SNOMEDCT
An Introduction

SCIMP
Dr Paul Miller
Stands for!

- Systematised
- Nomenclature
- Of
- MEDicine
- Clinical
- Terms
Is...

What is SNOMED CT?

SNOMED CT:

- Is the most comprehensive nomenclature in the world.
- Is a resource with comprehensive coverage of medical concepts.
- Enables consistent, precise coding.
- Is mapped to other international standards.
- Is already used in more than 50 countries.

The Systematized Nomenclature of Medicine (SNOMED) is a systematic, computer-processable collection of medical terms, in human and veterinary medicine, to provide codes, terms, synonyms and definitions which cover anatomy, diseases, findings, procedures, microorganisms, substances, etc.
= A spade

= Common Cold  82272006
Read Codes

- Flat Hierarchy
- Parent & Child
- One way up or down
• Code – 5 Bytes H33..
• Term – the description
• Keywords – shorthand (not in SNOMEDCT)
• Synonyms and Preferred Terms
Problems with Read

- Qualifiers
  - Negation
- Semantic issues
  - Student
  - CKD
- Flat Hierarchy
- Incorrect Synonyms
- Scalability & Scope
**Concept**

"Common cold"
Common cold (disorder)
SCTID: 82272006

"On Exam Blood Pressure"
On examination – bp reading (finding)
SCTID: 163020007

"Gout"
Gout (disorder)
SCTID: 90560007

"On Exam Blood Pressure"
**Clinical finding** represents the result of a clinical observation, assessment or judgment and includes normal and abnormal clinical states (e.g. asthma, headache, normal breath sounds). The clinical finding hierarchy includes concept used to represent diagnoses.

**Procedure** represents activities performed in the provision of health care. This includes not only invasive procedures but also administration of medicines, imaging, education, therapies and administrative procedures (e.g. appendectomy, physiotherapy, subcutaneous injection).

**Observable entity** represents a question or assessment which can produce an answer or result (e.g. systolic blood pressure, color of iris, gender).

**Situation with explicit context** represents concepts in which the clinical context is specified as part of the definition of the concept itself. These include presence or absence of a condition, whether a clinical finding is current, in the past or relates to someone other than the subject of the record (e.g. endoscopy arranged, past history of myocardial infarction, family history of glaucoma).
Is a

Other bacterial diseases
- Leprosy
- Other mycobacterial diseases
- Diphtheria
- Whooping cough
- Streptococcal sore throat and scarlatina
- Erysipelas
- Meningococcal infection
  - Meningococcal meningitis
  - Meningococcal encephalitis
  - Meningococcal septicaemia
  - Waterhouse-Friderichsen syndrome
  - Meningococcal carditis

IS A

View: Unrestricted

Concept Details
- Domain: Infectious/parasitic diseases
- Code: A360.
- Status:

Term Details
- Meningococcal meningitis
“Meningitis caused by meningococci”

Other Bacterial Disease
A360..

OR

Inflammatory Disease of CNS
F005.

But not both at the same time...
385627004
Cellulitis

118932009
Disorder of foot

<table>
<thead>
<tr>
<th>Is a</th>
</tr>
</thead>
<tbody>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>------------------</td>
</tr>
</tbody>
</table>

62837005
Cellulitis of hand

128276007
Cellulitis of foot

95345008
Ulcer of foot
MORE FUN THAN A HANDBAG FULL OF SNAKES
Review!

• SNOMEDCT – Stands for...
• Concept – core idea
• Fully Specified Name
• Concept ID
• Polyhierarchy
Attributes (Relationship Types)

• Further defines concepts
  • Finding Site – what bit does it affect?
  • Causative Agent – what thing causes this?
  • Associated Morphology – what happens at a tissue level?

• 50 types used by 9 hierarchies

• Logical model stops silliness
  • Domain – The Hierarchy to which the attribute can be applied
    |Procedure| cannot have |associated morphology|
  • Range – the set of concepts allowed as values
    The range for the attribute |finding site| is |body structure|
Meningococcal meningitis (disorder)

Infectious Process

Inflammation

Pathological Process

Associated Morphology
Identifiers

• Is the number
• Unique for every concept, description, relationship
• Up to 18 digits
• Not going to remember them!
• Use your words!
Descriptions

• Description Types
  • Fully Specified Name (has brackets (hierarchy))
    • Not meant to be used in records interfaces (!)
  • Synonyms

• Acceptability
  • Preferred (only one)
  • Acceptable (none to many)
<table>
<thead>
<tr>
<th>Term</th>
<th>Acceptability(GB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F   Myocardial infarction (disorder)</td>
<td>Preferred</td>
</tr>
<tr>
<td>S  Cardiac infarction</td>
<td>Acceptable</td>
</tr>
<tr>
<td>S  Heart attack</td>
<td>Acceptable</td>
</tr>
<tr>
<td>S  Infarction of heart</td>
<td>Acceptable</td>
</tr>
<tr>
<td>S  MI - Myocardial infarction</td>
<td>Acceptable</td>
</tr>
<tr>
<td>S  Myocardial infarct</td>
<td>Acceptable</td>
</tr>
<tr>
<td>S  Myocardial infarction</td>
<td>Preferred</td>
</tr>
</tbody>
</table>
Pre & Post Co-ordination

**Pre-coordinated**
- Use a single SNOMED CT identifier
- Already in SNOMED CT
- Provided for you

**Post-coordinated**
- Contain more than one SNOMED CT identifier
- Allows additional detail e.g. laterality
- Expressed using SNOMED CT compositional grammar
- Can be computed to equivalence
- Can be used to generate clinical ideas not in SNOMED CT Pre-coordinated concepts
Reference Sets

• A defined mechanism to:
  • Refer to a subset of SNOMED CT components
  • Add customised information to components

• Allows for:
  • Languages
  • Maps (from Read, ICD10)
  • Picklists
  • Hierarchies and Ordered Lists

• Need authored and maintained!
More Information

• SNOMEDCT Starter Guide:
  • http://snomed.org/sg.pdf.html

• Browser:
  • http://browser.ihtsdotools.org/

• IHTSDO Learning Centre:
  • http://www.ihtsdo.org/snomed-ct/learn-more