

SNOMED CT Subsets and Refsets

Tutorial 31st October 2014

SNOMED CT Implementation Showcase Amsterdam

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Delivering

SNOMED CT

The global
language of
healthcare

SNOMED CT Subsets and Refsets

- Introductions, format
 - Tutorial
 - Questions (mainly) at end of each section.
- Target
 - Anyone interested in implementation of SNOMED CT
 - Inform participants of key points of interest about specification, selection, development of subsets, and their distribution or use as SNOMED CT Refsets
- Prior knowledge
 - Assumes a basic knowledge of SNOMED CT
 - Components (concept, description, relationship, expressions)
 - Scope / clinical coverage

Topics

- Uses of subsets
- Techniques used in development, maintenance
- Formats for packaging, distribution
- Sharing and reuse
- Discovery of existing subsets - purpose - fitness for reuse

Related topics from Showcase

- **Sessions:** Subset and Refsets - 1 & 2
 - Showcase Track B: Sessions 3 (yesterday)
 - Favorites lists as subsets, UK
 - IS-A relations between subset members to give a semantic overview of single subsets, Denmark
 - SNOMED CT Cardiology Refset Development, Malaysia
 - Showcase Track B: Sessions 5 (after lunch today)
 - Experience developing a Refset for Optometrists, Holland
 - Query specifications maintained in parallel for more than one scheme, UK
 - SNOMED CT subset for home care nurses, Denmark

Definitions

- **Refset (Reference set) IHTSDO definition:**
 - A type of distribution file structure
 - Standardised in RF2
 - Used for subsets as well as for other ‘derivatives’ such as maps or language preferences
 - First IHTSDO use 2011
 - Standard for IHTSDO distribution since January 2012
- **Subset definition:**
 - IHTSDO does not assert its own definition for subset
 - IHTSDO uses ‘subset’ as defined in general dictionaries such as Miriam Webster and Wikipedia

Scope

- Subsets
 - Subset of SNOMED CT, mainly:
 - Concepts
 - Descriptions
- Refsets
- RF2 distribution format for subsets
 - Refsets from
 - International Edition
 - SNOMED CT extensions and national Editions
- Defined as either
 - Enumerated subsets
 - Intensionally defined subsets

Scope: Refset types

- | Attribute value type |
- | Simple map |
- | Complex map type |
- | Language type |
- | **Query Specification type** |
- | Annotation type |
- | Association type |
- | Ordered type |
- | **Simple type** |

Illustration: simple Refset

xder2_Refset_DiagnosticImagingProcedureSimpleSnapshot_GB1000000_20121001.txt

id	effectiveTime	active	moduleId	refsetId	referencedComponentId
0008025b-c7dd-5983-9a25-e6c6178d164d	20050731	1	999000021000000109	999001111000000105	241639000
000a08a1-e77d-5e2f-bf76-09f127ea14b9	20101001	0	999000021000000109	999001111000000105	519031000000102
000c44d0-f4f0-55ae-a646-0881536e9ef8	20121001	1	999000021000000109	999001111000000105	840221000000106
00125930-3ac0-5df6-a3fc-18a716f590c8	20090401	0	999000021000000109	999001111000000105	356271000000108
00299244-06be-5c75-87c4-86fdc4f0b700	20050731	1	999000021000000109	999001111000000105	19490002
002fa473-9700-553d-b146-4fc6f7e9aee2	20081001	1	999000021000000109	999001111000000105	432874000
003665bc-c301-5b32-beda-a4a5a97d6a8e	20100401	0	999000021000000109	999001111000000105	505871000000108
003883ce-943e-5d1c-bcb1-20c698d41e13	20081001	0	999000021000000109	999001111000000105	318951000000102
003e4092-02af-503e-ae8e-f69d21521cc4	20060401	0	999000021000000109	999001111000000105	184651000000109
00653455-b8dd-57ee-bd21-bc52c97fa624	20121001	1	999000021000000109	999001111000000105	847511000000103
006a48b3-dfee-5963-9583-5fe0bbc2a3eb	20100401	0	999000021000000109	999001111000000105	505881000000105
0071b131-a5b0-5c96-95b2-63c1230c18dc	20080401	1	999000021000000109	999001111000000105	169002006
007d25d3-ced9-50b3-aa97-aa5124208553	20081001	0	999000021000000109	999001111000000105	311021000000102
00938268-cc4c-539d-8458-692a70b9bb95	20100401	1	999000021000000109	999001111000000105	443300009
009f738f-ddbe-5e27-b61a-756183fcb928	20081001	1	999000021000000109	999001111000000105	432979009
00a394e1-e2a2-54fc-81ef-98fd800131ae	20081001	1	999000021000000109	999001111000000105	319421000000107
00af6521-95c5-56cf-be66-9c847def1331	20081001	1	999000021000000109	999001111000000105	318741000000102
00b0b1e0-80aa-528f-91fc-6f194c6906b2	20081001	1	999000021000000109	999001111000000105	183831000000103
00b255c5-5270-5ef9-83ae-7721ffa43f47	20081001	1	999000021000000109	999001111000000105	241600009
00b3a4ea-05ed-526b-91c0-1a20f34bfe	20081001	1	999000021000000109	999001111000000105	829871000000103
00b55368-a87d-5f0d-af69-03413e	20081001	1	999000021000000109	999001111000000105	433766004
00b7fe9d-a0bc-577c-ac05-b	20080401	0	999000021000000109	999001111000000105	312726000
00cb9cc4-2ad1-52b2-866a-4	20090401	0	999000021000000109	999001111000000105	355921000000106
00e77fb5-14ff-5449-935f-e3	20060401	0	999000021000000109	999001111000000105	312726000
00f51fda-33fe-534f-9ed1-4958ab72f04b	20081001	0	999000021000000109	999001111000000105	312726000
011d5e34-6790-525d-9f65-b89cd1374302	20101001	1	999000021000000109	999001111000000105	30291000000108
0120873d-232c-5971-94ac-b860b7a9fab5	20081001	0	999000021000000109	999001111000000105	327951000000107
0125320a-ecbc-548a-a634-f963d2b27290	20100401	0	999000021000000109	999001111000000105	433629004
01352f40-de3f-52a5-a722-cd7e2c394c63	20060401	0	999000021000000109	999001111000000105	184921000000108
013a28e1-1776-5e9d-9bba-0ed3e6eff1a8	20081001	0	999000021000000109	999001111000000105	311301000000109
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0182cabb-a7cb-5577-999b-d22c758383d8	20081001	0	999000021000000109	999001111000000105	338401000000104
01857669-eed3-5be6-9dee-843afeadc708	20090401	0	999000021000000109	999001111000000105	345371000000109
018ea7c0-8a69-518f-9c6d-19dcaebef1dd	20081001	1	999000021000000109	999001111000000105	431625000
0194e52f-654d-599a-93b8-ffe4cfdfaa3	20081001	0	999000021000000109	999001111000000105	322511000000102

Example Refset file

Subset members

... etc.

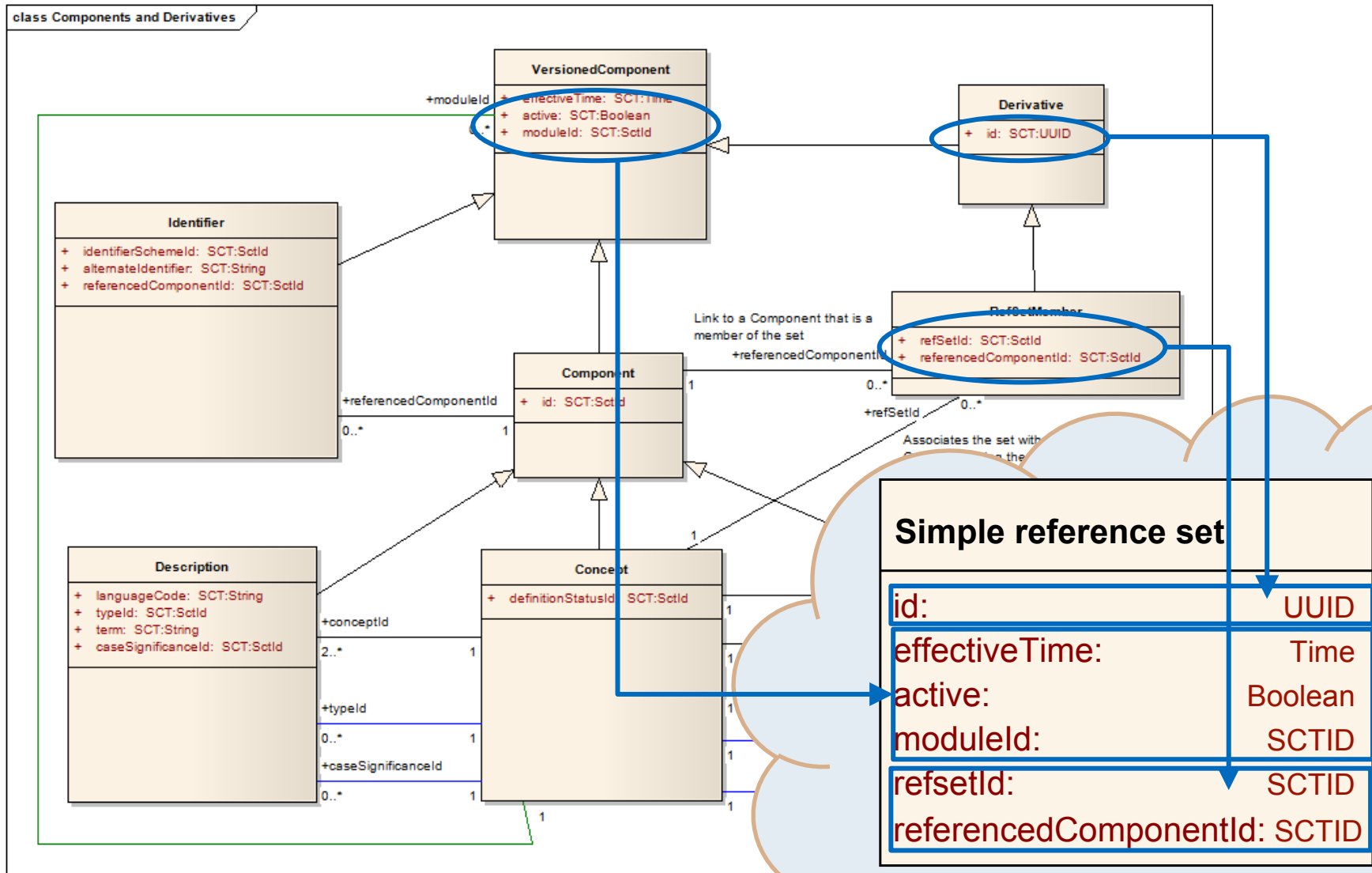
Illustration: Ordered Refset

ReferencedcomponentID	SNOMED CT term	Display order
237244005	Single pregnancy	1
65147003	Twin pregnancy	2
64254006	Triplet pregnancy	3
60810003	Quadruplet pregnancy	4
80997009	Quintuplet pregnancy	5
43990006	Sextuplet pregnancy	6

id	effectiveTime	active	moduleId	refsetId	referencedComponentId	order	linkedId
<uuid-0211>	20100731	1	<ModuleId-A>	<RefsetId-A>	<RefsetId-A>	1	237244005
<uuid-0212>	20100731	1	<ModuleId-A>	<RefsetId-A>	<RefsetId-A>	2	65147003
<uuid-0213>	20100731	1	<ModuleId-A>	<RefsetId-A>	<RefsetId-A>	3	64254006
<uuid-0214>	20100731	1	<ModuleId-A>	<RefsetId-A>	<RefsetId-A>	4	60810003
<uuid-0215>	20100731	1	<ModuleId-A>	<RefsetId-A>	<RefsetId-A>	5	80997009
<uuid-0216>	20100731	1	<ModuleId-A>	<RefsetId-A>	<RefsetId-A>	6	43990006
<uuid-0217>	20100731	1	<ModuleId-A>	<RefsetId-A>	<RefsetId-A>	7	38720006

- Triplet pregnancy
- Quadruplet pregnancy
- Quintuplet pregnancy
- Sextuplet pregnancy
- Septuplet pregnancy

Introductory notes: logical model



Introductory notes: Simple type Refset

The screenshot displays the IHTSDO SNOMED CT Browser interface. At the top, the browser title is "IHTSDO SNOMED CT Browser" and the URL is "browser.ihtsdotools.org". The interface includes navigation buttons for "Release: International Edition 20140731", "Perspective: Comparing taxonomies", "Feedback", "About", and a language selector. The main content area is divided into two panels, both showing a "Taxonomy" view. The left panel shows a tree structure under "Inferred view" with the following items:

