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Understanding the continuity of care record

It would be overtly obvious to suggest that technology moves fast and advances quickly. In healthcare, the rate of new technology introductions has moved far more quickly than the industry can accommodate and implement. In other industries, accelerated technology adoptions may be considered "par for the course". Healthcare, though, is unique. As much as business issues are a real factor, so too is the need for a level of cooperation and symmetry in order to comply with the first objective – quality patient care.

To address this workflow void, standards such as the Continuity of Care Document (CCD) and Continuity of Care Record (CCR) were introduced to begin solving the problem of patient-data portability and interoperability.

This white paper, the first in a series on the many healthcare standards, will serve to:

1 Briefly define and describe CCR and CCD
2 Explain the relationship between CCR and CCD
3 Outline the components of the CCR and its intended use

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The continuity of care document

In the healthcare industry, there was a divide regarding the construction of the messaging standards to be used for the electronic exchange of clinical data. Some architects preferred ASTMs CCR while others have adopted HL7s Clinical Document Architecture (CDA). Hence, the Continuity of Care Document (CCD) was developed as the result of a joint collaboration between the HL7 and ASTM organizations to "harmonize" the two standards.

The purpose of the CCD is to provide an overall summary of a patient's care. Similar to the CCR, which is a snapshot in time of relevant medical information or specific condition, the CCD is a compilation of medical data used to continue care.

Additionally, both the CCD and CCR are intended to improve patient care by enabling physicians to engage in the electronic exchange of medical information electronically across applications or facilities.

The CCR and CCD: working together

Stated in a joint press release by HL7 and ASTM on February 12, 2007 to announce the CCD:

"The CCD represents a complete implementation of CCR, combining the best of HL7 technologies with the richness of CCR's clinical data representation, and does not disrupt the existing flows in payer, provider, or pharmacy organizations."

The result of this collaboration has been very positive. The CCD has been endorsed by the Healthcare Information Technology Standards Panel (HITSP). Both CCD and CCR are required standards within the ONC EHR Certification related to Meaningful Use.

The underlying belief from members of both ASTM and HL7 is that the CCD and CCR will accelerate Electronic Medical Record (EMR) and Electronic Health Record (EHR) adoption. As an XML-based standard, legacy IT systems used by many medical facilities will be able use these formats within their systems.

What is the continuity of care record?

The CCR was created to be a patient-focused record used by practitioners to determine what information is most relevant in the health of a patient at a particular moment in time. Its emphasis is on what data is needed when providers must have background information in order to deliver the best quality care to their patients.

The general concept of the CCR was generated by a Massachusetts physicians group that wanted a standard, paper-based discharge summary for patients transitioning from hospital care to the care of a nursing home for continued treatment. There was a great need for a way to provide a list of relevant treatment information that a nursing home would require in order to pick up care of the patient where the hospital left off.

The CCR has since evolved into a record that contains all of a patient's relevant medical history for the continued care of that patient. The CCR has the potential to provide critical information to a provider who has no knowledge of that patient's prior medical history.

The data in the CCR would provide a jump-start on treating the patient. For example, the CCR could contain information about the patient's current medications, allergies, recent visits or diagnoses from the previous provider. Also contained could be notes or suggestions from the patient's previous provider for the continued treatment of the patient.

The CCR was developed through the American Society for Testing and Materials (ASTM). Defined, the CCR standard is a published, open, Extensible Markup Language (XML)-based standard to exchange relevant current and past patient history between clinical applications.

How is the CCR used?

The CCR was created to solve the problem of portability and to provide a patient-focused record for practitioners to help determine what information is most relevant for the health of a patient. Its emphasis is directed towards what data is most needed at that moment in time by providers in order to deliver quality care to their patients.

As presented by Claudia Tessier, CAE, RHIA, Co-Chair, ASTM E31 Workgroup on CCR and Executive Director, MoHCA, the CCR is:

- A snapshot in time: A core data set of the most relevant facts about a patient's healthcare.
- Organized and transportable.
- Prepared by a practitioner at the conclusion of a healthcare encounter to enable the next practitioner to readily access such information.
- Able to be prepared, displayed, and transmitted on paper or electronically.

As an XML-based standard, it is vendor-neutral, enabling it to be read across networks, locations and modern proprietary systems. Being an XML-based standard also means that the CCR is both human and machine readable. In addition, the CCR can be easily transformed to Hyper Text Markup Language (HTML) or Portable Document Format (PDF) via XSL stylesheets.

In addition, the XML format makes it easier for other applications, such as EMR systems, to import and display the contents of a CCR record, and to also provide the ability to extract the relevant data in order to update their systems.

One might be bewildered at yet one more healthcare standard to accommodate. However, unlike other standards that seek solely to focus on workflow, data standards, and/or continuity of data, the CCR was created as a patient-focused standard to enable practitioners to decide what information was most relevant in order to deliver the highest quality patient care. It is an attempt to use a standardization model to accommodate the complexity.

This is evidenced by the consortium of organizations developing the CCR which include but are not limited to:

- ASTM International
- Health Information Management and Systems Society (HIMSS)
- American Medical Association
- Massachusetts Medical Society
- American Academy of Family Pediatrics
- American Academy of Family Physicians
- Patient Safety Institute

Components of the CCR

Core data set

The CCR offers a core data set of the most relevant clinical information from a specific moment in time. The specific sections in the core data set for the CCR include:

1. **CCR identifier or header** This section contains data required to identify the referred and referring clinician, as well as the date and clinical purpose for the creation of the document.

