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Advanced HL7: CDA/CCD

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Welcome

- HL7 V3
- XML
- RIM
- Data Types
- What is a CDA?
- Goals/Benefits of a CDA
- HL7 V3 Hierarchical Structure
- What is a CCD?
- CDA Structure
- Review CCD
- CDA Tools
- Meaningful Use

What is HL7 V3?

- Health Level Seven (HL7) version 3 is a standard for exchanging messages among information systems that implement healthcare applications.

- Strives to improve the version 2 process and its outcomes.

- Like HL7v2, it is often event driven.

- Messages are based on an XML encoding syntax.

- Model-based methodology.

What is XML?

- XML is Extensible Markup Language

- Defines a set of rules for encoding documents in a format that is both human-readable and machine-readable

- Structure and format are conveyed by markup which is embedded into the information

Reference Information Model (RIM)

- XML cannot be used alone

- Cornerstone of the HL7 v3 development process.

- RIM is a large pictorial representation of clinical data and identifies the life cycle of events that a message or groups of related messages will carry.

- V3 Messages and Documents are derived from the RIM.

- Gave an object oriented approach to the HL7 messaging standard.

RIM cont'd.

- **Six core classes:**
  - Act – Actions
  - Act_Relationship
  - Participation
  - Role
  - Role_link
  - Entity

Reference Information Model (RIM)

RIM 2.41
Update to RIM R5
November 10, 2012
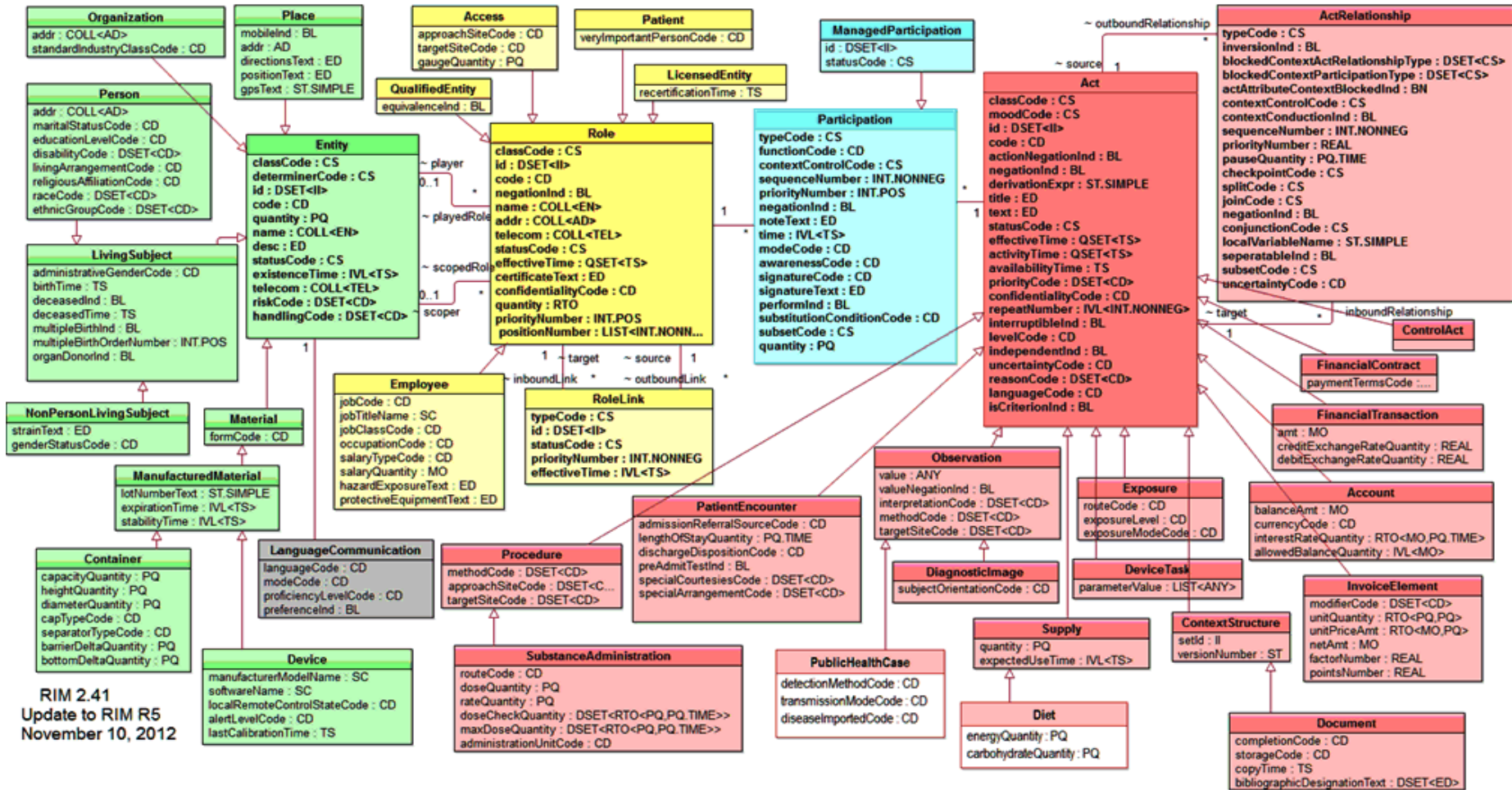
Data Type