- Reference set (foundation metadata concept)
 - Simple type reference set (foundation metadata concept)
 - General Practice / Family Practice reference set (foundation metadata concept)
 - GP/FP health issue reference set (foundation metadata concept)
 - Adverse drug reactions reference set for GP/FP health issue (foundation metadata concept)
 - Allergic reactions reference set for GP/FP health issue (foundation metadata concept)
 - Disorders and diseases reference set for GP/FP health issue (foundation metadata concept)**
 - Family history reference set for GP/FP health issue (foundation metadata concept)
 - Processes and procedures reference set for GP/FP health issue (foundation metadata concept)
 - Results reference set for GP/FP health issue (foundation metadata concept)
 - Social history reference set for GP/FP health issue (foundation metadata concept)
 - Symptoms and signs reference set for GP/FP health issue (foundation metadata concept)

The right panel shows a similar tree structure with the following items:

- SNOMED CT Concept (SNOMED RT+CTV3)
 - SNOMED CT Model Component (metadata)
 - Core metadata concept (core metadata concept)
 - Foundation metadata concept (foundation metadata concept)
 - Reference set (foundation metadata concept)
 - Reference set attribute (foundation metadata concept)
 - Linkage concept (linkage concept)
 - Namespace concept (namespace concept)

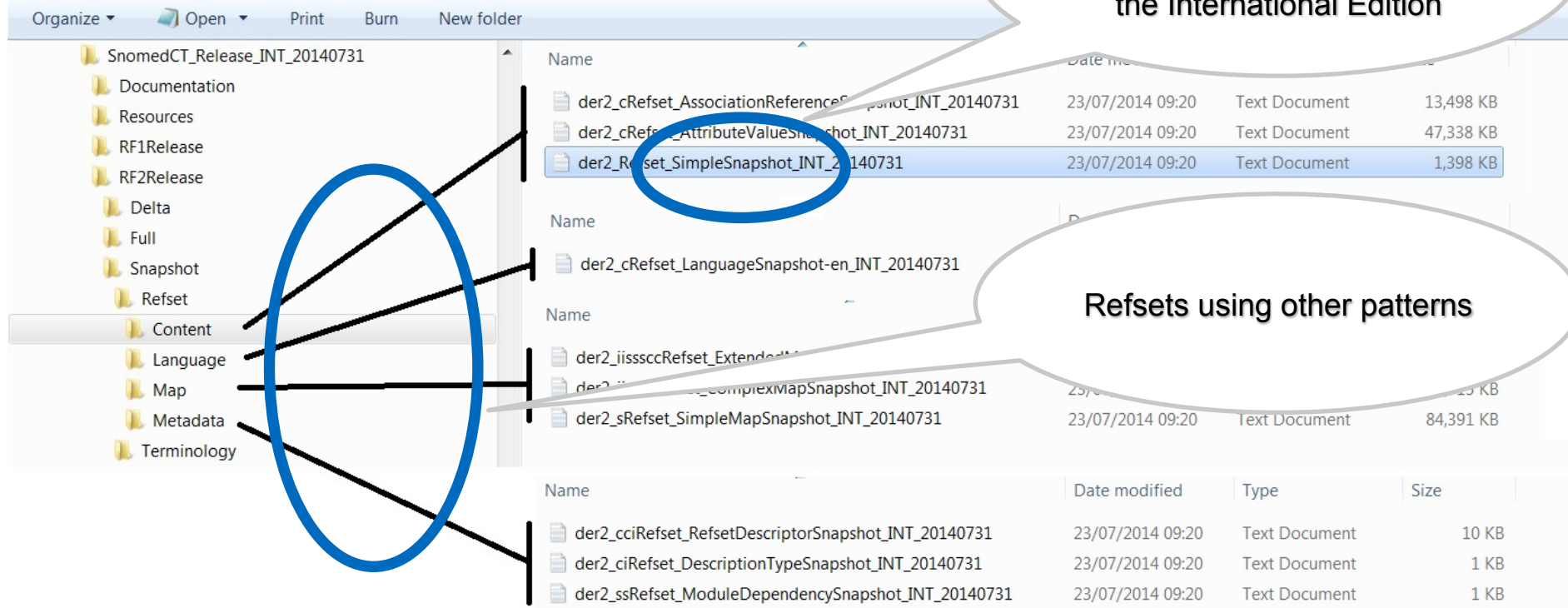
At the bottom left, the "Search" panel shows the search criteria "GP/FP, health issue" and "18 matches found in 0.236 seconds". The "Concept Details" panel shows the selected concept: "GP/FP health issue reference set (foundation metadata concept)" with SCTID: 450973005. The "Parents" section lists "General Practice / Family Practice reference set (foundation metadata concept)".

Introductory notes: Refset uses

- Reference sets are the RF2 format used:
 - To represent subsets
 - To prioritize particular items in a search list (ordering a subset)
 - To specify alternative hierarchies
 - To indicate language/dialect preference for terms
 - To attach metadata to a component
 - To attach annotations or other information to a component
 - To represent maps
- Subsets: distributed as Reference sets
 - Simple Refset pattern
 - Query Refset pattern

Introductory notes: Refset files

- One or multiple subsets within a Refset file
 - Simple Refset pattern: subset members
 - 1 ↔ 15,000 ↔ unrestricted number of members
 - Query Refset pattern: one or more subset in
- International Release Refsets



Organize ▾ Open ▾ Print Burn New folder

SnomedCT_Release_INT_20140731

- Documentation
- Resources
- RF1Release
- RF2Release
- Delta
- Full
- Snapshot
- Refset
- Content
- Language
- Map
- Metadata
- Terminology

Name	Date modified	Type	Size
der2_cRefset_AssociationReferenceSnapshot_INT_20140731	23/07/2014 09:20	Text Document	13,498 KB
der2_cRefset_AttributeValueSnapshot_INT_20140731	23/07/2014 09:20	Text Document	47,338 KB
der2_sRefset_SimpleSnapshot_INT_20140731	23/07/2014 09:20	Text Document	1,398 KB

Just one file for Refsets of the Simple Refset pattern in the International Edition

Name	Date modified	Type	Size
der2_cRefset_LanguageSnapshot-en_INT_20140731			
der2_iisssccRefset_Extended...			
der2_sRefset_SimpleMapSnapshot_INT_20140731	23/07/2014 09:20	Text Document	84,391 KB

Refsets using other patterns

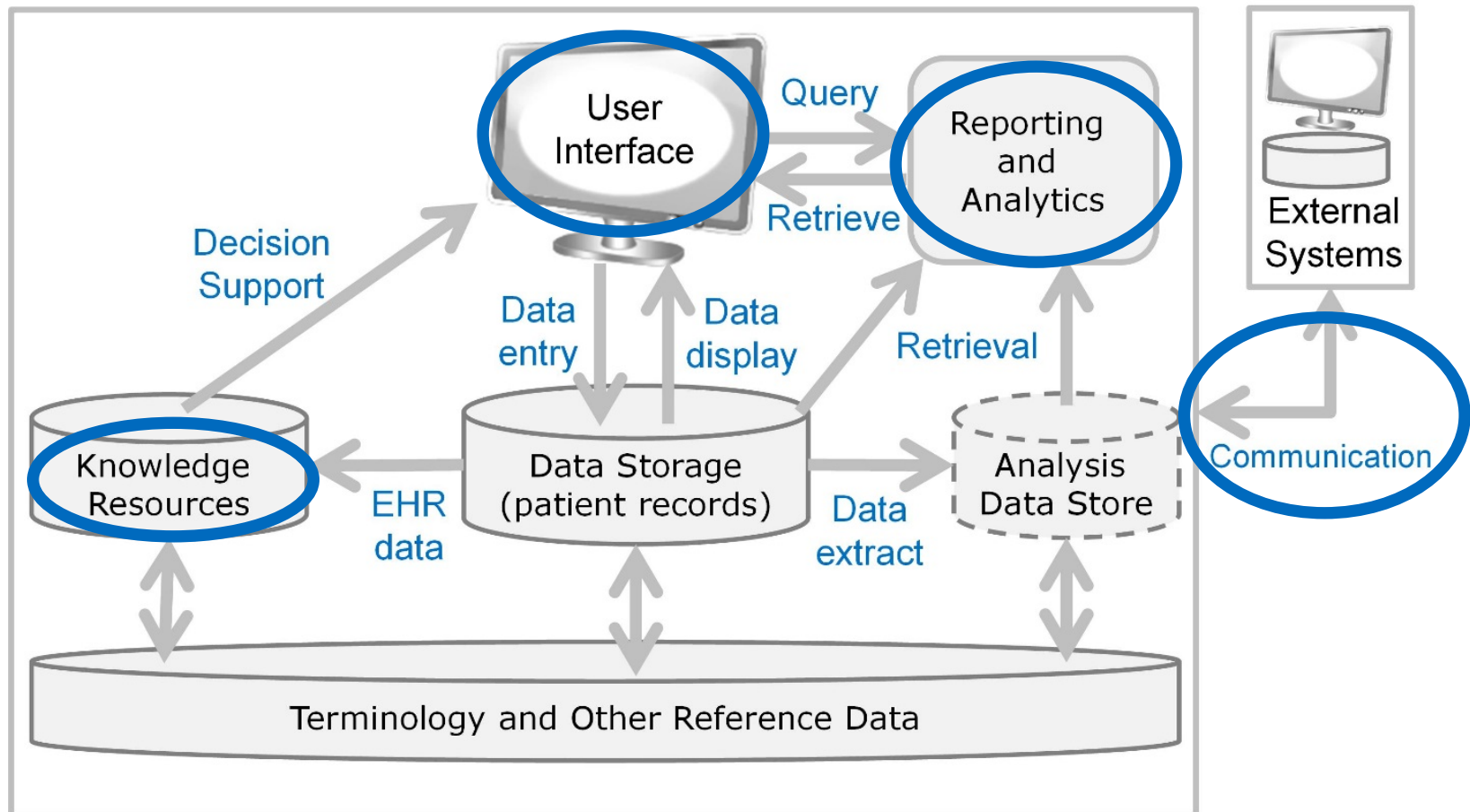
Name	Date modified	Type	Size
der2_cciRefset_RefsetDescriptorSnapshot_INT_20140731	23/07/2014 09:20	Text Document	10 KB
der2_ciRefset_DescriptionTypeSnapshot_INT_20140731	23/07/2014 09:20	Text Document	1 KB
der2_ssRefset_ModuleDependencySnapshot_INT_20140731	23/07/2014 09:20	Text Document	1 KB

Topics

- **Uses of subsets**
- Techniques used in development, maintenance
- Formats for packaging, distribution
- Sharing and reuse
- Discovery of existing subsets - purpose - fitness for reuse

