Building SNOMED CT Reference Sets for use as Interface Terminologies

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Moving to an e-health environment

• Using information and communications technologies is the only way to maintain Australia’s health care system and meet the challenges of an aging population.

*Deloittes report to AHMC, 2008*
Capturing, Storing and Exchanging Clinical Information

• Capturing and Storing data
  • Information model, such as CEN13606 or openEHR
  • Terminology, such as SNOMED CT

• Exchanging information
  • Messaging standard HL7
Three mapping use-cases for the Snapper platform

1. To produce a mapping to enable an existing patient data set captured in a different terminology for the purpose of data mining or analytics.

2. To migrate an existing terminology or data dictionary to use SNOMED CT concepts.

3. To develop an extension to SNOMED CT to provide greater depth or fill existing gaps in the ontology.
Why Snapper?

Large teaching hospital

HDI Domain (Host)

Private hospital

HDI Domain (Remote)

Regional hospital

HDI Domain (Remote)

Surgical Records

Hosp Admin

Surgical Records

Hosp Admin

Surgical Records

Chemo Records

Surgical Records

Hosp Admin
What to do about adding meaning?

• Hypothesis: Can we use SNOMED CT as a base ontology and add “new bits of knowledge” to fully describe data which is collected using other terminologies?
The ANZICS Mapping
Results from ANZICS mapping

- 396 terms in the ANZICS sub-diagnosis codes
- 164 one-to-one equivalence mappings

- 59 concepts were new child concepts
- 4 concepts were new parent concepts

Understanding the source terminology is important
Results from ANZICS mapping

• “Extremity/multiple trauma, surgery for”
• Dilation (without general anaesthesia)
Other use-cases for Snapper

• Reference Set creation
  • directly from SNOMED
  • based on a previously created mapping

• Text and Image Annotation
Reference Sets for interfaces

Simple Ref-Set
A set of elements from SNOMED CT

EXTENDS

Language Ref-Set
Identifies elements and their role for a specific language

Navigation Ref-Set
Provides an alternate navigation hierarchy for the contained elements

Aggregation Ref-Set
Provides an alternate aggregation hierarchy for the contained elements
Creating a RefSet from a Mapping
Snapper Reference Set Builder

Snapper Reference Set Builder for building SNOMED CT Reference Sets for use as Interface Terminologies.
Simple Reference Sets

CSIRO. Building SNOMED CT Reference Sets for use as Interface Terminologies
Uses for Simple RefSets

• Limit the terms/concepts which can be used in application
  • Small reference sets for use as pick lists in an application

• Use as filter for searching
  • limit to specific (sub-)hierarchy
  • exclude specific concepts
    • unsuitable for use
    • unnecessarily specific
    • ...

• Standardise concepts for a specific domain
Aggregation Reference Sets

- Ideal for reporting use
- Can help to report as ICD from data captured in SNOMED CT
  - Multiple SNOMED CT codes may

"Aggregation Reference Sets would allow the distribution of alternative aggregation hierarchies for SNOMED Concepts."
  - IHTSDO Reference Set Guide, version 1
Reference Sets with Heirarchies
• 73761001 | Colonoscopy |
  363703001 | Has intent | = 262202000 | Therapeutic intent |
  |
  |
  { 405813007 | Procedure site - Direct | = 71854001 | Colon structure |,
  424226004 | Using device | = 90412006 | Colonoscope, device |,
  260686004 | Method | =129433002 | Inspection - action |
  }
Navigation Reference Sets

• Can be used to drive an application
Using the Hierarchy to drive an applications

• Accessing a Reference Set from ontoserver
  • Retrieve information about a concept
  • Retrieve children of a concept:
  • Retrieve parents of a concept
Using the Hierarchy to drive an applications
Proposed Release Format 2.0 Refset Spec

- Much broader scope
- Still work in progress
- Allows for query-based inclusion as well
  - has implications (positive and negative) for version management
- Aggregation and Navigation Refsets no longer explicitly mentioned
  - may (?) be represented using Association reference set (pattern)
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Questions?