The Continuity of Care Document

Changing the Landscape of Healthcare Information Exchange

Corepoint
HEALTH

Electronic Clinical Document Exchange

Prior to the approval of the Continuity of Care Document (CCD) as an ANSI Standard in 2007, electronic data exchange of clinical data could utilize one of two formats: HL7 Clinical Document Architecture (CDA) or ASTM Continuity of Care Record (CCR).

Both formats allow providers to share clinical summary information about patients to referring physicians, pharmacies, EMR systems and other providers. Both formats also have the ultimate goal of improving patient care. But although they are similar in this way, they are not compatible with each other.

In an effort to combine the two closely related formats, the CCD was created. CCD provides a consolidated, single standard for clinical documents in the healthcare community. It harmonizes the two separate standards by using CCR within the broader context of CDA.

The goal of CCD is to increase the quality and efficacy of patient transfer between points of care. Its use is also instrumental in driving the increased adoption of EMR systems and electronic health records (EHRs), and the move towards more modern communication methods for patient data exchange.

Two Competing Standards

What is HL7 Clinical Document Architecture (CDA)?

CDA is an XML-based, electronic standard used for clinical document exchange that was developed by Health Level 7. CDA conforms to the HL7 V3 Implementation Technology Specification (ITS), is based on the HL7 Reference Information Model (RIM), and uses HL7 V3 data types. It was known earlier as the Patient Record Architecture (PRA).

CDA is a flexible standard and is unique in that it can be read by the human eye or processed by a machine. This is due to its use of XML language, which also allows the standard to be broken into two different parts. A mandatory free-form portion enables human interpretation of the document, while an optional structured part enables electronic processing (like with an EMR system). Text, images and even multimedia can be included in the document.

CDA does not specify a transport mechanism and can be utilized within a messaging environment or independently of it. Transport methods can include HL7 V2, HL7 V3, DICOM, MIME-encoded attachments, HTTP, or FTP. CDA is flexible enough to be compatible in a wide range of environments.

What is the ASTM Continuity of Care Record (CCR)?

CCR is also an XML-based standard used for clinical data exchange, but was developed by ASTM International. CCR provides a "snapshot" of treatment and basic patient information – it is not comprehensive like an EHR. Its primary function is to ease the transition of a patient from one provider to the next.

The information included in the record focuses on the diagnosis and reason for referral rather than symptoms and treatment chronology. It may include information from only a single provider visit or may be more extensive to include data from multiple visits. The amount of information included varies by provider and patient.

CCR is a concise standard that uses a defined set of core data and is based on XML. However an important distinction between CCR and CDA is that CCR uses only specified XML code. It does not support/allow narrative text (free-text) which can sometimes be hindering to physicians, and it is not electronically acceptable by all systems.

Also unlike CDA, CCR was intended to remain neutral with technology and so can be transmitted electronically or on paper. Therefore the patient can manually carry the CCR to the referring physician's office, if desired – a characteristic that is advantageous when no connectivity exists.

Who uses these standards?

In current practice, very few providers or vendors in the United States actually utilize these clinical document standards. Resistance to adoption is due to the relative newness of the standards and the lack of mandate to utilize them. In addition, the presence of two similar but incompatible standards perhaps deterred utilization of either one.

Harmonizing Historically Divided Standards

How did the Continuity of Care Document (CCD) develop?

The CCD was formed through a joint collaboration between Health Level 7 and ASTM International. It was created to address the divide between those who have adopted HL7 CDA and those who have adopted the ASTM CCR, and to drive the use of electronic exchange for clinical data.

The collaboration between the two organizations makes the resulting standard widely compatible with existing systems as well as with other similarly formatted standards. The hope is that the introduction of CCD will encourage the growth of EHRs and the use of electronic exchange of information among physicians, leading to better patient care, safety, quality and efficiency.

CCD is built on CDA elements, but the data itself is defined by CCR.

To form the standard, CCD uses a detailed set of constraints (or templates) for CDA elements. The templates define how to use CDA elements to communicate clinical data. The scope of the clinical data itself, within the templates, is set by CCR. Each template may have further supporting templates, as required.

CCD Templates (excludes supporting templates)

1. Header
2. Purpose
3. Problems
4. Procedures
5. Family history
6. Social history
7. Payers
8. Advance directives
9. Alerts
10. Medications
11. Immunizations
12. Medical equipment
13. Vital signs
14. Functional stats
15. Results
16. Encounters
17. Plan of care

Keeping Pace with Technology

Most professionals in the healthcare industry would agree that the future of care lies in the use of electronic documents, personal health records, and EMR systems. But those who have implemented CCR or some other data exchange method for their clinical documents may wonder – what makes CCD a better solution?

A universal standard

As more and more providers move towards electronic data exchange, a universal standard for clinical documents is needed to assure connectivity regardless of location. This means finding a standard that can be widely implemented, universally accepted, and that allows the increasingly widespread use of electronic exchange to continue to march forward.

Implementing CCD addresses this need by allowing for broad compatibility and easy assimilation into new and existing technology or standards. Because it is a blend of HL7 and ASTM standards – two very prominent standards organizations in healthcare – CCD is potentially compatible throughout multiple levels of the healthcare community. CCD is also a true document, not just a record, and is congruently designed for the same type of exchanges as those performed in an EMR – including import, management, and export of XML data.