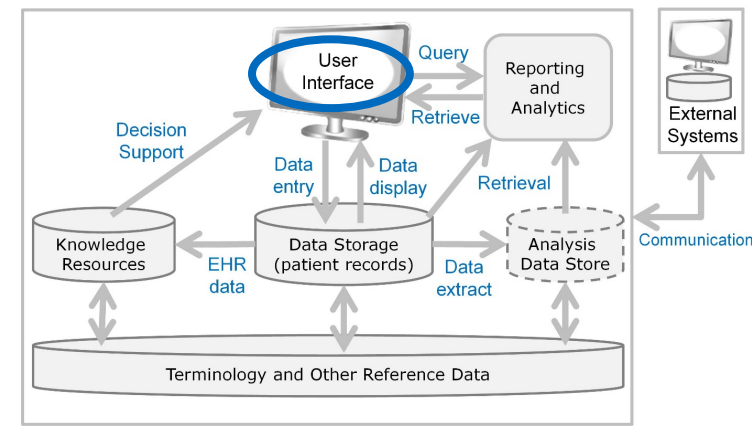
Subset uses: EHR systems

- Subsets: used to support many parts of an EHR system

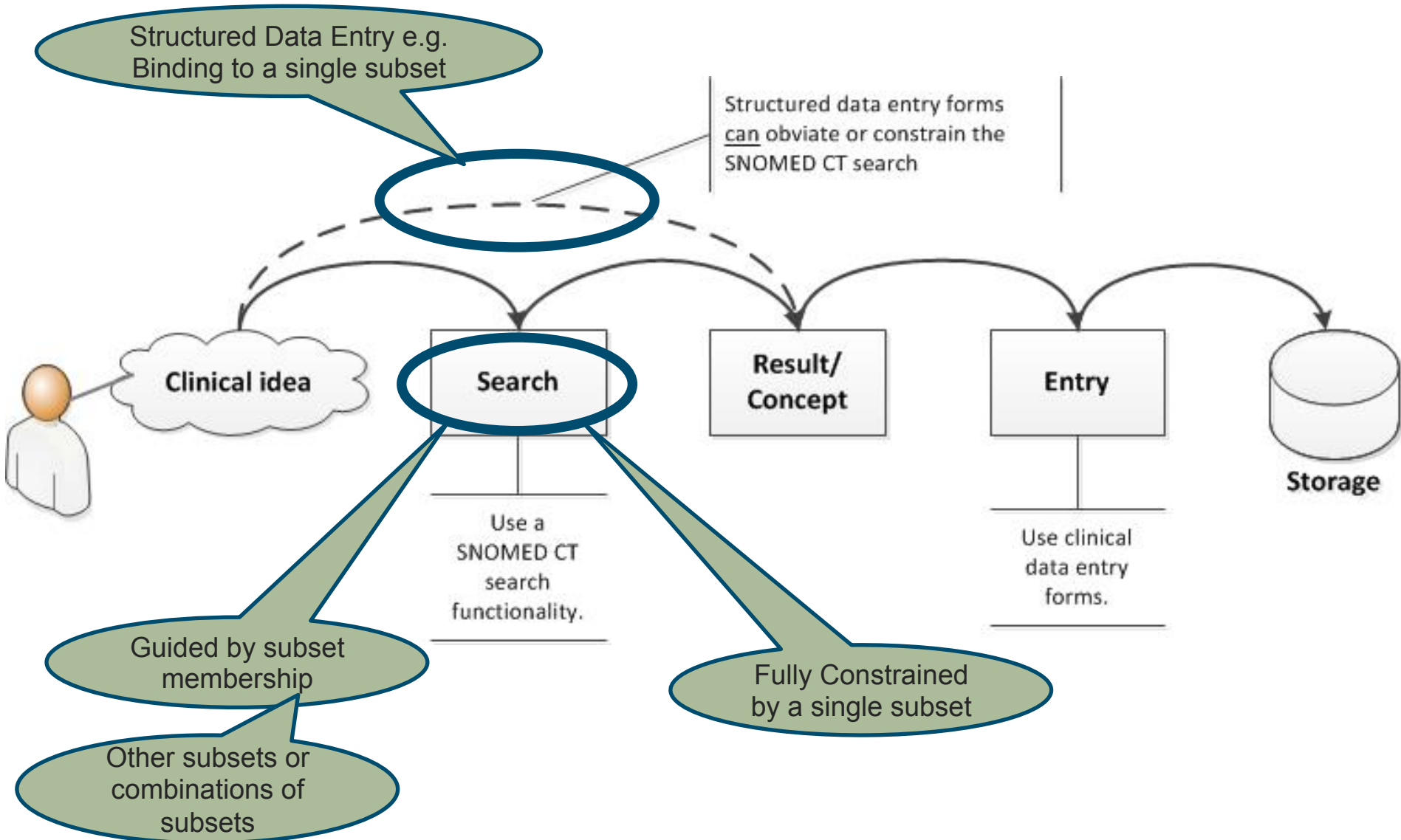


Uses of subsets at the EHR user interface

- Guiding data entry, supporting users search
 - Contextual
 - clinical specialty, workflow position, patient group etc.
 - Multiple subsets?
- Fully constraining data entry ('hard limits')
 - Contextual
- Fixed list for user selection (binding to SNOMED CT)
 - Binding of a subset to a design element e.g. an options list



Uses of subsets at the EHR user interface



Uses of subsets at the EHR user interface

- **Data entry : Post-coordinated expressions**
 - Prepared subsets can be used to constrain expression generation
 - Offering the qualifier values appropriate to the concept types
- **Data display:**
 - Prioritised display order in a search list (existing records)

Uses of subsets at the EHR user interface

- Choice between:

- pre-enumerated

- Extensionally defined
 - Intensionally defined, computed and stored

or

- real-time computed

- Intensionally defined & real time computed

- Considerations

- System performance
 - Target size of subset
 - Governance related preferences

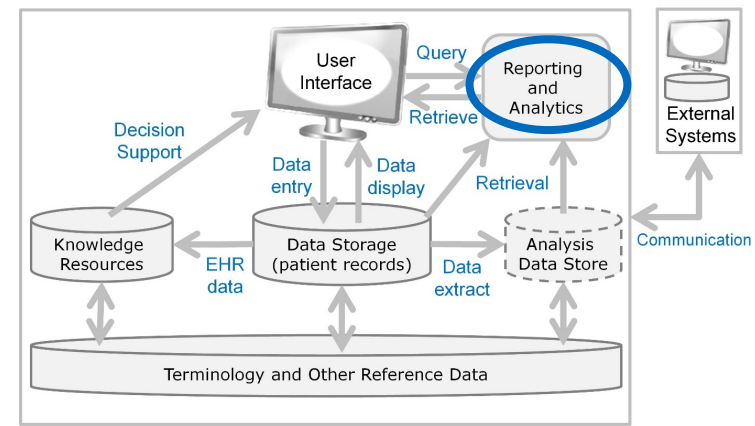
e.g. 'our agreed subset'

- Ease of maintenance by re-computation of members
 - Needs/demands of downstream consumers

e.g. 'their agreed subset'

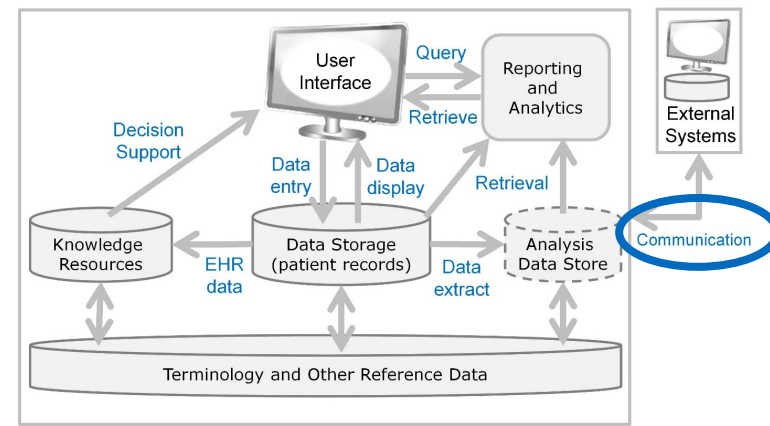
Uses of subsets in analytics & reporting

- Members of a subset - used to enumerate a category
 - Category test
 - To test items of data: if they are match a component present in the subset – to find if it is a member of the category
 - Aggregation – groupings to support alternative analyses
 - Analysis relying on non-exclusive categories
 - (some concepts in more than one category)
 - Analysis relying on exclusive categories
 - Subset expressed:
 - » Intensional
 - » extensional



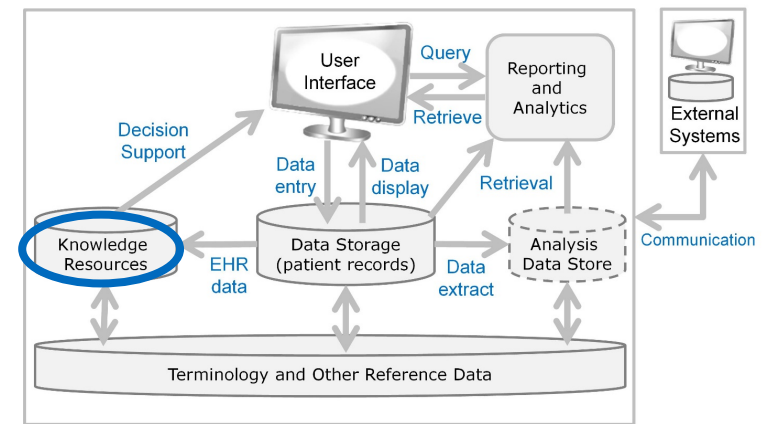
Uses of subsets with communications

- Definition of a constraint:
 - What content is permitted as the payload of a message element
- Use in validation of message the payload
 - Tests payload against the stated constraint
- Human inspection of the subset constraint
 - To understand its intended use



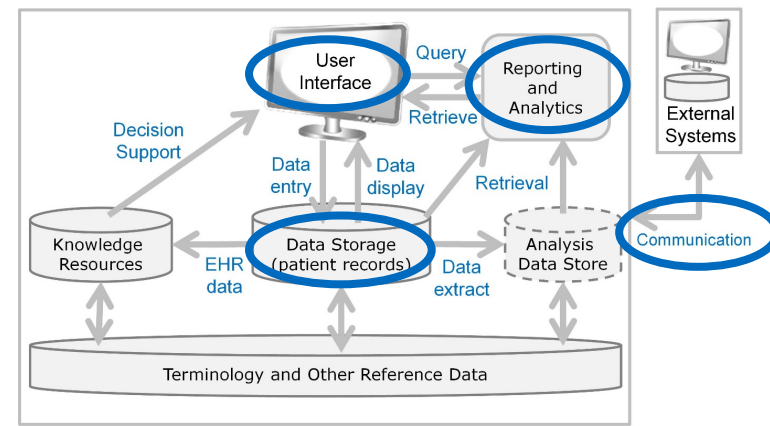
Uses in Knowledge Representation

- Use of SNOMED CT to tag resources that represent clinical knowledge
- Categories represented using subsets: ‘subsets as items of knowledge’
 - Related to specific decision support rules i.e. association of a rule to a subset



Uses: GP/FP subsets and map to ICPC-2

- Uses for a collection of reference sets for the collection of Refsets
 - Data entry
 - Electronic transfer of care – referrals
 - Research
 - Patient recall
 - Management of legacy data
 - Translations

