DCM - Available Formalisms

Looking for computable DCM formats
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Initial Options

- HL7 Template “DSTU”
- OpenEHR “Open Specification”
  - [http://www.openehr.org/120-OE.html](http://www.openehr.org/120-OE.html)
- Textual Documentation
  - Eg CCD specification
- UML Models
  - DCM Examples
- OWL
DCM – Currently Non Computable

- UML Models
  - Use ISO data types
    - No ACT level classes in ISO 21090
    - No Terminology Mapping
  - No Standard Template Reference Model
  - Available as XMI
- Textual Documents
- Mind Maps
- Spreadsheets
UML Templates

- ISO datatypes specified
  - Can be imported into UML tools
- No Reference Model above this
  - Ie No Act/Observation/Act Relationships
- UML is computable (via eg XMI) – but
  - No ability to control higher level modelling
  - Requires OCL for constraints (ie MDA)
    - Raises the bar for clinicians!
- Could be used – but requires a Reference Model or manual mapping
HL7 Templates

- DSTU is not in active use (That I can find)
  - No Terminology Mapping
  - Does not appear to be under active development
- Several Mentions of other Formats but no easily available documentation (That I can Find)
- CCD uses Template Ids that are documented in a Textual Document
- RMIMS are a form of template
  - No Terminology binding for values
  - Not accessible to Clinicians
  - Bandwidth has been problematic
  - No formalism for calculated values
OpenEHR Archetypes/Templates

- Similar to ISO-13606-2 but “Open Specification”
- Extends model semantics significantly (EHR)
  - OBSERVATION/EVALUATION/INSTRUCTION etc
  - Many CLUSTER extensions eg EVENT, ITEM_TREE etc
- Has Terminology Binding
  - No standards based terminology queries
- Calculated values/Datatypes use Local codes
  - “DV_COUNT”,
  - media_type matches { [openEHR:: 425, 426, ...}
- Viewable in “Clinical Knowledge Manager”
OpenEHR

- Archetypes
  - Maximal possible dataset
    - ADL (Text) or XML formats
    - ADL format under ongoing development

- Templates
  - Combine archetypes
  - Restrict used dataset – can remove optional data
  - Screen Forms/Message Specification
  - Not well documented as yet
ISO-13606-2/EN-13606-2

- International Standard
  - ISO and CEN version almost identical (I am told)
- Uses ADL Format
  - Format is fixed by standard
- CEN Reference Model – Designed to be generic
  - COMPOSITION/ENTRY/CLUSTER/ELEMENT
- HL7 V3 mappings exist
- Mappable to OpenEHR
- Terminology Binding
  - No Terminology server format
ISO-13606

- LINK EHR Normalization Platform
  - [http://www.linkehr.com/](http://www.linkehr.com/)
  - “LinkEHR is a result of a coordinate project sponsored by Spanish Education Ministry”
  - Supports EN-13606-2 and OpenEHR

- Medical-Objects Template editor
  - Exports EN-13606-2
  - Imports EN-13606-2/OpenEHR 1.4 ADL/ HL7 Templates (the 1 we can find)
  - Developed as part of Archetypes in V2 project
  - Free tool
  - Archetype repository (restricted access)
  - Extended options saved in non standard xml format
    - GELLO for calculated values/visibility/validation etc
  - Basic example screen builder
DCM – the wish list

- Standards based format
- Implementation technology neutral
  - HL7 V3/2
  - CEN/OpenEHR
  - This is “ITS binding at level of standards”
- Terminology Binding
- Terminology Constraint language
- Calculated value support
- Clinician friendly
  - UI is built on top however so orthogonal to format