- **PN**
  - **Name for a person**

```
<name>
<given>Jane</given>
<family>Smith</family>
<suffix>Jr</suffix>
</name>
```

What is a CDA?

- XML-based markup standard intended to specify the encoding, structure, and semantics of clinical documents for exchange

- Introduces the concept of incremental semantic interoperability

- Most recent version is Release 2

- R2 allows for greater encoding complexity, but still allows for lower level encoding used in CDA R1

- Can include text, images, sounds and other multimedia content

What is a CDA cont'd?

- Examples: Discharge Summary, Imaging Report, Admission & Physical, Pathology Report, or any content that potentially carries a signature.

- No standard for transportation of documents

- Must have six characteristics:
  1. Persistence
  2. Stewardship
  3. Authentication
  4. Wholeness
 5. Context
  6. Human Readability

What is a CDA cont'd?

- CDAs can be simple or complex

- Can consist of:
    - CDA Header + NonXMLBody
    - CDA Header + Structure Body with Text Section(s)
    - CDA Header + Structured Body with Text and Entry section(s)

- Used worldwide

Goals/Benefits of CDA

- Give priority to delivery of patient care

- Reduce technical barriers for implementation

- Can be reused in multiple applications

- Supports the exchange of clinical documents between providers involved in the care of a patient