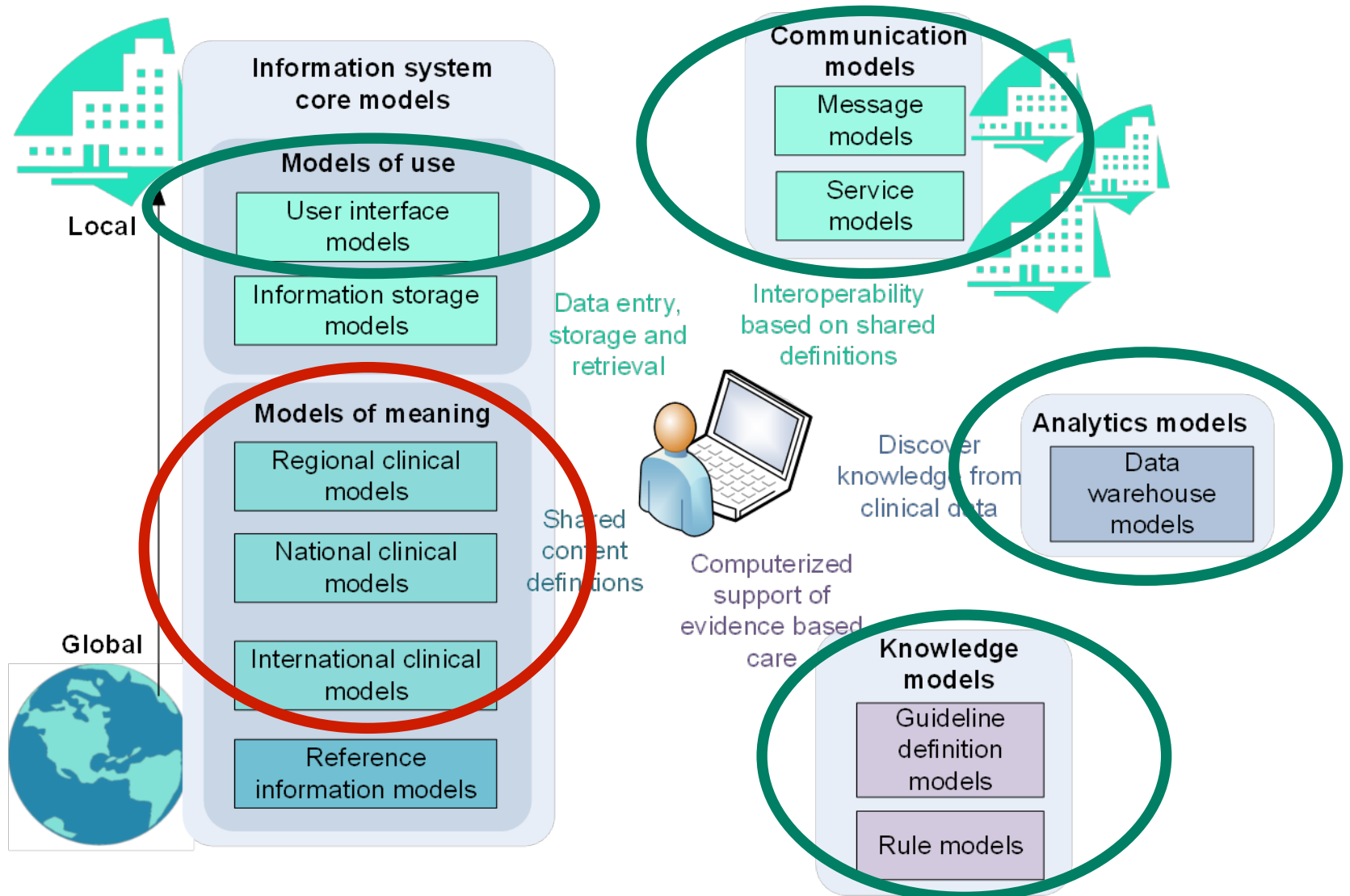


Refsets used with Information Models

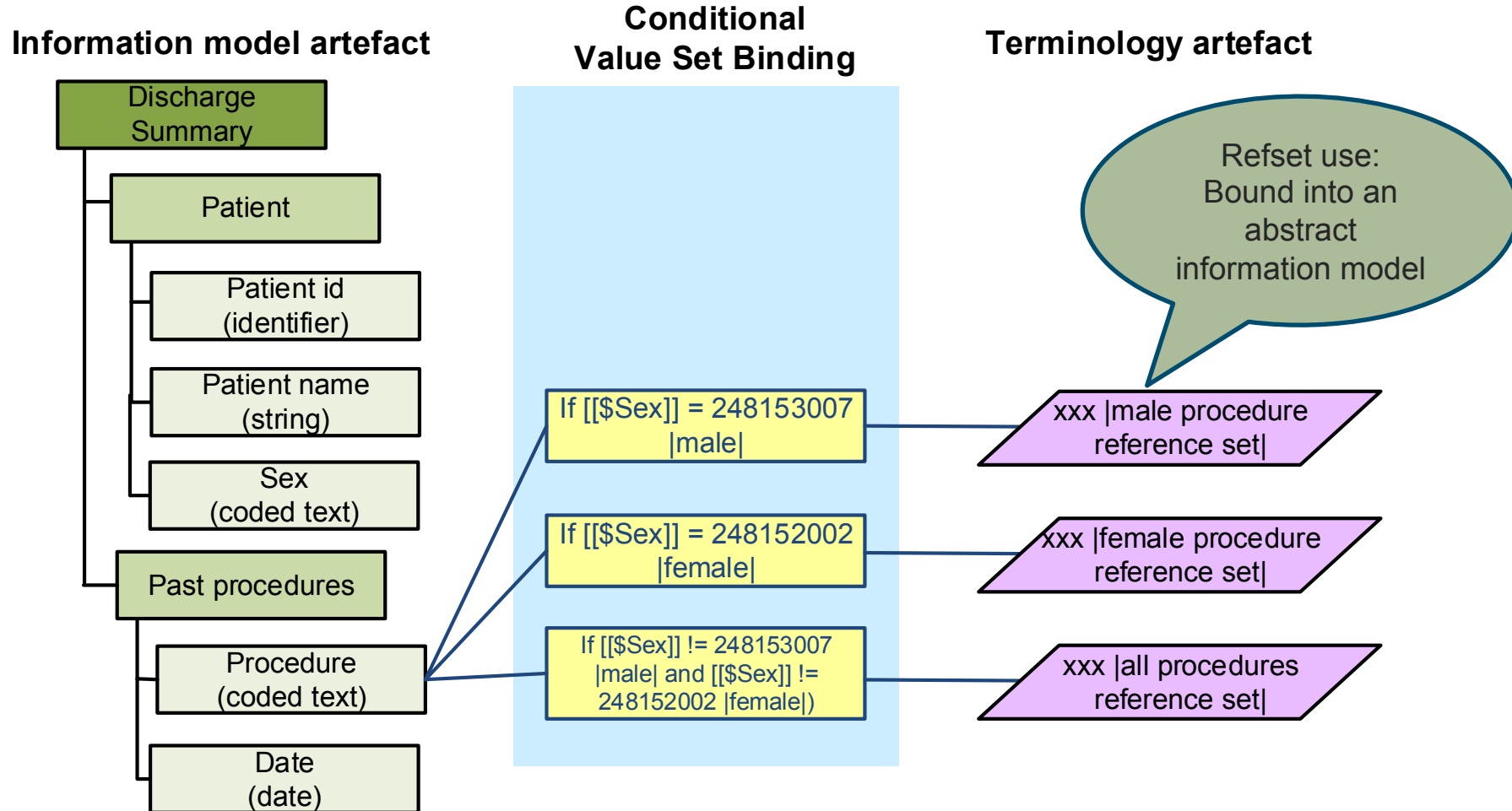
- Supporting Knowledge Representation
 - Constraining what it makes sense to record or exchange
 - Binding subsets to information models
- Technical range
 - File based information models ↔ world class informatics

Types of Information Models

Refsets used with Information Models



Value Set Binding - Conditional Refsets used in Information Models



Patient's sex determines which Procedure reference set to use

Topics

- Uses of subsets
- **Techniques used in development, maintenance**
- Formats for packaging, distribution
- Sharing and reuse
- Discovery of existing subsets - purpose - fitness for reuse

Techniques: a process viewpoint

- Rules of Thumb
 - Ensure you have a clear purpose identified before you progress to subset selection or subset development.
 - Don't be surprised if your purpose becomes even clearer as you proceed, along with the refinements you make:
 - Design is iterative, not all requirements are explicit at the outset
 - Documented statement of purpose:
 - Extent and style should be in proportion to needs
 - Ideally the statement of purpose would inform any competent reader
 - Good practice would include expression for any reader, worldwide
 - Be clear what your maintenance programme and governance needs are, how they will be satisfied

EHR implementation as a team effort

- **Clinical input needed to design system**
 - Safe & fit for purpose for all specialties and environments
 - Compatible with clinical practice and local processes
- **Technical input to design architecture and functionality**
 - The system must be usable, reliable and efficient
 - Able to support data entry, storage, retrieval and communication
 - Compliant with relevant technical standards

Individuals and the subset lifecycle

- **Subset Development**
 - Solo developer Multidisciplinary team
- **Evaluation & approval - by inspection**
 - What levels of evaluation are possible?
 - What are the expectations from gaining approval?
- **Evaluation through use**
 - Demonstration of utility of value via trial use
- **Technical quality assurance, packaging and distribution**

Enumeration or Intensional definition

- Options
 - Enumerated subset (also referred to as 'Extensional')
 - An unordered list of subset members
 - Intensional definition
 - The rules which can be used to generate a subset

Intensional definition

- Intensional definitions : Query specification Refset
 - Serialized according to the (pending publication) specification (Expression Constraint Language*)
- Serialization held in a field in a Query Specification type Refset
 - Refsets of this type should have their metadata concept as a descendants of:
900000000000512005 | Query specification reference set |

Intensional definition

- Expression Constraint Language*
 - Proposed operators include:

<	Descendant
<<	Descendant or self
>	Ancestor
>>	Ancestor or self
^	Member of ref set

!	Exclusion
And	Intersection
Or	Union

- Query Language*
 - Same operators plus addition of filters – for example:
 - version, moduleId, effectiveTime, active, languageRefSet
 - Term, preferredTerm, acceptableTerm, fullySpecifiedName

* Draft languages available for comment shortly

Expression Constraint and Query Languages

- Expression constraints, queries
 - Dedicated builder tools / text editor

- Examples:

```
^ 700043003 | problem list reference set | AND  
  < 66091009 |Congenital disease|
```

```
<19829001 |disorder of lung| AND  
  ! ^ 152725851000154106 |cardiology reference set|
```

Using query language:

```
<< 64572001 |disease| {{ term = “.* heart .*” }}
```

Enumeration / Extensionally defined

- Some are small and very highly stable
703870008 | Laterality indicator reference set |
- No reason they cannot be large
450985002 | Disorders and diseases reference set for GP/FP health issue |
- NHS dm+d VMP (UK drug extension)
17161 active members
- VMP (International core)
10014 active members

Enumerated subset - example

- UK Discharge simple Refset ([Link](#))
- By inspection references are about
 - Discharge
 - Case closure Vs Discharge
 - Delayed discharge ...
 - Discharge(ed) by ...
 - Discharge from ...
 - Discharge to ...
- Includes references to 384 concepts from the procedures hierarchy (only)
- Includes UK Extension content:
 - 846401000000101 | Discharge by Macmillan nurse |

Practical equivalence

- Enumeration & Intensional definitions
 - Different benefits and drawbacks
 - Stability (enumerations don't change)
 - Reflection of quality improvements to content (intensional definitions bring the changes into the subset)
 - 'Governance' and evaluation of changes (or their absence)
 - Ease of governance, meaning of governance, success of governance

Practical equivalence

- Transformations between Enumeration & Intensional definitions
 - Intensional > Enumeration
 - Add the 'substrate' into the definition to precisely control the resultant subset
 - Generate enumeration
 - fully reproducible
 - Enumeration > Intensional
 - 'Induced intensional definitions' or 'Find rules from members'
 - multiple are possible, equivalent (now), may diverge later

Extensional or intensional?

- Reflections on methods (1 of 2)
 - *How many* is too many rules in an intensional definition?
 - What type of rule is most likely, over time, to continue to give reliable results?
 - When is an extensional subset the right answer?
 - Subsets built from subsets: How many subsets can you ‘stack up’ before you worry something unexpected is too likely to happen?
 - Can you not just *‘re-baseline’*?
 - Take the membership as it is today: induce from that an intensional definition
 - adopt that new definition and discard its heritage.

Extensional or intensional?

- Reflections on methods (2 of 2)
- Use both Intensional and Extensional or just one?
- Round trips
 - Intensional → Extensional → Intensional
 - Extensional → Intensional → Extensional
- Dependencies
 - Tools
 - Owners of other subsets
 - Intellectual property rights (e.g. if adapting or 're-baselining')

Different
- not worse

Identical

Subset building

- **Crafting subsets**
 - Adopt (*always SNOMED CT*)
 - Adapt from existing (*Seed can be SNOMED CT or not*)
 - Full replication (*not SNOMED CT*)
 - 'Blank sheet'
- **Criteria for content inclusion or exclusion may:**
 - Be stated prior
 - Become evident during development
 - Remain implicit, or be recorded explicitly
- **Particular goals**
 - Full Replication: requires zero unmapped content

Subset building techniques

- Using a mix of techniques:
 - New node: descendants selection
 - Inspect the list of descendants
 - Existing node e.g. via map
 - Inspect for additional descendants to add
 - Single Item picking
 - Lexical matching
 - e.g. as a bulk preliminary match
 - Use of existing maps between terminologies
 - Semantic search
- Design patterns – common considerations
 - Check for members with specific contexts
 - History of
 - Family history of
 - Specificity levels
 - Excessively specific content, excessively general





Inclusions
+
Exclusions

Subsets - newly built

- More than just a subtree from SNOMED CT's logical hierarchy
- Few subsets are constructed as a single subtree
 - e.g. to constrain a message element to contain only subtypes of 373873005 | Pharmaceutical / biologic product |
- Subsets represent things other than a logical hierarchy
 - Frequently found arrangements e.g. 'common chronic conditions in adults'
 - Team favorites
 - External knowledge e.g. 'the most prevalent {x}'
 - Self, descendants, selected siblings

Subsets - newly built

- More than just a subtree from SNOMED CT's logical

 Poisoning by venomous snake (disorder) 

SCTID: 61288004

- Poisoning by venomous snake (disorder)
- Poisoning by venomous snake
- Snake bite poisoning
- Snake venom causing toxic effect
- Snake venom poisoning
- Toxic effect of bite of venomous snake

Causative agent → Snake venom










Subtree

only subtypes of


logical hierarchy



chronic conditions

Children (5)

-  Poisoning due to bite of unidentified snake (disorder)
- ▼  Poisoning due to cobra family snake venom (disorder)
 -  Poisoning due to cobra v
 -  Poisoning due to coral s
 -  Poisoning due to krait ve
 -  Poisoning due to mamba
 -  Poisoning due to sea snake
 -  Poisoning due to venom of
 -  Poisoning due to viper veno

Parents

-  Poisoning due to reptile venom (disorder)

 Spitting cobra venom on conjunctiva (disorder) 

SCTID: 242589004

- Spitting cobra venom on conjunctiva (disorder)
- Ringhals venom on conjunctiva
- Spitting cobra venom on conjunctiva

Causative agent → Reptile venom

Subsets - adapted from a seed

- Adapted from subsets which already exist
- Adaptation can be:
 - Re-apply existing SNOMED CT Query, but to a different Edition
 - Rework as needed
 - Rework, starting from the existing enumeration or intensional definition
 - Rework as needed
 - Convert between intensional definition and enumeration?

