EHR and the CCR: Compatible or Competitive?

by Donald T. Mon, PhD

Thus far, 2004 is turning out to be a remarkable year for health information management. The electronic health record draft standard for trial use (EHR DSTU) was approved and published by the EHR technical committee within Health Level 7 (HL7). The Continuity of Care Record (CCR) data specification was approved by the American Society for Testing and Materials (ASTM) EHR subcommittee. The personal health record continues to gain new ground with groups through such projects as Connecting for Health. And President Bush appointed David Brailer as the nation's first health information technology coordinator to help build consensus on the national healthcare information infrastructure (NHII) and to coordinate health information technology within the federal government.

With these exciting activities occurring simultaneously, it is more important than ever to harmonize standards so that the industry can truly achieve interoperability between health records. A high-level view of the interplay between the NHII, the EHR, and the PHR has been discussed in previous columns. This article will focus on the backgrounds of the two standards, how they can be harmonized, and why harmonization is important.

Background on the EHR

The EHR DSTU began as a request from the Department of Health and Human Services (HHS) in April 2003. HHS asked the Institute of Medicine and HL7 to provide a high-level, functional description of the EHR. The first version of the functional model was voted down in September 2003.1 Following the first version's rejection, the HL7 EHR special interest group (SIG) refined the functional outline and released a second version for voting in March 2004. Throughout this time, the EHR Collaborative, a group of seven professional societies, gathered feedback on the outline from clinicians, IT, HIM and quality improvement professionals, healthcare executives, and key stakeholder organizations. That feedback was then channeled to the EHR SIG, thereby improving the functional outline.

The votes from the HL7 EHR SIG were sufficient to approve the second version. The EHR SIG at that time was elevated to a technical committee, giving the group the formal authority to publish EHR standards. At press time, the first version of the DSTU was scheduled to be published in July 2004.

The draft EHR functional outline contains approximately 130 functions in three areas:

- Direct care of the patient (e.g., capturing key health information, medication administration, orders, results, alerts and evi-dence-based medicine to enhance clinical decision making, and communication between providers and various care teams, including health information exchange when referrals are made)
- Administrative, financial, and reporting processes, including better functionality to facilitate public health, disease monitoring, and surveillance
- Infrastructure to support the capture, maintenance, privacy, and security of health information, as well as to provide interoperability between information systems, networks, and health records

Background on the CCR

The CCR began as a project to exchange health information among clinicians (e.g., when referrals are made across the continuum of care). The state of Massachusetts requires clinicians to exchange such health information; consequently, clinicians in that state have been exchanging health data for some time, but in a nonstandard fashion. With that backdrop, the Massachusetts Medical Society approached the ASTM EHR subcommittee to develop a health information exchange standard to simultaneously improve the quality of care and ease the effort of exchanging health information.

In April 2004 ASTM approved the specification identifying the basic set of data that should be exchanged among all providers—primary care and specialties alike. To further enhance that basic set, a series of "extensions"—data within a specialty or other specific groups—would be defined over time. Currently, pediatric and personal health record extensions are in development.

The basic set of data contains eight sections: document identifying information, patient identifying information, patient insurance and financial information, advanced directives, patient health status (e.g., diagnoses, problems, conditions, vital signs, medications, results, procedures), health status assessments, care documentation, and care plan recommendation. These sections contain approximately 150 required and optional data fields, with many comprised of subelements. For example, the name field is comprised of last name, first name, middle name, title, suffix, and degree.

ASTM has suggested that the CCR is a practical solution for an existing health information exchange problem. Moreover, since it will grow with each extension, ASTM further claims that the CCR can serve as a foundation on which to build the EHR.

Now Is the Time to Harmonize

With similar-sounding messages from the two groups permeating the industry, it is small wonder that there is confusion about the direction of the EHR. In reality, the EHR and the CCR are, or can be, more compatible than competitive. The two standards are approaching the problem from different angles. They are compatible where they meet in the middle.

The HL7 EHR DSTU approaches the EHR from the top down. Right now, it is a set of conceptual functions for an EHR system. An important next step is to specify data content and data definitions for each function. In addition, the myriad minimum data sets, coding and classification systems, vocabularies, and terminologies must be mapped back to the EHR functions. HL7 intends to do just that to transform the EHR from concept to reality.

The CCR approaches the EHR from the bottom up. It focuses on one issue—exchanging health information across the continuum of care—and therefore is not a specification for an entire EHR system. Once a provider has collected the data throughout the care process, whether it is collected on paper, through simple electronic data files, or an EMR, the specification identifies which data are to be extracted for the purposes of exchanging health information. Certainly, this is an important quality improvement and cost-saving step, but by definition it does not contain the breadth and depth of functions for an EHR at this time.

As with the HL7 EHR DSTU, the CCR has a more conceptual approach for interoperability. The data fields simply identify which data are to be exchanged. Though it uses XML to tag the fields that are exchanged electronically, the specification simply identifies data contained in the information exchange. It does not yet specify the format for the data. This flexibility allows providers to know what data are being exchanged, whether the exchange is from paper records to paper records, paper records to electronic records, or electronic records to electronic records. However, without data format, there may still be a substantial effort involved in transforming the data during the sending and receiving processes.

Since both the EHR DSTU and the CCR both have long ways to go before they can become an implementable standard, now is the time to harmonize the two. If the next step for the EHR DSTU is to identify data content, one way to quickly achieve that goal is to map the CCR data fields to the EHR DSTU's functions. The extent to which there is congruence between the EHR DSTU functions and the CCR data fields demonstrates the compatibility between the two standards. In preliminary mapping conducted by an AHIMA work group, it appears that virtually all CCR data fields can be mapped to one or more EHR DSTU functions. Therefore, it can be concluded that the two standards can be harmonized immediately.

Harmonization between the two standards is necessary for the following reasons:

- The focus in the industry will save resources. Once the two works are melded together, providers and vendors alike can begin enhancing their data collection processes and EHR systems based on one standard.
- It will be less confusing to all the major stakeholders. Providers and vendors can move forward with confidence knowing they are consistent with the harmonized standards, rather than spending time and energy sorting out the messages and issues, in addition to the standards themselves.

HL7 and ASTM are to be commended for advancing the state of the EHR and its components. Harmonization between the two standards will improve the quality of care and help the industry make great leaps toward the president's vision of electronic health records by the end of the decade.

Note

1. Rhodes, Harry, Donald Mon, and Michelle Dougherty. "The Drive for an EHR Picks up Speed." *Journal of AHIMA* 75, no. 1 (2004): 18–22.

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