- Supports the re-use of clinical data for public health reporting, quality monitoring, patient safety and clinical trials
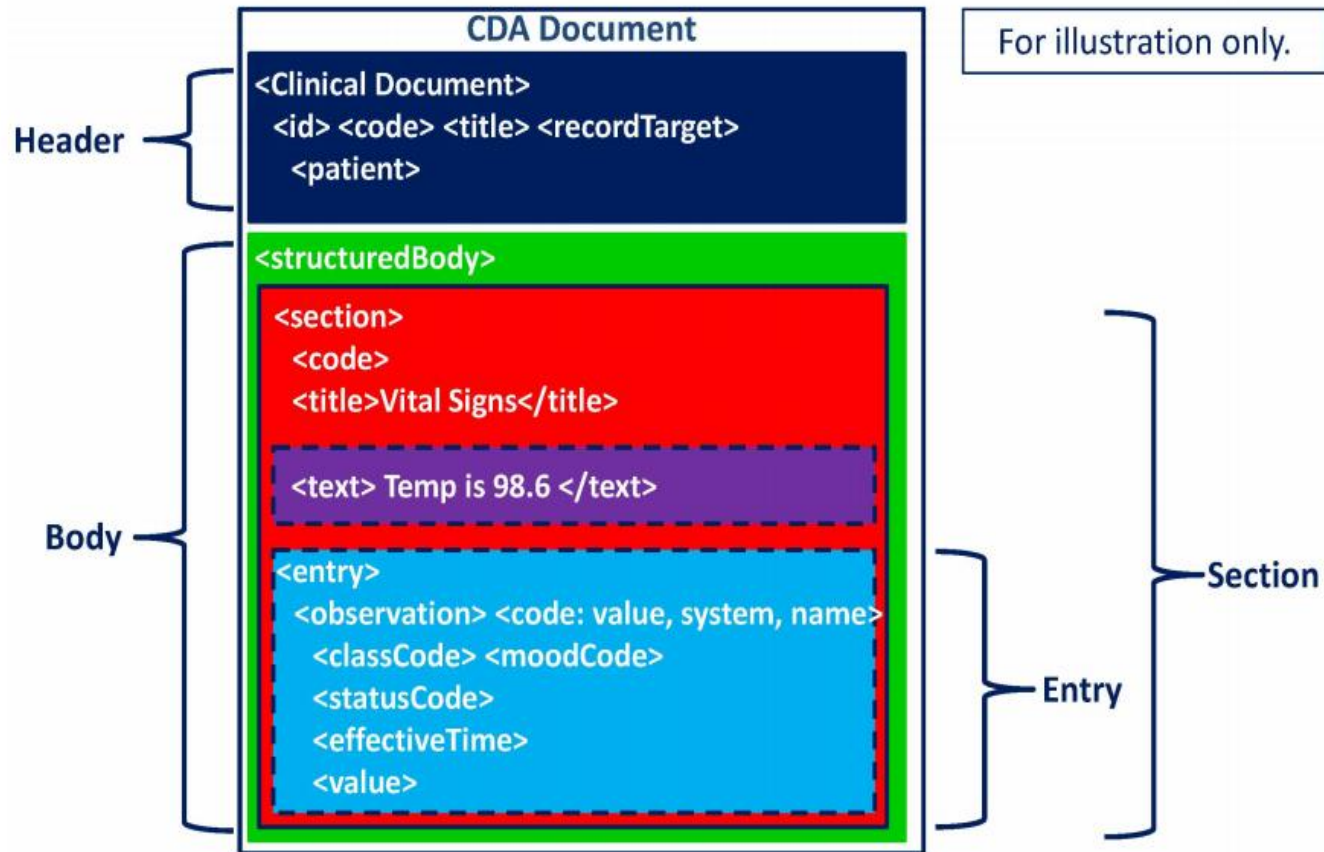
HL7 V3 Hierarchical Structure
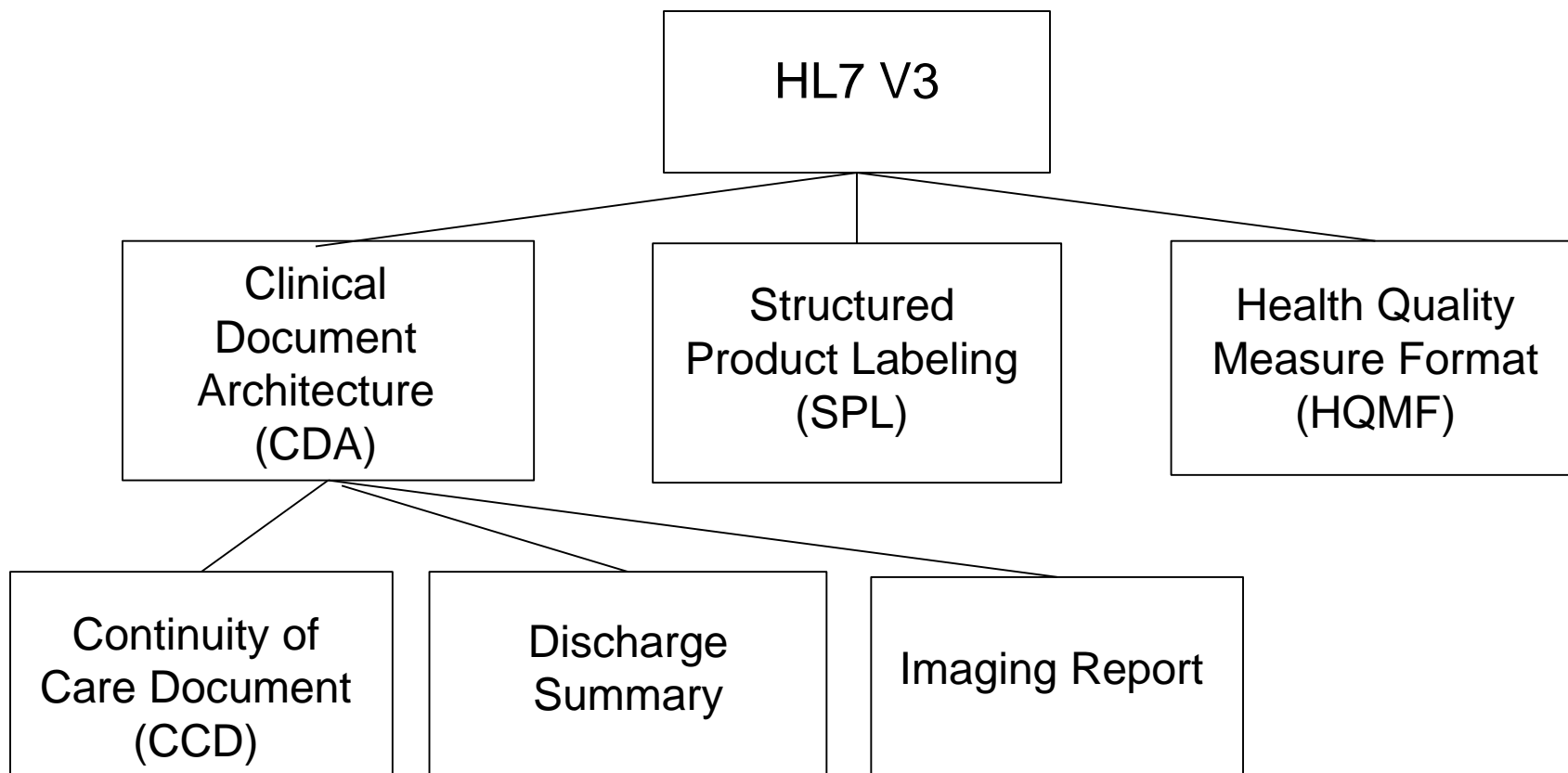
Continuity of Care Document (CCD)