Full Replication of an existing subset

- **Full Replication: ‘Source Data Mapping’**
 - Subset as category
 - Categories from other schemes can be replicated
 - Sequences and structures can be replicated
- **Purpose/Benefit**
 - Utility in existing analytics – business continuity
 - Familiar and demonstrably useful categories retained
- **Extent of exact match**
 - Term strings may differ, should be acceptable
 - Content addition to SNOMED CT extension
- **Enhancements**
 - Supplementary power of SNOMED CT analytics
 - Supports new ways for review & improvement

Cross-hierarchy content in subsets

- *Where needed* there is no restriction on membership from different top level hierarchies

Chest pain (finding)

Chest pain at rest (finding)

Chest pain due to pericarditis (finding)

Chest pain not present (**situation**)

Chest pain on breathing (finding)

Chest pain on exertion (finding)

Chest wall pain (finding)


Chest wall tenderness (finding)

i.e. Situation + Finding

Parents

- ▶ Simple type reference set (foundation metadata concept)

Pain finding simple reference set (foundation metadata concept) ☆

SCTID: 999001581000000106 

Pain finding simple reference set (foundation metadata concept)

Pain finding simple reference set

Maintenance

- Considerations for subset maintenance
 - Continued conformance to key design parameters e.g.
 - Nothing included from 'wrong' hierarchies
 - Size remains within tolerance
 - Content present in the subset, but has been *recently* inactivated
 - Identification of replacement content
 - Content which is *newly* included or excluded after re-executing an intensional definition
 - Refinement / update of the intensional definition
 - Review any dependencies
 - Synchronous or asynchronous maintenance to a SNOMED CT Edition

Topics

- Uses of subsets
- Techniques used in development, maintenance
- **Formats for packaging, distribution**
- Sharing and reuse
- Discovery of existing subsets - purpose - fitness for reuse

Simple Refset



Simple reference set

id:	UUID
effectiveTime:	Time
active:	Boolean
moduleId:	SCTID
refsetId:	SCTID

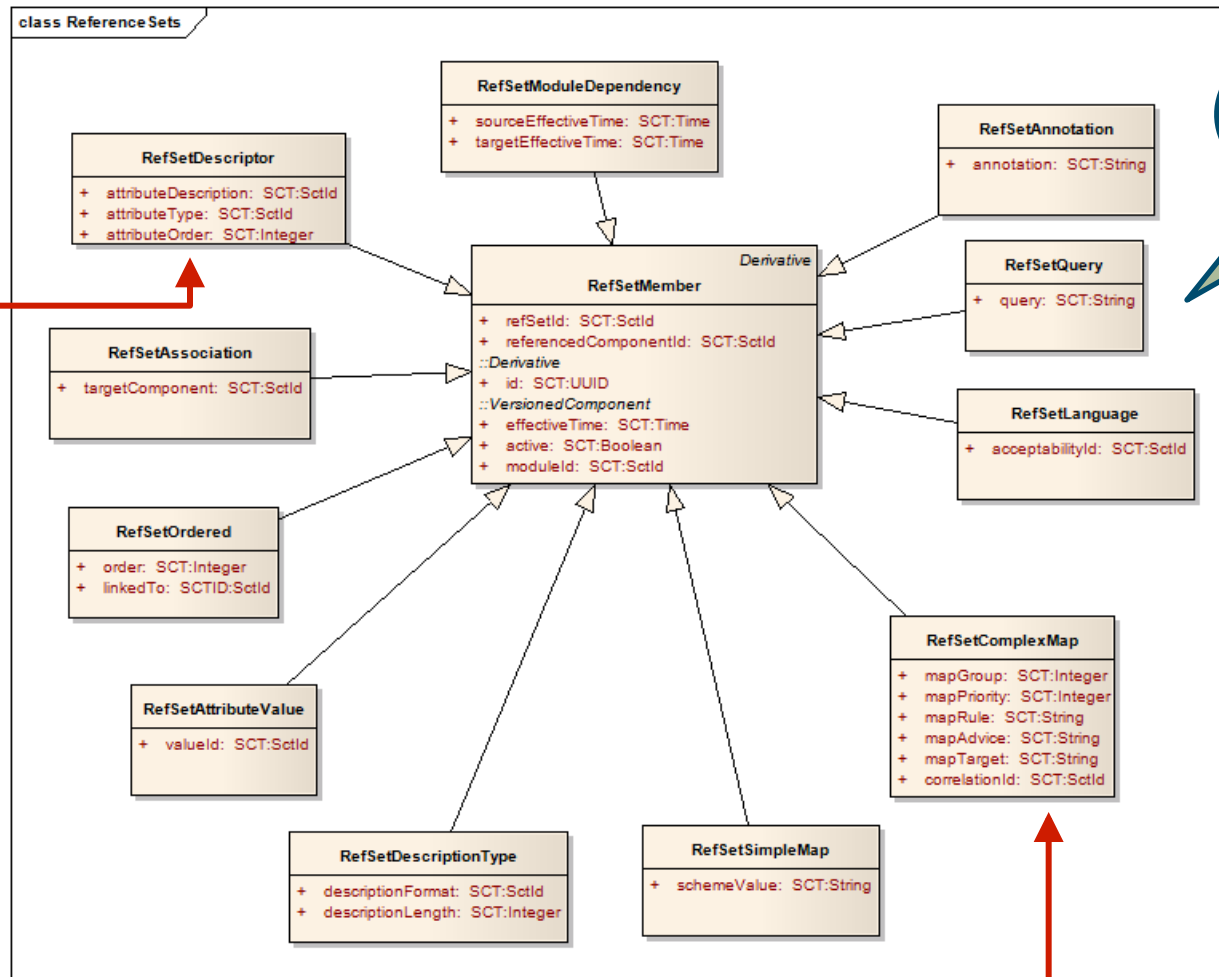
e.g. Nation X
Drug extension
Module

Concept
Description
Relationship

Taxonomy

- ▲ Core metadata concept (core metadata concept)
- ▼ Module (core metadata concept)
 - ▼ International Health Terminology Standards Development Organisation maintained module (core metadata concept)
 - SNOMED CT core module (core metadata concept)
 - SNOMED CT model component module (core metadata concept)
 - SNOMED CT Spanish edition module (core metadata concept)
 - SNOMED CT to ICD-10 rule-based mapping module (core metadata concept)
 - SNOMED CT to ICD-9CM equivalency mapping module (core metadata concept)
 - ▼  US National Library of Medicine maintained module (core metadata concept)
 -  SNOMED CT to ICD-10-CM rule-based mapping module (core metadata concept)

Refset types



'Extensibility'
More types
More files

der2_iissscRefset_ComplexMapSnapshot_INT_20140731

der2_cciRefset_RefsetDescriptorSnapshot_INT_20140731

Naming of Refsets & files

- Refset name

- IHTSDO naming convention

- e.g. Query specification type reference set (pattern) as
'<My particular> query specification reference set'

- File name

- Basic pattern for SNOMED CT release file names

- <FileType>_<ContentType>_<ContentSubType>_<Country|Namespace>_<VersionDate>.<Extension>

- Type and number of additional fields for a pattern

- 'c' - Component

- 's' - String

- 'i' - Integer



der2_isscRefset_ComplexMapSnapshot_INT_20140731

Other distribution formats

- Released as SNOMED CT : conforms to the standard
- Distributed any other way
 - Data files which omit part or all the SNOMED CT metadata
 - Versioning – by other method
 - Unique identifier of any particular reference – by other method
 - Multilingual terms string – by other method

Extracting subsets from a Refset file

- If you know the RefsetID
 - From a Refset file
 - Simple type Refset file
 - Snapshot release type
 - The value in the referencedComponentId column identifies the member where:
 - **RefsetId** matches the RefsetID of your target Refset
and
 - the active column has the value '1'
 - Result is an unordered list of members of the Refset

```
SELECT referencedComponentId FROM Refset_Snapshot  
WHERE refsetId=[id of required Refset] AND active=1
```

Reviewing content

- Text viewer + file + IHTSDO Terminology Browser
 - + Spreadsheet / Database tool
(following slide)
- Dedicated Refset viewer, subset viewer
 - +/- Spreadsheet / Database tool
- Terminology Services + dedicated user interface

Contents of a Refset file

Der2_Refset_SimpleSnapshot_INT_20140731

- Contains 3 Refsets
- Contains inactive content in each, not only active
 - Inactive in the Refset differs from inactive component

Count of rows (Snapshot release file)	Active = 0	Active = 1
447564002 Non-human simple reference set	1,917	0
447565001 Virtual therapeutic moiety simple reference set	332	3,234
447566000 Virtual medicinal product simple reference set	789	10,014

No active members of this Refset

(Non-human content has been removed from the International Edition)

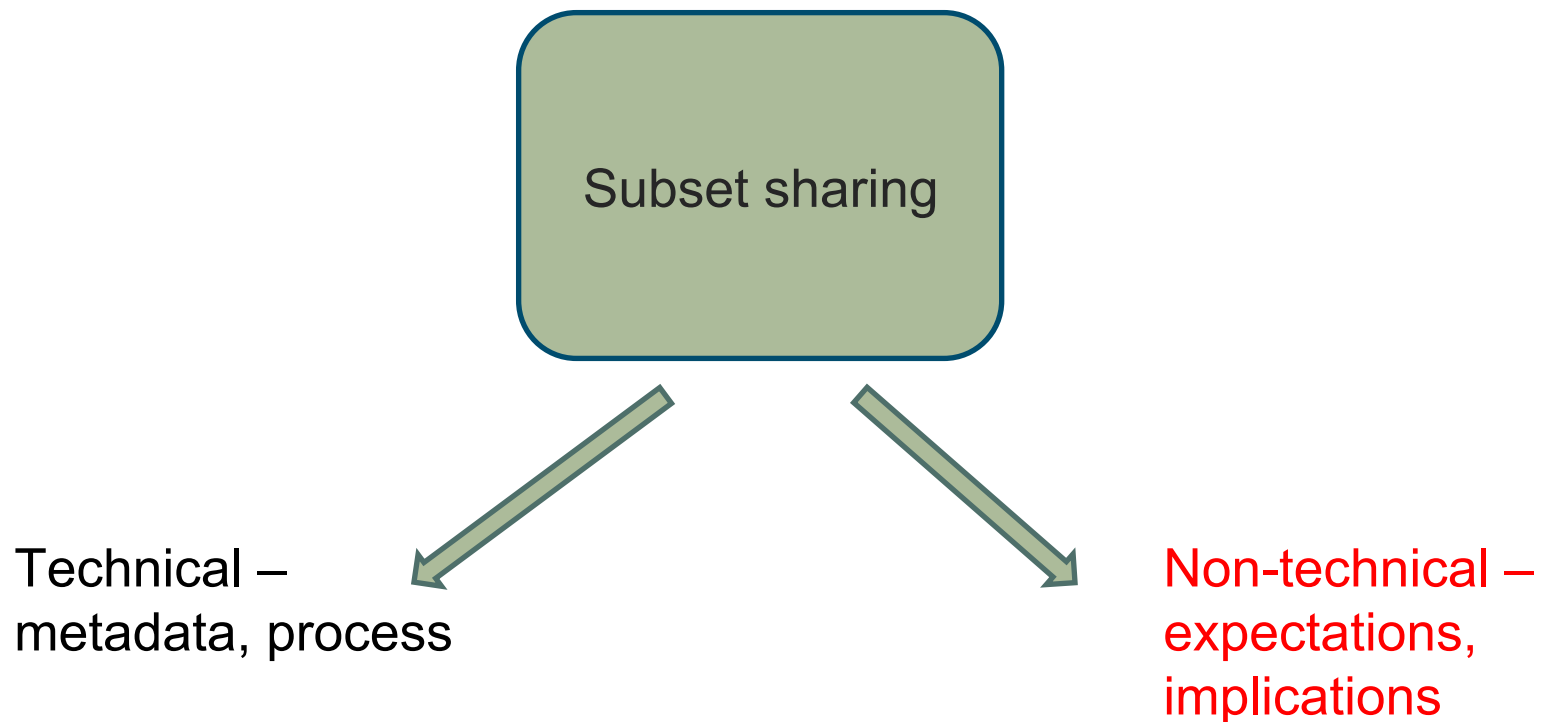
Terminology services & Refsets

- Terminology services which are used in conjunction with simple Refsets
 - ***Refset membership test***
 - This service returns true if a row in the specified Refset contains a referenced component identifier that matches the identifier being tested (e.g. is the concept in a specified subset)
 - ***Get membership of Refset***
 - This service returns the current members of a Refset e.g. for a simple Refset pattern used for a subset of Descriptions, all descriptions Identifiers will be returned

Topics

- Uses of subsets
- Techniques used in development, maintenance
- Formats for packaging, distribution
- **Sharing and reuse**
- Discovery of existing subsets - purpose - fitness for reuse

Two Perspectives of Subset Sharing



What is Shared

- Description of subset intent
- Rationale
 - Reason to create the subset
 - Approach – assumptions in development
- Method
- Content

Example of Description - Clinical Quality Measure



United States Health Information Knowledgebase

Search Meaningful Use

- USHIK Home
- Standards
- HITSP
- Common Formats
- Meaningful Use
- All-Payer Claims
- Draft Measures
- Child EHR Format
- Feedback / Help

Controlling High Blood Pressure

CMS165v3

Versions: [CMS165v1, December 2012 EP](#) • [CMS165v2, June 2013 EP](#) • [CMS165v3, July 2014 EP](#) Compare Versions

- At A Glance
- Downloads/Resources
- Population Criteria
- Data Criteria
- Supplemental Data Elements
- Reporting Stratification
- Metadata
- References

Percentage of patients 18-85 years of age who had a diagnosis of hypertension and whose blood pressure was adequately controlled (<140/90mmHg) during the measurement period.

