s, the term "computer-based patient record" (CPR) was used. From the mid- to late 1990s the industry spoke of the "electronic medical record" (EMR). There are some key differences between the CPR, the EMR, and EHR, but this article will focus instead on the immediate future of the current EHR concept.

As the CPR concept evolved into the EMR, viable software products started coming onto the market. While such systems have proliferated over the years, their growth has been largely due to market forces. Software vendors constantly improved their products, while some hospitals and doctors' offices saw the need to deploy EMR systems to improve quality and increase productivity.

But market forces alone proved insufficient to spur industry-wide use of EMR systems. Among other reasons, there was skepticism that information technology could indeed provide the EMR's touted benefits. In addition, there was the expected reluctance on the part of some clinicians to change from traditional ways of practice to a redesigned process with electronic support.

And then there was cost. Even if providers believed in the benefits of the EMR, the high cost of deploying the systems proved a barrier that remained difficult to overcome, the promise of a return on investment within a few years notwithstanding. Providers again sought incentives to deploy EMR systems, and again thoughts turned to federal funding as one such incentive.[3,4,5,6]

Call for Standards Sparks a Busy 2003

By 2003 the EMR concept had evolved into the EHR. Greater numbers of stakeholders from all segments of the industry were buying into the EHR and its benefits. But the EHR as an industry-wide movement really gained momentum as the federal government got increasingly involved. In 2003 the national healthcare information infrastructure initiative generated a vigorous

discussion about the infrastructure required to support healthcare information technology, one being the EHR. The Agency for Healthcare Research and Quality (AHRQ) provided funding to support projects demonstrating the benefits of information technology in healthcare. Clearly, the IOM recommendation that federal funding should support EHR research and development was an idea whose time was arriving.

As for IOM's second recommendation—that the costs of implementing EHR systems be factored into reimbursement levels—the Centers for Medicare and Medicaid Services (CMS) created a huge impact when it declared its intentions to provide differential payment to clinicians who use an EHR to improve quality and effectiveness of care.

Before launching this program formally, CMS stated that in 2004 it would support demonstration projects testing the proposal. But what CMS fundamentally required to support the program was an EHR standard. The agency's announcement set wheels in motion, and a series of events quickly occurred.

CMS representatives approached Health Level Seven (HL7), a leading health information standards development organization, at HL7's working group meeting in spring 2003 and requested that HL7 develop a standard functional model of the EHR by September 2003. Seeing a unique opportunity to contribute to the advancement of the EHR, the HL7 board of directors approved the request.

Soon after CMS made its request to HL7, the Department of Health and Human Services (HHS) in May 2003 approached IOM for guidance on the key capabilities of the EHR, with a specific focus on care delivery functions. The plan was to link the HL7 and IOM efforts together: HL7 would develop a detailed functional model for an EHR system following IOM's higher-level identification of the system's key capabilities. Fortunately, a sizeable IOM project addressing patient safety was already under way in the Committee on Data Standards for Patient Safety. The request to identify EHR capabilities proved to be an appropriate expansion of the ongoing work of that committee. In June the IOM committee was given its charge and began its work to:

> Provide guidance to DHHS on a set of "basic functionalities" that an electronic health record system should possess to promote patient safety. The IOM committee will consider functions, such as the types of data that should be available to providers when making clinical decisions (e.g., diagnoses, allergies, laboratory results); and the types of decision-support capabilities that should be present (e.g., the capability to alert providers to potential drug-drug interactions).[7]

The IOM committee released its report to HHS at the end of July.[8] In identifying core EHR system functionality, the committee focused on five key criteria: improving patient safety, supporting the delivery of effective patient care, facilitating the management of chronic conditions, improving efficiency, and assessing feasibility of implementation.

The committee then identified the core functionalities of an EHR system and indexed them into eight categories:

- Health information and data
- Results management
- Order entry and management
- Decision support
- Electronic communication and connectivity
- Patient support
- Administrative processes
- Reporting and population health management

Understanding that core functionalities may have greater or lesser importance in different segments of the industry, the IOM committee offered guidance as to whether these functions were essential or desirable across four healthcare settings—hospital, ambulatory care, nursing home, and care in the community/personal health management. Though the committee recognized that there are certainly more care settings in healthcare, it chose to focus on these four for the first phase. Identifying EHR functions for additional healthcare settings was established as a future goal.