- Most commonly known and used CDA template.

- Continuity of Care Record (CCR) + CDA = CCD

- Uses encoded XML.

- Human readable consist of paragraph, list, and/or table

- Machine readable has observation, procedure, organizer

CDA Document Layout

CDA Header

- **Document Information**
    - Version of document
    - Document type
    - Confidentiality code
    - Date/time event was initiated or when the encounter was created

CDA Header

- **Encounter Data**
  - setting in which the document occurred

- **Service Actors**
  - Authenticator
  - Those intended to receive document
  - Document originators

- **Service Targets**
  - Patient
  - Participants (ex. Family members)

Sections

- **Consist of:**
    - Human readable
    - Machine readable

Entries

- **Represent the structured computer-processable components within a document section.**

- **Each section can have many entries or none at all.**

- **Sample entries**
    - Observation
    - Procedure
    - Substance Administration

CDA Tools

- **CDA Validation**

    – http://cda-validation.nist.gov/cda-validation/validation.html

    – https://www.lantanagroup.com/validator/

    – http://sitenv.org/web/site/c-cda

- **Notepad++**

- **XML Notepad**

Meaningful Use

- Stage 1 – CCD and CCR were both selected as acceptable extract formats for clinical care summaries

- Stage 2 – The selected standard is Consolidated Clinical Document Architecture (C-CDA)

- C-CDA includes nine document types, one of which is the CCD not CCR.

