Networking and Health Information Exchange

Unit 4f
Basic Health Data Standards

Unit 4f Objectives
• Discuss Clinical Data Architecture, Continuity of Care Document, and Continuity of Care Record Standards

Clinical Document Architecture
• Document markup standard that specifies the structure and semantics of "clinical documents" for the purpose of exchange.
• Defined information object that can include text, images, sounds, and other multimedia content.
• The architecture specifies the schemas required for exchange.
Characteristics of CDA

- Persistence
- Stewardship
- Potential for authentication
- Context
- Wholeness
- Human readability

Key aspects of CDA

- The CDA specification is richly expressive and flexible.
- Encoded in XML.
- Data elements derive their meaning from the HL7 RIM
- Uses the HL7 Data Types.

CDA

- Allow cost effective implementation across as wide a spectrum of systems as possible.
- Support exchange of human-readable documents between users, including those with different levels of technical sophistication.
- Promote exchange that is independent of the underlying transfer or storage mechanism.
Major components

- A CDA document is wrapped by the <ClinicalDocument> element, and contains a header and a body.
- The header lies between the <ClinicalDocument> and the <StructuredBody> elements and identifies and classifies the document and provides information on authentication, the encounter, the patient, and the involved providers.

XML Markup for CDA

- XML tag is defined <tag>
- Data is expressed as data element name
- Data value is "value"
- Each entry has a start tag <tag> and a stop tag <tag>.
- Entries may be nested.
- `<code> code = "11488-4" </code>`
Header components

- Contextual header
  - Author
  - Confidentiality
  - Data enterer
  - Human language
  - Informant
  - Legal authenticator
  - Participant
  - Record target

sets context for the entire document

Major components

```xml
<ClinicalDocument>
  ... CDA Header ...
  <StructuredBody>
    <section>
      <text>...</text>
      <Observation>...</Observation>
      <Observation>
        <reference>
          <ExternalObservation>...</ExternalObservation>
        </reference>
      </Observation>
    </section>
    <section>...</section>
  </StructuredBody>
</ClinicalDocument>
```

CDA specification

The CDA specification permits the use of document codes and section codes. Thus, it is possible to differentiate a "Consultation Note" from a "Discharge Summary" because the two will have distinct document codes in the document instance.
This is rendered bold.

This is rendered bold and italicized.

This is rendered bold.

LOINC document codes

- 28568-4 Visit Note Emergency Department Physician
- 34662-3 Admission Evaluation Note Inpatient Attending General Medicine
- 11488-4 Consultation Note [Setting] [Provider]
Continuity of Care Document

- The approach taken in the development of CCD is to reflect the CCR requirements in a CDA R2 framework, and to do so in such a way that CDA is constrained in accordance with models being developed by other HL7 committees.
- This has helped accelerate convergence within HL7 around a common "clinical statement" model, leading to closer collaboration with several domain committees, such as:
  - Results: Lab committee
  - Family History: Genomics committee
  - Allergies, Problems: Patient Care committee
  - Medications: Pharmacy committee

CCD Sections

- Payers
- Advance Directives
- Support
- Functional Status
- Problems
- Family History
- Social History
- Alerts, allergies, AE
- Medications
- Medical Equipment
- Immunizations
- Vital Signs
- Results
- Procedures
- Encounters
- Plan of Care

CCD

- CCD maps the CCR elements into a CDA representation.
  - <Results>
  - <Result>
  - <CCRDataObjectID>2.16.840.1.113883.19.1</CCRDataObjectID>
  - <DateTime>
    - <Type>
      - <Text>Assessment Time</Text>
    - <ExactDateTime>200004071430</ExactDateTime>
  - <Type>
    - <Text>Hematology</Text>
  - <Description>
    - <Text>CBC WO DIFFERENTIAL</Text>
    - <Code>
      - <Value>43789009</Value>
      - <CodingSystem>SNOMED CT</CodingSystem>
    </Code>
  - <Status><Text>Final Results</Text></Status>
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Continuity of Care Record

- Patient health summary detail
- Flexible document
- Relevant and timely core information about patients for exchange among patients
- Standard from ASTM
- XML syntax

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CCR content

- Demographics
- Diagnosis
- Problem list
- Medication
- Allergies
- Insurance
- Care Plan
Summary

- Structure complicated but rote
- Content simple – data elements with XML tags
- Permits migration from narrative text to coded data.
- Internationally becoming the exchange document of choice.