



Course Content

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The Transfer of Data in EMR

One of the most confounding topics in the electronic medical record universe is that of data exchange and data transfer. One primary goal of every EMR system is to house, catalog, categorize and sort patient information. Inherent in this system of management is the data server for data storage. But once a provider has painstakingly entered detailed information into an EMR system, it is challenging to get it back out again. Either for the purposes of connecting with other providers or to reach hospitals, healthcare facilities, inform patients or launch new EMR systems. The acronyms abound, with much ado about data transfer.

What is HIE? (Health Information Exchange)

Health Information Exchange (HIE) represents the transmission of healthcare-related data among facilities, health information organizations (HIO) and government agencies according to national standards. HIE is an integral component of the health information technology (HIT) infrastructure under development in the United States and the associated National Health Information Network (NHIN).

To meet requirements, HIE technology must enable reliable and secure transfer of data among diverse systems and also facilitate access and retrieval of data. The purpose of HIE development is to improve healthcare delivery and information gathering. Most of the major EMR/EHR vendors have already incorporated HIE features and capabilities into their systems. Many are working to improve them to meet the expanding expectations and regulations.

HIEs are formed by a collective from a specific area or region to enable the electronic exchange of health-related information for the purpose of improving health care for a defined population. Thus, the HIE provides the ability for participating organizations to safely and securely share health information with authorized providers to improve and expedite the clinical decision making process.

An HIE is not an information system within a single organization, nor is it one that has a single directional flow of information. A true HIE involves multi-directional flow of information electronically between providers (hospitals, physicians, clinics, labs) and other sources of administrative or clinical information provided by consumers, health plans, employers, local, state or national organizations.



HIEs are created to use one of two forms of data sharing methods (or both), which are referred to “push” and “pull” technologies. Understanding the difference between how clinical data is obtained in an HIE is important because it will dictate the method in which information is shared. “Portals are a pull (query) technology, requiring physicians to search for the data they need. Push technology delivers clinical data to the user in a selected format: paper, fax or electronically to an EMR.

What is HL7?

HL7 is a messaging standard that enables clinical applications to exchange data. In healthcare where every user and setting is unique, that type of data exchange can be challenging.

Radiology information system (RIS), lab information system (LIS), hospital information system (HIS), and electronic medical record (EMR) do not yet inherently communicate with one another seamlessly. Additionally, information does not flow freely between a hospital and external MRI center or external testing lab. Each of these systems speaks its own language.

Beginning in 1987, an international community of healthcare experts and information scientists collaborated to create the HL7 standard for the exchange, management, and integration of electronic healthcare information.

Today, HL7 is a standards developing organization accredited by the American National Standards Institute (ANSI) to author standards representing a broad view from healthcare system stakeholders. From a practical standpoint, the HL7 committee has compiled a collection of message formats and related clinical standards that roughly define an ideal presentation of clinical information. These standards provide a framework in which data may be exchanged.

After years of work, the HL7 messaging standard is used worldwide and is still being modified to meet the changing data needs of the healthcare world. This standard does not dictate to hospitals, medical clinics, imaging centers, labs, and software vendors how to build applications or present data. Rather, HL7 was created as a framework for negotiation where an agreed-upon ANSI standard would be used to enable independent systems to communicate with one another. That is, the standard is the basis of data exchange.

While not entirely fair, HL7 does reflect that almost every hospital, clinic, imaging center, lab, and care facility is “special” and, therefore, there is no such thing as a standard business or clinical model for interacting with patients, clinical data, or related personnel. Thus, HL7 offers a broad messaging standard that can accommodate both large-scale hospital networks and stand-alone diagnostic imaging centers and clinics.



What is CCR vs. CCD? ¹

The standards discussion continues, but versions of these two data standards CCR and CCD are largely incorporated into EMR systems now in order to create the ability to export and exchange information among systems both external and interoperable.

The Continuity of Care Record, or CCR, is a standard developed by ASTM International - a global leader in the creation of consensus standards.

Because a CCR document is slightly limited in its ability to become a highly-scalable solution for interfacing two systems, the Continuity of Care Document (or CCD) was invented to link ASTM's CCR with the HL7's Clinical Documentation Architecture. Think of CCD as CCR on steroids.

CCD is a joint effort of HL7 and ASTM to foster interoperability of clinical data to allow physicians to send electronic medical information to other providers without loss of meaning, which will ultimately improve patient care.

The Continuity of Care Record (CCR) is a core data set of the most relevant administrative, demographic, and clinical information facts about a patient's healthcare, covering one or more healthcare encounters. It provides a means for one healthcare practitioner, system, or setting to aggregate all of the pertinent data about a patient and forward it to another practitioner, system, or setting to support the continuity of care. The primary use case for the CCR is to provide a snapshot in time containing the pertinent clinical, demographic, and administrative data for a specific patient. To ensure interchangeability of electronic CCRs, this specification specifies XML coding that is required when the CCR is created in a structured electronic format. Conditions of security and privacy for a CCR instance must be established in a way that allows only properly authenticated and authorized access to the CCR document instance or its elements. The CCR consists of three core components: the CCR Header, the CCR Body, and the CCR Footer.

CCD is the preferred interface standard for communication between EMR software systems and patient portal systems. This is because the CCD standard offers greater scalability in comparison to the CCR standard - meaning that it can grow and accommodate greater amounts of work.

Data transfer and migration services

In addition to standards within the global universe of healthcare and patient data (HIE) and system level exchange of data (HL7 > CCR/CCD); there is also a need for language which permits the exchange of patient data from legacy systems (not built with the aforementioned standards) to current ones. Data conversion service companies utilize tools which allow them to "convert" legacy data into current EMR languages. Many different methods must be applied as most legacy systems were built intentionally to block access to the easy exchange of data.



Review Quiz and Resource Directory

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It also includes a directory of helpful online links and resources to help with client counseling and additional self-education in the EMR/HIT market. Finally, a link to the HITU Marketing Toolkit is provided to assist with your medical community marketing and outreach efforts. If you have any questions regarding this selection of resources, you may contact our program team at (800) 671-1028 ext #33.

[Access
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¹ CCR/CCD information sourced from Medical Web Experts