ID	165	Measure Population:	Not Applicable
NQF	0018	Measure Observations:	Not Applicable
Version	3	Measurement Period	January 1, 20xx through December 31, 20xx
Release Package	July 2014 EP	Transmission Format	None
GUID	abdc37cc-bac6-4156-9b91-d1be2c8b7268	Scoring	Proportion
Eligibility	Eligible Professionals	Type	Process
Domain	Clinical Processes/Effectiveness	Measure Set	None
Improvement Notation	Higher score indicates better quality	Measure Steward	National Committee for Quality Assurance

Initial Patient Population: Patients 18-85 years of age who had a diagnosis of essential hypertension within the first six months of the measurement period or any time prior to the measurement period

Numerator: Patients whose blood pressure at the most recent visit is adequately controlled (systolic blood pressure < 140 mmHg and diastolic blood pressure < 90 mmHg) during the measurement period.
Exclusions: Not Applicable

Denominator: Equals Initial Patient Population
Exceptions: None Exclusions: Patients with evidence of end stage renal disease (ESRD), dialysis or renal transplant before or during the measurement period. Also exclude patients with a diagnosis of pregnancy during the measurement period.

Example: Rationale

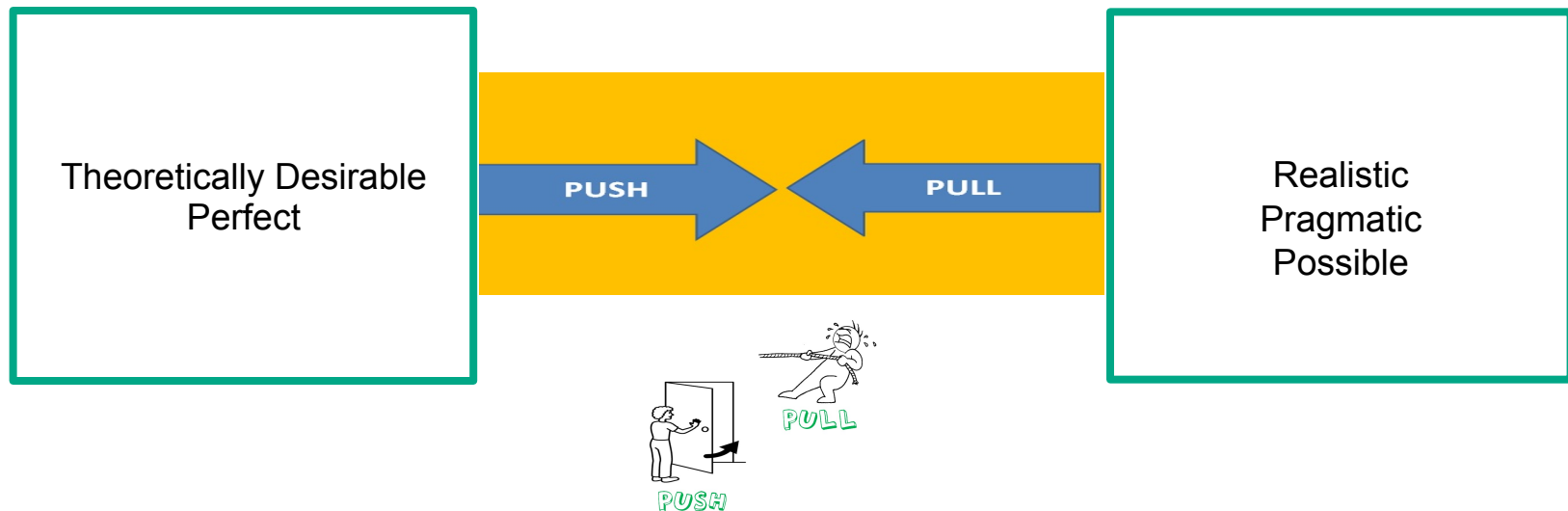
- Clinical Quality Measure

Rationale:	<p>Hypertension is a very significant health issue in the United States. Fifty million or more Americans have high blood pressure that warrants treatment, according to the National Health and Nutrition Examination Survey (NHANES) survey (Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure 2003). The United States Preventive Services Task Force (USPSTF) recommends that clinicians screen adults aged 18 and older for high blood pressure (United States Preventive Services Task Force 2007).</p> <p>The most frequent and serious complications of uncontrolled hypertension include coronary heart disease, congestive heart failure, stroke, ruptured aortic aneurysm, renal disease, and retinopathy. The increased risks of hypertension are present in individuals ranging from 40 to 89 years of age. For every 20 mmHg systolic or 10 mmHg diastolic increase in blood pressure, there is a doubling of mortality from both ischemic heart disease and stroke (Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure 2003).</p> <p>Better control of blood pressure has been shown to significantly reduce the probability that these undesirable and costly outcomes will occur. The relationship between the measure (control of hypertension) and the long-term clinical outcomes listed is well established. In clinical trials, antihypertensive therapy has been associated with reductions in stroke incidence (35-40 percent), myocardial infarction incidence (20-25 percent) and heart failure incidence (>50 percent) (Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure 2003).</p>
Clinical Recommendation Statement:	<p>The United States Preventive Services Task Force (2007) recommends screening for high blood pressure in adults age 18 years and older. This is a grade A recommendation.</p> <p>Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (2003): Treating systolic blood pressure and diastolic blood pressure to targets that are <140/90 mmHg is associated with a decrease in cardiovascular disease complications.</p>
Definition:	None
Guidance:	<p>In reference to the numerator element, only blood pressure readings performed by a clinician in the provider office are acceptable for numerator compliance with this measure. Blood pressure readings from the patient's home (including readings directly from monitoring devices) are not acceptable.</p> <p>If no blood pressure is recorded during the measurement period, the patient's blood pressure is assumed "not controlled."</p>
Supplemental Data Elements:	For every patient evaluated by this measure also identify payer, race, ethnicity and sex.

Perspectives to be considered

Balance of theory and reality

principle vs. practical, what should be vs. what is

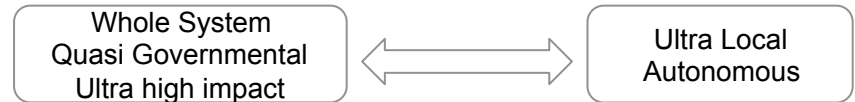


Influences (1): attitudes to sharing

- **Aspirations** (what is desired)
 - An easy mechanism to support access to and assessment of existing subsets
- **Expectations** (what is possible)
 - Everything you need is available and easily implementable.
 - There is no benefit. It is just easier to create our own subsets.
- **Previous experience** (personal experience)
 - as Provider or Consumer. Were past experiences good? Fruitful?
- **Hearsay/Myths** (others' experience and perceptions)
 - Required governance. Burden on resources. Relief of responsibility – free work.

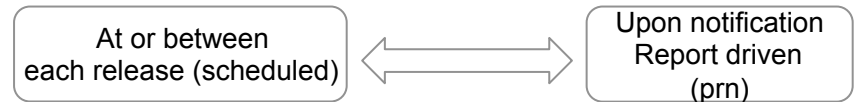
Influences (2): outcomes from attitudes

- Extent and style of Governance



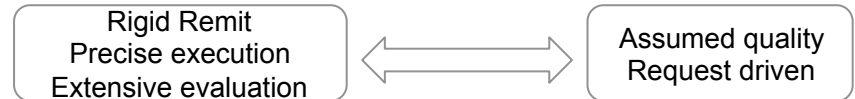
- Frequency and approach to subset maintenance

- (inactivations, moved, remodelled content)



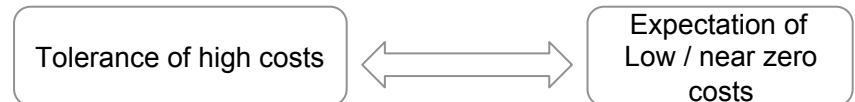
- Quality / fitness

- Drift over time, atrophy
- Tolerance of inappropriate inclusions



- Costs of ownership

- Investment forecast



Considerations regarding subset sharing

Consideration	Participant Perspective	Context or Axis
Ability to find subset candidates that meet the use-case requirements.	Consumer	Quality & Fitness
Quality of shared subsets.	Consumer	Quality & Fitness
Assess if it is easier to create a new subset rather than modify and existing subset.	Consumer	Quality & Fitness
Perceived need to defend a submitted subset or the associated metadata.	Provider	Quality & Fitness
Relationship between Provider and Consumer. Is a relationship required?	Consumer/Provider	Quality & Fitness

Considerations regarding subset sharing

Consideration	Participant Perspective	Context or Axis
Design drift of a subset. Has the intent of the subset changed over time?	Consumer/Provider	Maintenance
Schedule for subset and/or metadata maintenance.	Provider	Maintenance & Governance
Synchronization of subset content and metadata.	Consumer	Maintenance
Synchronization of subset maintenance and SNOMED CT updates.	Consumer/Provider	Maintenance
External influences or control on the creation of subsets.	Provider	Governance
Legal implications.	Consumer/Provider	Governance
Impact upon business prospects and intellectual property.	Provider	Governance
Commitment to report to an authority.	Consumer/Provider	Governance
Resources required to participate in the Subset Sharing	Consumer/Provider	Cost

Benefits of Subset Sharing

Resource allocation - achieve a realistic balance of quality-time-cost

Quality improvement through collaboration

Potential for enhanced interoperability

BENEFITS of Subset Sharing

consistent content to support statutory requirements or guidelines

Membership in a subset “support” community

recognition of enterprise effort

Topics

- Uses of subsets
- Techniques used in development, maintenance
- Formats for packaging, distribution
- Sharing and reuse
- **Discovery of existing subsets - purpose - fitness for reuse**

Discovery

- Current options:
 - IHTSDO browser – national Editions
 - National Release Centres
 - release data, websites, dedicated locations
 - Personal networks, Community of Practice
 - Search engines
 - Vendors: Terminology products and services

Discovery of existing subsets (Au)

- Example: Out

nehta Pathology Result Report Detail

5.39 Out Of Range Indicator

Identification

Name	Out Of Range Indicator
------	------------------------

← → ↻ 🏠 browser.ihtsdotools.org ☆

IHTSDO SNOMED CT Browser Release: Australian Edition 20140531 ▾ Perspective: Full ▾ Feedback About ▾ 🇺🇸 ▾

