Integrating SNOMED CT-AU and the Australian Medicines Terminology (AMT)

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Developed to be fit for the purpose of unambiguously identifying, for clinicians and computer systems, ...

- ... commonly used medicines in Australia
  [as of July 2011]
  - includes all PBS/RPBS, TGA AUSTR and a range of AUSTL items.

... for the following activities:

- Prescribing
- Recording
- Review
- Issue – including dispense
- Administration and
- Transfer of Information
AMT High-level Structure (of interest)

- Substance 3121
- Medicinal Product (MP) 1670
- Medicinal Product Pack (MPP) 7524
- paracetamol
- phenylephrine
- paracetamol + phenylephrine
- paracetamol 500mg + phenylephrine hydrochloride 5mg tablet, 24

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The AMT V2 Model

Relationship types

- has ingredient
  - has pharmaceutical ingredient
  - has specific active ingredient
  - has BOSS
  - is modification of
- has unit of use
  - has MPUU
  - has TPUU
  - has international BOSS
  - has Australian BOSS

Essentially everything is *primitive*

- (conservative modelling)
SNOMED CT(-AU) Model

373873005 | Pharmaceutical / biologic product |
260787004 | Physical object |
105590001 | Substance |

Relationship types:
• 127489000 | Has active ingredient |
• 411116001 | Has dose form |

A lot of primitive and un-modelled concepts
SNOMED CT High-level Structure

373873005
Pharmaceutical / biologic product

105590001
Substance

260787004
Physical object

Phenylephrine + paracetamol

paracetamol

phenylephrine

Has active ingredient

Recombiant bone morphogenetic protein 2

Recombiant human bone morphogenetic protein absorbable collagen sponge

Thrombin embedded bandage
# Model alignment

<table>
<thead>
<tr>
<th>AMT</th>
<th>SNOMED CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance</td>
<td>Substance</td>
</tr>
<tr>
<td>Medicinal Product</td>
<td>Pharmaceutical / biologic product</td>
</tr>
<tr>
<td>container type, form (Australian qualifier)</td>
<td>Physical object</td>
</tr>
<tr>
<td>has Ingredient, ...</td>
<td>Has active ingredient</td>
</tr>
</tbody>
</table>
Substance mapping

Details in “Development approach for reference sets”, 2012-08-31

Domain of use: decision support
  • potential allergies
  • drug-drug interaction
  • drug-disease interaction

Scope: AMT Substances actually used in an AMT Product

Result:
RF2 Reference Set

<table>
<thead>
<tr>
<th>referencedComponentId</th>
<th>valueId</th>
<th>stringValue</th>
</tr>
</thead>
<tbody>
<tr>
<td>2447011000036100</td>
<td>Equivalent</td>
<td>385544005</td>
</tr>
<tr>
<td>2448011000036100</td>
<td>Equivalent</td>
<td>421559001</td>
</tr>
<tr>
<td>2449011000036100</td>
<td>Equivalent</td>
<td>395823000</td>
</tr>
<tr>
<td>2450011000036100</td>
<td>Equivalent</td>
<td>409159000</td>
</tr>
<tr>
<td>2451011000036100</td>
<td>Generalise</td>
<td>409159000</td>
</tr>
</tbody>
</table>
Building the map

Snapper demo
Building the integrated terminology

SNOMED CT-AU
- Concepts
- Relationships
- Descriptions

MAP
- Concepts
- Relationships
- Descriptions

AMT
- Concepts
- Relationships
- Descriptions

Classifier
- Relationships

DNF

terminology server index
Building the integrated terminology

Steps

1. Convert RF2 file into a set of additional relationships entries
2. Convert to all relationships to DNF - classification

Snorocket
- Performs the classification step

OntoServer
- Index for searching & lookup
The Result - demo

[Diagram showing Australian concept, SNOMED CT Concept, SNOMED CT Model Component, Terminology Auxiliary concept]

http://aehrc.com/snapper/minnow
Discussion

Bugs

• ? 412546005 | Sodium citrate |
• plant product
  • mapping relationship is wrong
• not caught by mapper review (see poster)
• flagged as a result of classification
Discussion - 2

Limitations

- primitives concepts limit value of map
  - substance mapping doesn’t help with product integration
- example

Other

- bandages etc as substances / products
Warfarin modelling

Excess primitives & under-modelling
Future

AMT V3

- Medicinal Products will be fully defined
- Include strength etc (Concrete Domains)

With a mapping of relationship types and some high-level product concepts, some integration of product hierarchies will be inferable.
Thank you

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See us at booth 9