2. **Patient identifying information** This section includes data required to identify the referred patient from admission through discharge as well as any special directives and any additional contacts. The flexible data used in this section is able to be used by any system to assign the patient an identifier.

3. **Basic financial/insurance data** This section contains the core pieces of data in order to determine an individual's insurance information (commercial or Medicare) and coverage eligibility.

4. **Advance directives** This section is for listing powers of attorney, living wills, etc.

5. **Patient health status** This section includes the following pieces:

   - Diagnoses, problems, and conditions ranked either by order of importance or chronologically beginning with the most recent diagnosis

   - Adverse reactions and Alerts list allergies by agent and symptom

   - List of current medications including name, code, dose, schedule/refill dates, prescribing physician and comments

   - Comprehensive immunizations documentation including dates and disease identifier

   - Vital signs information such as blood pressure, height, weight, pulse and date signs were taken

   - Laboratory results information including but not limited to date of sample, blood sugar, hemoglobin, urine protein, sodium

   - Procedures/assessments information including description of procedures, accompanying dates, times, locations and codes

   - Health status section for optional greater details at the discretion of the provider

6. **Care documentation** This section includes dates and relevant information inserted by the care giver (physician or nurse) relevant to the current needs of the patient.

7. **Care plan recommendations** This open text section includes recommended tests, procedures, scheduled tests or care plans.

8. **Practitioners** This section contains identifying information about those providing care to the patient, and applicable reference information regarding diagnoses, conditions, etc.

Additional details

In total, there are seventeen sections that can be included within a CCR. These are not required, rather, they are available based on the information a practitioner believes is critical data for the patient at any given moment in time. Those sections include:

1 Patient Demographics
2 Immunizations
3 Vital Signs
4 Problems & Diagnoses
5 Insurance Information
6 Health Care Providers
7 Encounter Information
8 Allergies/Alerting Data
9 Appropriate Results
10 Medication
11 Procedures
12 Results
13 Necessary Medical Equipment
14 Social History
15 Statistics
16 Family History
17 Care Plan

These sections are designed to receive coded data. Additionally, these sections are designed to receive data from different facilities while contained in one CCR. Identifying date and time data is required as each physician from each location provides data relevant for during the course of the patient's treatment. This ensures that each input into a patient's CCR is traceable to the source.

The CCR in action

Using the CCR

One of the core purposes of the CCR is to provide relevant, current and past administrative and clinical information about a patient's health status and healthcare treatment. The CCR standard is designed to allow for information to be pulled from one or more sources and organized into a single XML file.

The CCR was developed in conjunction with care givers to facilitate higher quality and more seamless patient care. Looking to the future, advocates believe the CCR will promote EMR and EHR adoption due to its XML makeup—a file format any modern EMR/EHR will support

The CCR is designed to be flexible enough to be used either by a patient as a summary of care when changing providers or as a means by providers to exchange critical clinical data.

A primary goal of the CCR is to enable a patient's next provider to easily access the critical information needed 'right now' to deliver quality patient-care. It is intended to expedite a provider's understanding of what a patient needs in the first encounter with the patient, and allows for updating for the next visit, referrer or provider, thereby ensuring continuity of care.

Although the CCR it is not a discharge summary document, upon a patient's discharge, the CCR can be provided to a patient that contains a summary of the treatments and care provided to offer to his/her primary care physician.

Any level of CCR adoption will offer physicians or other providers with a more immediate and accurate account of a patient's previous treatment, enabling expedited care for both the patient and provider.

CCR limitations

While this white paper serves to better frame what the CCR is and the type of data it will contain, it is also important to recognize what the CCR is not intended to address. The CCR is not a magic bullet, solving for the gap between differing system formats, data needs and interoperability necessities that exist from provider to provider. Additionally, the CCR is not a historical document containing physician notes, transfer information or a discharge summary. Most importantly, the CCR standard is neither a substitute nor a replacement for an EMR or EHR.

Summary

With the number of differing healthcare systems and standards, there will certainly be bumps along the road to CCR adoption.

As highlighted, there are both standard elements and flexible components within the CCR, enabling patient care to remain "personal" between a provider and patient, while offering a level of portability that is critical for achieving quality care in a technology-driven world.

As the march towards EMR and EHR systems adoption continues, standards such as the CCD and CCR will help ensure a more seamless transition towards making electronic health a standard rather than an obstacle.

Future white papers in this series will address additional healthcare standards, how they work with one another, and ultimately, how they impact and promote the continued improvement of patient care.

As the trends in technology continue to enhance the exchange of clinical data between devices, systems and facilities, standards such as the CCR and CCD will continue to play a critical role in helping healthcare providers keep pace with the speed of technology.

About Corepoint Health

Corepoint Health has the healthcare IT experience and strength to deliver a dramatically simplified approach to internal and external data integration and health information exchange for hospitals, radiology centers, laboratories, and clinics.

Our next generation software solutions are transformational and will streamline your IT environment, provide a fast track to achieving your interoperability goals, and create operational leverage within your organization. Corepoint Health's solutions achieve a needed balance of being both intuitive and sophisticated while delivering solid functionality and performance. Our approach significantly reduces the demands on your IT staff and budget.

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