© IHTSDO 2014

Taxonomy Search Favorites Refset

Taxonomy ⌂ ↻ ⚙

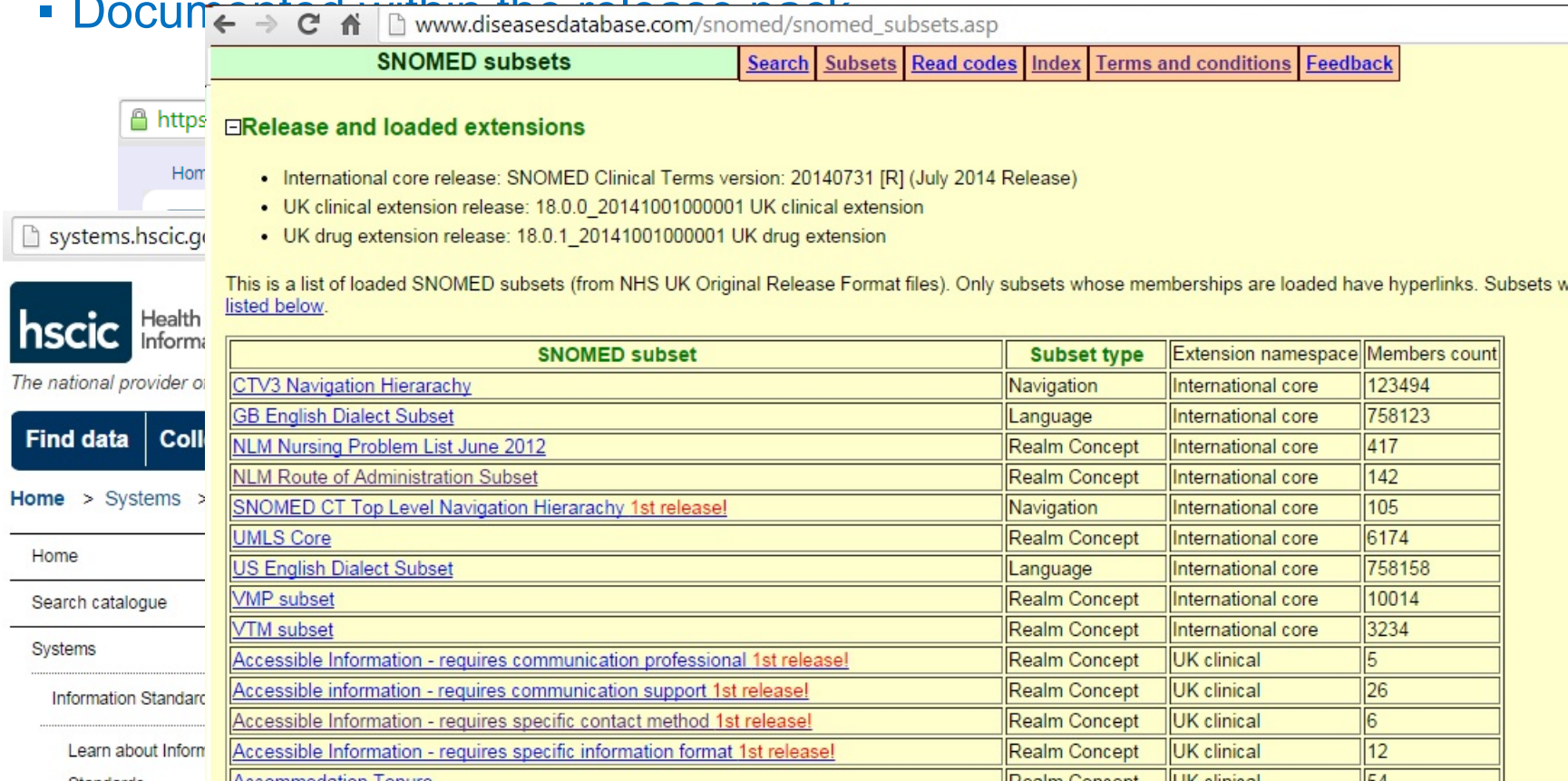
Inferred view ▾

- ▲ ● Reference set (foundation metadata concept)
 - ▼ ● Australian reference sets (foundation metadata concept)
 - ▶ ● 🇺🇸 Foundation reference sets (foundation metadata concept)
 - ▶ ● 🇺🇸 Healthcare reference sets (foundation metadata concept)
 - ▼ ● 🇺🇸 Reference set by clinical information component (foundation metadata concept)
 - ● 🇺🇸 Exclusion statement reference set (foundation metadata concept)
 - ● 🇺🇸 Laterality reference set (foundation metadata concept)
 - ▶ ● 🇺🇸 Reference sets for Adverse reactions (foundation metadata concept)
 - ▶ ● 🇺🇸 Reference sets for Medications (foundation metadata concept)
 - ▼ ● 🇺🇸 Reference sets for Participation (foundation metadata concept)
 - ● 🇺🇸 Relationship to subject of care reference set (foundation metadata concept)
 - ● 🇺🇸 Sex reference set (foundation metadata concept)
 - ▶ ● 🇺🇸 Reference sets for Pathology test result (foundation metadata concept)
 - ▶ ● 🇺🇸 Reference sets for Problem/diagnosis (foundation metadata concept)

● Adoptive sibling (person)	7506001
● Adoptive sister (person)	76022008
● Adoptive son (person)	2316007
● Aunt (person)	25211005
● Blood relative (person)	125679009
● Boyfriend (person)	79756005
● Brother (person)	70924004
● Candidate donor (person)	105458008
● Caregiver (person)	133932002
● Child (person)	67822003
● Cohabitee (person)	394921008
● Colleague (person)	32570881000036107
● Common-law husband (person)	160505009
● Common-law wife (person)	160506005
● Contact person (person)	70862002

Discovery of existing subsets (UK)

- Current UKTC approach
- Released Refsets
 - Refsets as part of SNOMED CT release UK Edition
 - Documented within the release pack



www.diseasesdatabase.com/snomed/snomed_subsets.asp

SNOMED subsets | Search | Subsets | Read codes | Index | Terms and conditions | Feedback

Release and loaded extensions

- International core release: SNOMED Clinical Terms version: 20140731 [R] (July 2014 Release)
- UK clinical extension release: 18.0.0_20141001000001 UK clinical extension
- UK drug extension release: 18.0.1_20141001000001 UK drug extension

This is a list of loaded SNOMED subsets (from NHS UK Original Release Format files). Only subsets whose memberships are loaded have hyperlinks. Subsets w listed below.

SNOMED subset	Subset type	Extension namespace	Members count
CTV3 Navigation Hierachy	Navigation	International core	123494
GB English Dialect Subset	Language	International core	758123
NLM Nursing Problem List June 2012	Realm Concept	International core	417
NLM Route of Administration Subset	Realm Concept	International core	142
SNOMED CT Top Level Navigation Hierachy 1st release!	Navigation	International core	105
UMLS Core	Realm Concept	International core	6174
US English Dialect Subset	Language	International core	758158
VMP subset	Realm Concept	International core	10014
VTM subset	Realm Concept	International core	3234
Accessible Information - requires communication professional 1st release!	Realm Concept	UK clinical	5
Accessible information - requires communication support 1st release!	Realm Concept	UK clinical	26
Accessible Information - requires specific contact method 1st release!	Realm Concept	UK clinical	6
Accessible Information - requires specific information format 1st release!	Realm Concept	UK clinical	12
Accommodation Tenure	Realm Concept	UK clinical	54

UK HSCIC subset service

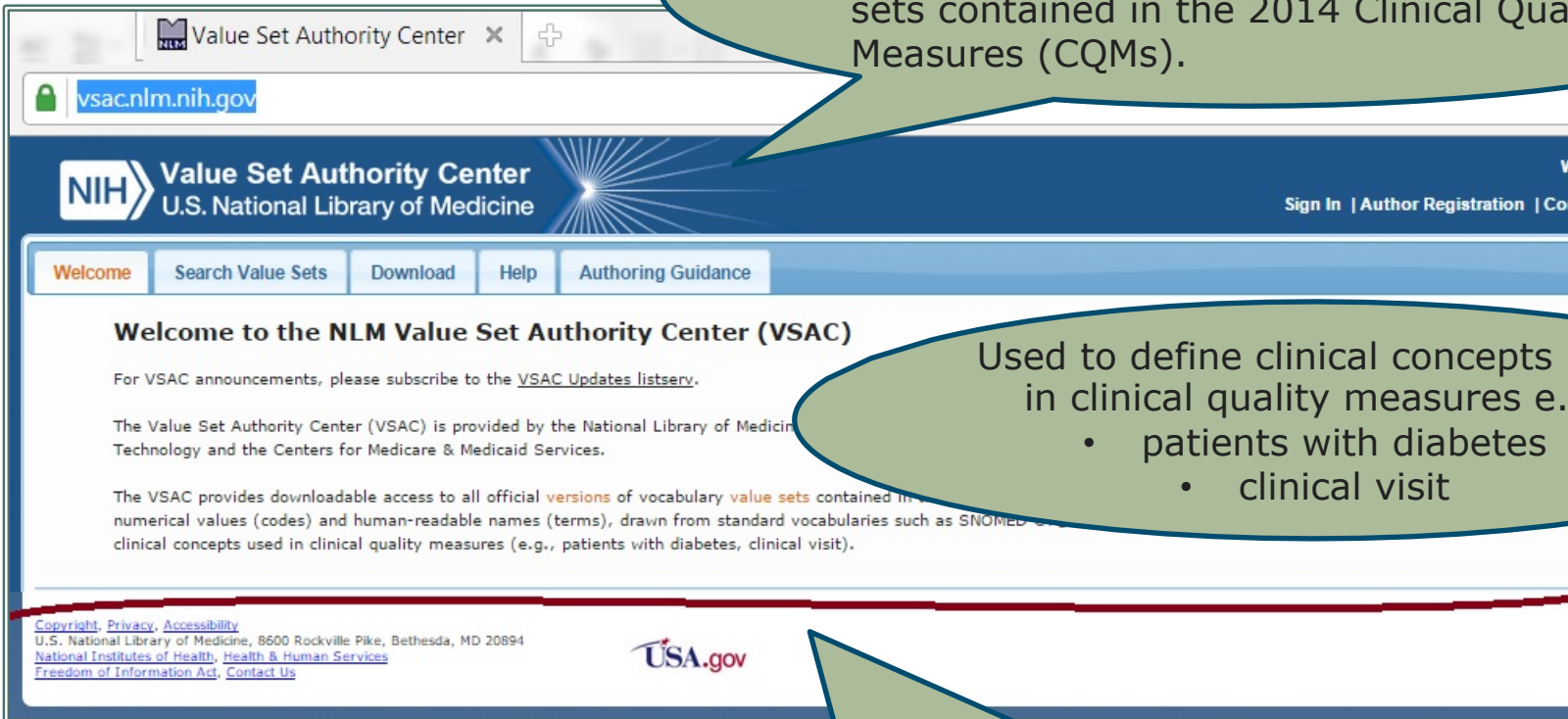
- Adding a subset metadata repository (read only) to their ‘data dictionary for care’
 - Replacement for
 - Existing UKTC subset information repository
 - Subset overview document currently included in the UK Edition
- Data export functionality under active consideration
 - Potential uses:
 - Message vocabulary
 - Clinical content standards
 - Data collections and extractions

email contact dd4c@hscic.gov.uk

Discovery of existing subsets (USA)

■ NLM resources

Provides downloadable access to all official versions of vocabulary value sets contained in the 2014 Clinical Quality Measures (CQMs).



Used to define clinical concepts used in clinical quality measures e.g.

- patients with diabetes
- clinical visit

A free Unified Medical Language System® Metathesaurus License is required, due to usage restrictions on some of the codes included in the value sets.

Discovery of existing subsets (USA)

A Value set

Excel Spreadsheet Data:

Concept Code	Concept Name	Preferred Concept Name	Preferred Alternate Name
258750005	% abnormal forms	% abnormal forms	G-D7D8
258745004	% activity	% activity	G-D7D3
258746003	% aggregation	% aggregation	G-D7D4
258747007	% aggregation/s	% aggregation/s	
397441001	% area reduction	% area reduction	
418131003	% bounding	% bounding	R-42568
286580004	% daily total	% daily total food	G-D7BA
418446003	% deficient	% deficient	R-42569
397442008	% diameter	% diameter	G-0372
288493004	% energy intake	% energy intake	G-D7BF
286599008	% energy intake	% energy intake	G-D7BE
286598000	% energy intake	% energy intake	G-D7BD
286595002	% energy intake	% energy intake	G-D7BB
286597005	% energy intake	% energy intake	G-D7BC
258759006	% Erccs (qualifier)	% Erccs	G-D7E0
418678001	% excreted	% excret	R-4256A
258748002	% fetal cells	% fetal cells	G-D7D6
272077000	% gradient	% gradient	G-D729
418983006	% hemolysis	% hemol	R-4256B
419205000	% index (qualifier)	% index	R-4256C
419495008	% inhibition	% inhib	R-4256D
419749002	% live (qualifier)	% live	R-4256E
420067008	% negative control	% negative control	R-4256F
258764005	% nitrogen/L	% nitrogen/L	G-D7E5
258744000	% normal	% normal	G-D7D2
258749005	% normal forms	% normal forms	G-D7D7
258755000	% of total	% of total	G-D7DC
258756004	% of total activity	% of total activity	G-D7DD
264905007	% of total body	% of total body	G-D7CA
258751009	% of total cardiac	% of total cardiac	G-D7D9
276971003	% of total failed	% of total failed	G-D7CD
276970002	% of total lost	% of total lost	G-D7CC
258757008	% of total protein	% of total protein	G-D7DE
258753007	% of total	% of total	G-D7DB

PHIN VADS Value Set Information:

- Application Version: 3.3.9
- Content Version: 2011.06.17
- Value Set Code: PHVS_ModifierOrQualifier_CDC
- Value Set Name: Modifier or Qualifier
- Value Set OID: 2.16.840.1.114222.4.11.1014
- Value Set Description: Qualitative codes used for laboratory test results. This uses SNOMED hierarchy (362981000). These codes need to be used appropriately using SNOMED post-coordination rules.