Given the state of EHR systems, the IOM committee advised that the movement from the paper-based medical record system to a comprehensive EHR system would be more evolutionary than sudden. To guide this migration, the committee grouped the proposed functions into three target implementation periods:

- The immediate future (2004–5)
- The near term (2006–7)
- The long term (2008–10)

Drafting the Functional Model and Standard

Working in conjunction with the IOM committee via face-to-face meetings and conference calls, the HL7 Electronic Health Record-Special Interest Group (EHR-SIG) worked on developing the functional model of the EHR throughout the summer of 2003. The initial target was to create a draft standard for trial use of the EHR functional model and standard. A draft standard would allow the government, vendors, and providers to resolve product, implementation, and reimbursement issues over a two-year review period, before proposing a full HL7 standard of the EHR functional model and standard.

The EHR-SIG set the aggressive goal of completing the draft standard by the end of July so that in August the HL7 membership could provide comments as to which specific functions should be added, deleted, or revised and vote affirmatively or negatively on the entire model and standard, referred to as the ballot. The proposed timetable would allow the EHR-SIG to reconcile the negative ballot comments and determine if the model and standard passed at the September HL7 working group meeting.

In creating the EHR functional model, the EHR-SIG concurred on four key characteristics to guide the committee's standard development process:

- Determine care delivery functions that are required **across all implementations**
- Determine infrastructure **functions** supporting care delivery
- Determine care delivery functions that are required **in particular settings**
- Allow for dynamic **additions** for innovation and elective functions

The proposed functional model of the EHR was constructed in an outline format, based on two axes: functions (rows) and the four care settings (columns). Each function included a definition, an explanation of its necessity, and the minimum criteria it would have to meet in order to pass as that function. In addition, the EHR-SIG attempted to apply the IOM's guidance of whether the function was essential or desirable to each function by care setting.

In the month that the ballot was out for vote in August, eight professional societies and trade associations formed the EHR Collaborative (see sidebar, below). The collaborative hosted 11 meetings in six cities to gather input and reaction to the functional model and standard. The input from the field meetings was shared with the EHR-SIG at the HL7 September meeting, which resulted in a number of useful revisions.

After all votes were counted at the September HL7 EHR-SIG meeting, the first ballot of the EHR functional model draft standard for trial use was rejected. In the context of standards-setting processes, this was not unusual. Rarely does a standard with so many voices to be heard pass on its first ballot. The fact that it did not pass, however, put increasing pressure on the process to produce a model that could receive sufficient affirmative votes, allowing CMS to proceed with its demonstration projects in 2004.

Consequently, at the September HL7 working group meeting the EHR-SIG quickly regrouped and voted to begin work on a revised EHR functional model—the second ballot. The challenge of dealing with the negative comments in the first ballot process was addressed in a very productive manner. The EHR-SIG quickly determined that the two major concerns expressed were the need for clarity and simplification of the model. To reduce its complexity, the EHR-SIG developed the second version of the functional model by taking the following steps:

- **Separating the EHR model into three functional groups**—direct care, supportive and information infrastructure—and assigning each to its own work group.
- **Revising the current descriptions of the care settings**, reducing the apparent confusion in the first version. Both definitions and the functional profiles are to be realm specific, unique to the nation in which they are implemented, since these functional models will be balloted within national affiliates and within the US.
- **Revising the definitions of the functional priorities** into the following four categories: essential immediate, essential future, optional, and not applicable. (Definitions of the functional priority levels are available on the HL7's Web site at

www.hl7.org/ehr/documents/public/documents/PriorityDefinitions.asp

- **Reducing the functional descriptions** of each function to include only statements of what the function is and why it is necessary, dropping its minimum conformity criteria.

The EHR Collaborative again was asked to assist HL7 in getting input and reaction. Thus, from November through January, the collaborative conducted a series of audio sessions and conference calls, as well as face to face meetings. Input and reaction was also gathered through the EHR Collaborative Web site. The input was summarized and provided to HL7 at its January 2004 meeting and at press time was expected to help produce a refined model that will go out for the second ballot voting process in March 2004. The model is available at www.hl7.org/ehr/documents/public/documents/FunctionsOutline.asp.