CCD uses

- Citizens conversion
  - What is entailed
- Reach out to Carolina
- Drew custom CCD

- More pictures
- Compare CCD/CDA/CCR
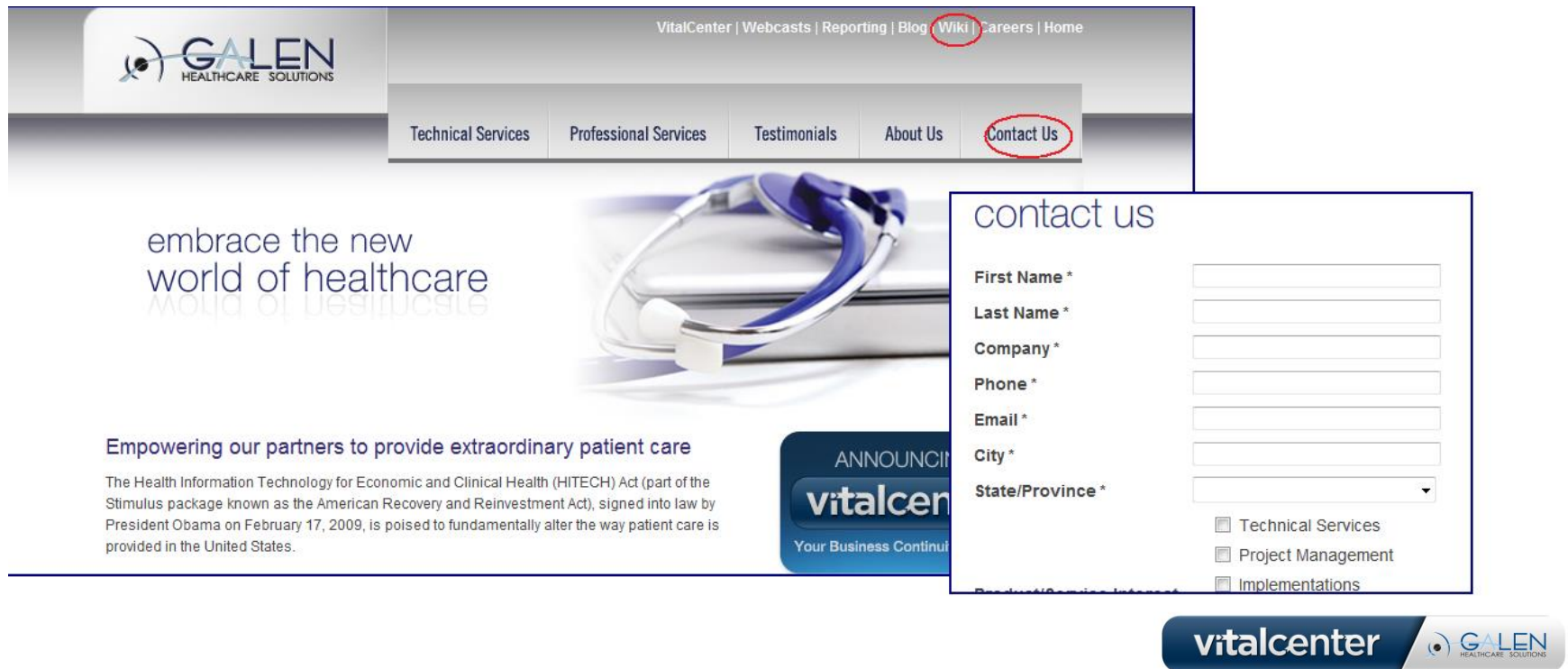
Q&A
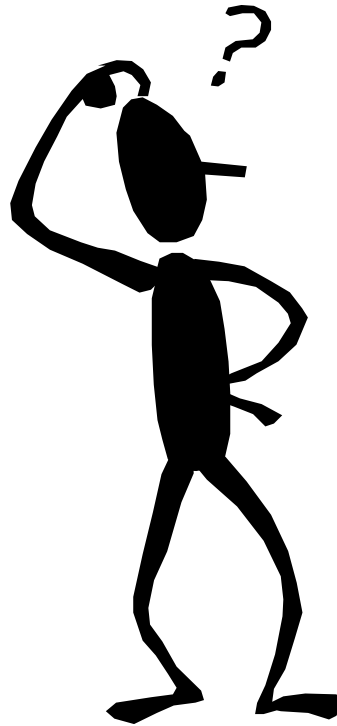
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