Value Set Concepts: 8944 Value Set Concepts found

Concept Code	Concept Name	Preferred Concept Name	Code System	Value Set
258750005	% abnormal forms (qualifier value)	% abnormal forms	SNOMED-CT	Modifier or Qualifier
258745004	% activity (qualifier value)	% activity	SNOMED-CT	Modifier or Qualifier
258746003	% aggregation (qualifier value)	% aggregation	SNOMED-CT	Modifier or Qualifier
258747007	% aggregation/s (qualifier value)	% aggregation/s	SNOMED-CT	Modifier or Qualifier
397441001	% area reduction	% area reduction	SNOMED-CT	Modifier or Qualifier

Discovery of existing subsets (Dk)

■ Danish Edition

The screenshot displays the IHTSDO SNOMED CT Browser - Beta 2 interface. The browser window shows the URL `browser.ihtsdotools.org/#` and the page title `IHTSDO SNOMED CT Browser - Beta 2`. The interface is divided into two main sections: Taxonomy and Concept Details.

Taxonomy: The left sidebar shows a tree view of the SNOMED CT Model Component (metadata). The 'Inferred view' is selected. The tree is expanded to show the 'Reference set (foundation metadata concept)' category, which includes various reference set types. The 'Danish pharmaceutical products reference sets (foundation metadata concept)' is highlighted, indicating it is the selected concept.

Concept Details: The right pane shows the details for the selected concept. The 'Parents' section lists the 'Reference set (foundation metadata concept)'. The 'Children (2)' section lists the 'Concentration reference set (foundation metadata concept)' and the 'Quantity reference set (foundation metadata concept)'. The 'Summary' tab is active, showing the concept name 'Danish pharmaceutical products reference sets (foundation metadata concept)', the SCTID '55450100005103', and the flag 'No attributes'.

Search engine results

The image shows a Google search for "snomed CT subsets". The search results page is displayed in a browser window. The address bar shows the URL "www.google.nl/#q=snomed+subset". The search results are listed below the search bar, including links to the CORE Problem List Subset of SNOMED CT, Nursing Problem List Subset of SNOMED CT, SNOMED CT: CORE Problem List Subset and Rule-Based..., Supporting Information: SNOMED CT Subset, SNOMED CT® Technical Reference Guide - Ihtsdo, The CORE Problem List Subset of SNOMED CT - Ihtsdo, Term list(s) vs SNOMED -CT® subset. - VTSL, and Nictiz.nl - SNOMED CT release center. The Nictiz.nl result is circled in red. The browser address bar is also circled in red, showing the URL "www.google.nl/#q=snomed+CT+subsets".

Search results for "snomed CT subsets":

- The CORE Problem List Subset of SNOMED CT**
www.nlm.nih.gov > Biomedical Research & Informatics > UMLS
20 Jul 2009 - The CORE Problem List Subset of SNOMED CT®. Current Data Files (expect a new version of the subset for each new release of SNOMED CT ...)
- Nursing Problem List Subset of SNOMED CT**
www.nlm.nih.gov > Biomedical Research & Informatics > UMLS
Introduction The SNOMED CT® encoded Nursing Problem List Subset, intended for use in patients' problem lists, is an output of the Unified Medical Language System (UMLS).
- SNOMED CT: CORE Problem List Subset and Rule-Based...**
lhncbc.nlm.nih.gov/.../snomed-ct-core-problem-list-subset-and-rule-base...
21 May 2013 - SNOMED CT (Systematized Nomenclature of Medicine-Clinical Terms) is an extensive clinical terminology that was formed by the merger, ...
- Supporting Information: SNOMED CT Subset**
www.datadictionary.nhs.uk > Main Menu > NHS Business Definitions
A SNOMED CT Subset is a set of SNOMED CT® (Systematized Nomenclature of Medicine Clinical Terms) Concepts, Descriptions, or Relationships that is used to represent a specific area of clinical practice.
- SNOMED CT® Technical Reference Guide - Ihtsdo**
www.ihtsdo.org/.../doc1_TechnicalReferenceGuide_Current-en-US_INT_2...
31 Jul 2011 - SNOMED CT Data Structure - Summary. ... How are subsets of SNOMED CT? ... 2 | SNOMED CT Technical Reference Guide July 2011 ...
- The CORE Problem List Subset of SNOMED CT - Ihtsdo**
www.ihtsdo.org/show13/abstract09.pdf
SNOMED CT Implementation Showcase 2013. Presentation or Poster Abstract: The CORE Problem List Subset of SNOMED CT. Presenter: Kin Wah Fung, U.S. Department of Health and Human Services.
- Term list(s) vs SNOMED -CT® subset. - VTSL**
vtsl.vetmed.vt.edu/Education/aaha/ListsVSNOMED.ppt
Term list(s) vs. SNOMED -CT® subset. 2nd AAHA Software Vendors Summit 2009. Lists of words... Nomenclature. The system or set of names for ...
- Nictiz.nl - SNOMED CT release center**
www.nictiz.nl > Standaarden
Voor het gebruik van SNOMED CT kunt u een licentie aanvragen bij het release ... van ondersteuning bij het maken en beheren van referentiesets (subsets); ...
- Creating SNOMED CT Subsets & Reference Sets - YouTube**
www.youtube.com/watch?v=Z9Nln5jeAv8
8 okt. 2012 - Geüpload door Snow Owl
Snow Owl is a free SNOMED CT browser. Find out more at http://b2international.com/... SNOMED CT is big ...
- Creating SNOMED CT Subsets and Reference Sets - B2 International**
www.b2international.com/.../creating-snomed-ct-subsets...
8 okt. 2012 - Video 9: Creating SNOMED CT Subsets and Reference Sets ... As you already know, SNOMED CT is a huge terminology; actually the most ...

Evaluation: Fitness for purpose

- Compare basic parameters (vs. needs)
 - Number of members
 - Extension content included, if any
 - Hierarchy coverage
 - Common ancestors with counts for each
- Inspect the content
 - Sample for: False positives, appropriate level of specificity, 'oddness' of any type
 - Inspect to seek out what is desirable to include, but likely to be missing (false negatives)
 - Seek out 'Edge cases' present as needed, absent as needed
- Check my terminology tool supports this type?
 - Intensional designs using advanced features

A level of diversity which is tolerable

- Subset development: non-identical outcomes
- Test for fitness, not uniformity
- Anticipate:
 - Convergence of subset designs
(where use & quality criteria are similar)
 - Divergence of stated uses
(where subsets differ)
 - Tolerance of difference
(where use is identical but quality criteria differ)



= Tolerable diversity

- Each is fit for the same purpose, within quality limits

Round-up

- Uses of subsets
- Techniques used in development, maintenance and use
- Formats for packaging, distribution and use
- Sharing and reuse
- Discovery of existing subsets - purpose - fitness for reuse

Further resources

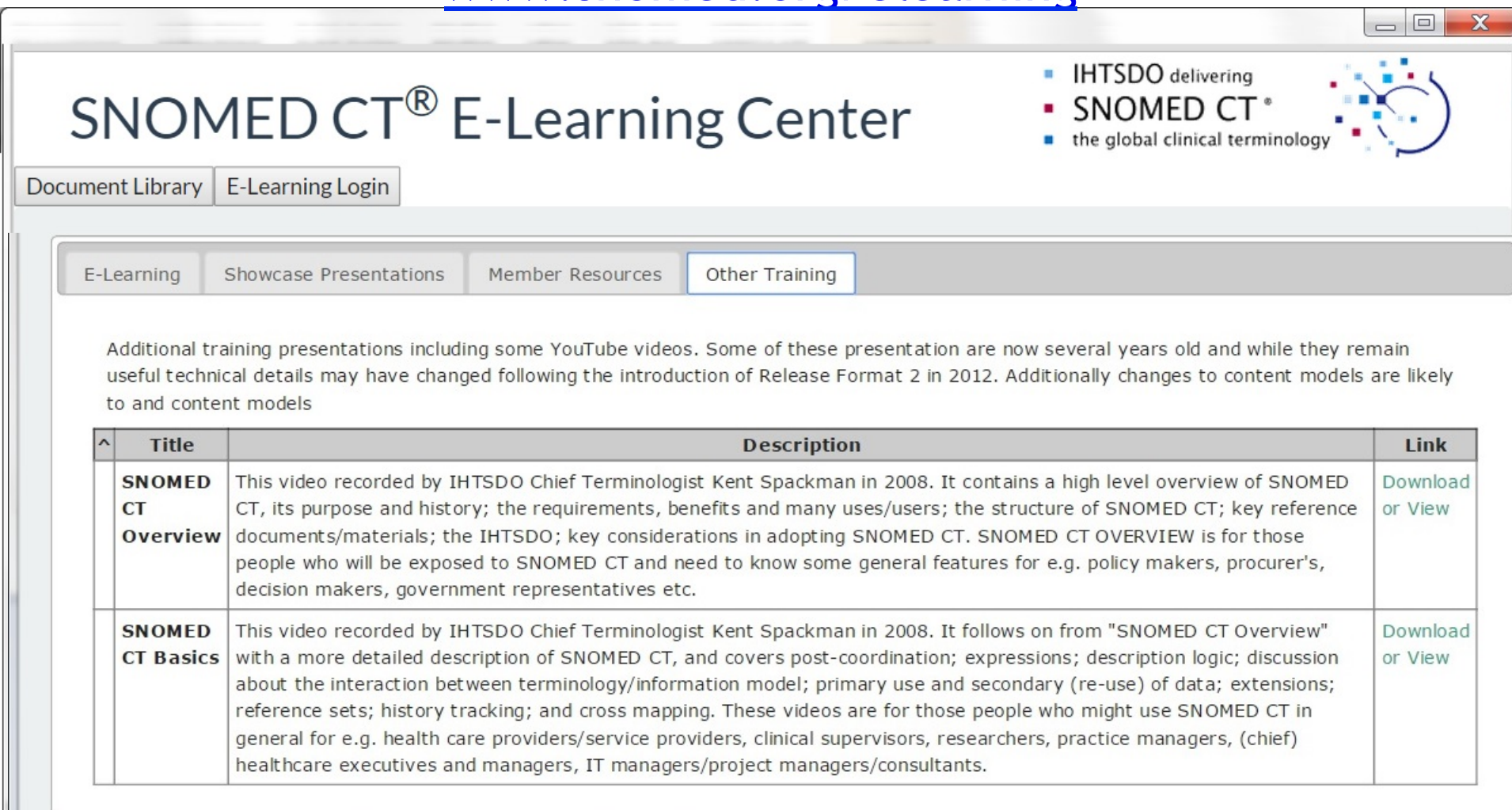
- IHTSDO Terminology Browser: Version 1 (OTF)
- IHTSDO Refset Manager (IHTSDO Refset Management Service) <http://ihtsdo.github.io/snomed-refset>
- NRC developed or procured tools (use within Member territory)
- Commercial tools
- Simple solutions
 - Spreadsheets + browsers



*OTF - Open Tooling Framework is the overall framework within which IHTSDO tools are set but the convention is to refer to the individual elements as IHTSDO tooling services as per the names on <http://www.ihtsdotools.org> and pages linked from there.

SNOMED CT E-Learning Center

www.snomed.org/elearning



The screenshot shows the SNOMED CT E-Learning Center website. At the top, there is a navigation bar with "Document Library" and "E-Learning Login" buttons. Below this is a main header area with the title "SNOMED CT® E-Learning Center" and a logo for "IHTSDO delivering SNOMED CT® the global clinical terminology". A secondary navigation bar contains "E-Learning", "Showcase Presentations", "Member Resources", and "Other Training" (which is highlighted). The main content area features a paragraph of text and a table with two rows of training resources.

Additional training presentations including some YouTube videos. Some of these presentation are now several years old and while they remain useful technical details may have changed following the introduction of Release Format 2 in 2012. Additionally changes to content models are likely to and content models

^	Title	Description	Link
SNOMED CT Overview		This video recorded by IHTSDO Chief Terminologist Kent Spackman in 2008. It contains a high level overview of SNOMED CT, its purpose and history; the requirements, benefits and many uses/users; the structure of SNOMED CT; key reference documents/materials; the IHTSDO; key considerations in adopting SNOMED CT. SNOMED CT OVERVIEW is for those people who will be exposed to SNOMED CT and need to know some general features for e.g. policy makers, procurer's, decision makers, government representatives etc.	Download or View
SNOMED CT Basics		This video recorded by IHTSDO Chief Terminologist Kent Spackman in 2008. It follows on from "SNOMED CT Overview" with a more detailed description of SNOMED CT, and covers post-coordination; expressions; description logic; discussion about the interaction between terminology/information model; primary use and secondary (re-use) of data; extensions; reference sets; history tracking; and cross mapping. These videos are for those people who might use SNOMED CT in general for e.g. health care providers/service providers, clinical supervisors, researchers, practice managers, (chief) healthcare executives and managers, IT managers/project managers/consultants.	Download or View

Questions and Discussion



- Contact IHTSDO: info@ihtsdo.org

Feedback

- Feedback: http://snomed.org/show_eval2