The Fast-Approaching Road Ahead

If the second ballot passes, the draft standard for trial use will be adopted. CMS, and other agencies such as AHRQ, will be able to proceed with their demonstration projects. There is some speculation that providers will begin using the draft standard functional model to help them construct their request for proposals as they go through an EHR system selection process. In that regard the draft standard will have accomplished its purpose. If the second ballot does not pass, it is not clear what the fallout may be. But it appears certain that further attempts to develop a standard will continue within the industry.

The HIM perspective has been critical in the development of the EHR functional model and standard to date, and it will remain just as important through the balloting and refinement process. AHIMA has been an active participant in the process ("AHIMA members Play Role in EHR Standard Development," above). It is important for all AHIMA members to get involved in the process. You can do so in a number of different ways:

- **Join AHIMA's HL7 Functional Model Community of Practice**, review the documents, and participate in the discussion threads—AHIMA will use the information from the Community of Practice in drafting our comments
- **Join HL7**, vote via the balloting process, and comment on the functional model (visit HL7 online at www.hl7.org)
- **Attend the HL7 plenary sessions** and participate in the EHR-SIG meetings
- **Participate in the regional EHR Collaborative** audio sessions, conference calls, or face-to-face meetings; provide your input and reaction to the functional model by visiting www.ehrcollaborative.org [web site no longer valid 9/13/06]

The next round of balloting will not be the last for the EHR functional model. The model will continue to adapt to changes in the industry. As the cornerstone for heath information management, it is important to stay on top of the content of the EHR model, voice your opinion as a "domain expert"—an expert user of the EHR—and stay on top of the process. As a profession, we cannot stand back and wait for the EHR to be developed without us.

The EHR Collaborative

Information on the EHR Collaborative can be found at its Web site [web site no longer valid 9/13/06]. The collaborative consisted of the following organizations at the time of the August 2003 ballot review:

- American Health Information Management Association (AHIMA)
- American Medical Association (AMA)
- American Nurses Association (ANA)
- American Medical Informatics Association (AMIA)
- College of Healthcare Information Management Executives (CHIME)
- eHealth Initiative(eHI)
- Healthcare Information and Management Systems Society (HIMSS)
- National Alliance for Health Information Technology (NAHIT)

AHIMA Members Play Role in EHR Standard Development

As the process of developing the draft EHR standard progresses, AHIMA has assisted in the following ways:

- AHIMA is part of the EHR Collaborative, a group of industry organizations that have worked to bring the standards to their constituents for comment. This summer, the collaborative hosted a series of open forum meetings across the country to gather input and feedback on the model. Of the 1,000 people who participated in the meetings, about 300 were HIM professionals.
- To enable continued dialogue, the HL7 EHR Functional Model Community of Practice allows members to learn more and give their feedback. The Community includes the HL7 ballot, AHIMA's comments on the ballot, updates on HL7 meetings, and more. Find out more at the Communities of Practice at www.ahima.org.
- AHIMA continues its involvement in the development of an electronic health record (EHR) system functional model draft standard for trial use through its participation in HL7's EHR special interest group (SIG). Staff member Donald T. Mon, PhD, vice president of practice leadership, will co-lead the Care Settings, Profiles, and Outreach work group and the Direct Care Delivery work group. Harry Rhodes, MBA, RHIA, CHP, director of HIM products and services, will co-lead the Information Infrastructure work group to develop a new version of the standard.

Notes

1. Dick, Richard S., and Elaine B. Steen, eds. *The Computer-Based Patient Record: An Essential Technology for Health Care*. Washington, DC: National Academy Press, 1991.
2. Kohn, Linda T., Janet M. Corrigan, and Molla S. Donaldson, eds. *To Err Is Human: Building a Safer Health System.* Washington, DC: National Academy Press, 2000.
3. Dick and Steen, *The Computer-Based Patient Record*.
4. Kohn, Corrigan, and Donaldson, *To Err Is Human*.
5. Dick, Richard S., Elaine B. Steen, and Don E. Detmer, eds. *The Computer-Based Patient Record: An Essential Technology for Health Care*. Rev. ed. Washington, DC: National Academy Press, 1997.
6. Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press, 2001.
7. Institute of Medicine. *Key Capabilities of an Electronic Health Record System: Letter Report*. Washington, DC: National Academies Press, 2003, p. 4.
8. Ibid.

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Article citation:
Rhodes, Harry, Donald T. Mon and Michelle Dougherty. "The Drive for an EHR Standard Picks Up Speed." *Journal of AHIMA* 75, no.1 (January 2004): 18-22.