Easy integration

The HL7 CDA RIM-based specifications that form the base of CCD are widely compatible with existing applications, browsers, EMRs and legacy systems. Any document or standard that uses the same patterns is also plug-and-play compatible with CCD. These include new versions of HL7, new types of public safety reports that use RIM-based messages, IHE specifications, HITSP specifications and CDISC.

Because of its small fixed XML tag set, CCD can be universally rendered as HTML or PDF. No specialized communication efforts or tedious changes to existing processes are required.

XML

Healthcare continues to march steadily towards the use of XML for data communication needs. CCD follows this trend by encouraging the implementation of XML for clinical document exchange. It also keeps pace with the introduction of XML in HL7 V3 – the wave of the future for healthcare information exchange.

Adopting CCD ensures that your organization maintains maximum adaptability to your trading partners' needs as more and more systems migrate to this more modern markup language standard.

CCHIT certification

In June 2008, CCHIT published its final approval criteria for emergency department EHR products and for EHR vendors. The new criteria require all ambulatory and inpatient EHRs to be CCD compatible in order to become CCHIT certified. This means being able to send and receive clinical documents in CCD format.

The new criteria solidify CCD's place in healthcare as the preferred standard for clinical document exchange. They also provide greater incentive for vendors to implement CCD in their EMR systems, and as a result encourage providers to implement CCD as well.

CCHIT endorsement of CCD as part of their certification process is an important step in facilitating the widespread adoption of both CCD and XML. It also is instrumental in encouraging the use of an electronic personal health record.

Improving Patient Care

A key indicator of a progressive healthcare system is quality patient care that continues to improve over time. Persistent efforts to make care more efficient and effective are essential to continued growth as we move further into the 21st century.

CCD is one step in that direction.

Quick access to key patient data

A differentiating characteristic of CCD is that it shares *summary information* about the patient, in an easy-to-read format, *within the broader context* of the personal health record. Its focus is on sharing the most important patient health information in a way that is easily communicated between points of care, while at the same time contributing to the patient's overall health history.

For the patient, this means less loss of meaning and misinterpretation of data by providers. For physicians, this means easier access to vital patient health information and better patient care.

Wide accessibility

CCD's high level of compatibility makes it easy to implement and allows a large number of providers to access vital healthcare information – with very few roadblocks along the way.

The basic elements of a patient's health record are for the first time easily portable and do not disrupt existing data flows. In addition, a lack of electronic connectivity no longer prevents transmission of patient data because the document is readable by the human eye.

Using CCD, physicians are better able to access the information regardless of location or circumstance. The end result is improved safety for patients and a more informed level of care.

CCD in the Real World

Real-world implementation of CCD is still in its very early stages. Hospitals, labs, clinics and imaging centers are only now discovering the many ways CCD could be implemented in their unique environments.

Here are a few of the possibilities.

How CCD is implemented

CCD is best utilized within the context of a personal health record or EHR. A typical scenario of use might look something like this:

A patient has a test performed at a lab. The lab generates an HL7 V3 ORU message and sends it to an EMR system. The EMR then generates a CCD for the patient, which is either sent electronically to the provider or printed out for the patient to carry to the next point of care.

In this scenario, the lab results are transferred in a way that prevents loss of meaning or errors in interpretation, while at the same time working within the context of the EHR. The CCD functions well as part of the comprehensive personal health record. At the same time, it maintains universal compatibility among providers to share vital patient information – in this instance test results – in the most accurate and efficient manner possible.

In another scenario, a physician uses CCD to enter free-form text about a patient visit alongside the standardized information such as demographics or lab results. This is an advantage over other standards – like CCR – which do not allow narrative text. In this situation, specific information that is important for continued care of the patient – and that would otherwise not be conveyed – is now available to the receiving physician.

Future possibilities

Because CCD is built using both CDA and CCR, it is potentially compatible with any number of documents that use either of these standards. This flexibility allows you to work seamlessly with differing formats as needed, or to perform conversions between formats if required. So for example, doctors might be able to send a CCR and then have it converted to CCD and posted to a patient's EMR.

Summary

The design and flexibility of CCD is a more usable version of two complimentary document standards. Its development makes both CDA and CCR less favorable in certain situations, and encourages migration to a

single standard for clinical documents across the entire healthcare community.

The CCD gives providers easier access to information with less loss of meaning than with previous standards. Its use enables sustained growth of EMRs and other electronic data exchange applications even as new systems and standards develop.

With CCD, you can be prepared for future technology while simultaneously opening the doors to greater compatibility within your healthcare community. The end result is better, more efficient care for patients.

About Corepoint Health

Corepoint Health solutions deliver interoperability for healthcare organizations and simplify the complexities of healthcare data through practical software applications, consulting and training. Our innovative and proven software solutions leverage clinical data flow efficiently for a diverse group of healthcare entities including hospitals, imaging centers, laboratories, clinics and healthcare vendors. This next generation approach to healthcare data and streamlined workflow is where Corepoint Health specializes in helping customers discover the power of integration.
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