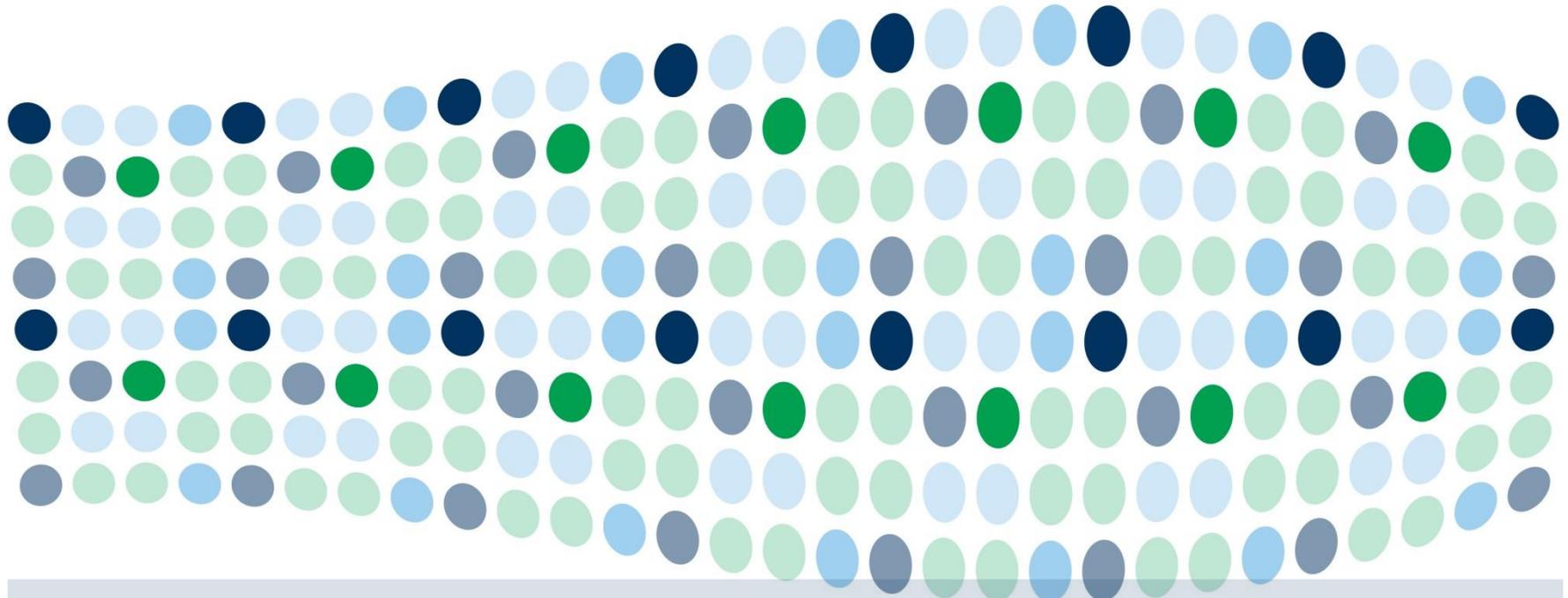


SNOMED CT: 3 methods for subset creation



Ian Arrowsmith, Head of SNOMED CT Implementation, NHS Digital

Methods for developing your surgical subsets

1. Browsing current SNOMED content and review/amend
2. Make a list of required terms and then check against currently available SNOMED terms
3. Agree a diagrammatic hierarchy for elements required within terms

Or a mix of any of elements listed above

Methodology 1: Browsing current content

First- you will need a BROWSER in order to search current SNOMED terms.

<http://systems.digital.nhs.uk/data/uktc/snomed/browser>

These come in 3 types:

1. Desktop application browsers – provide fast searching and display detailed information from the terminology such as relationships and synonyms but need to be installed on your desktop e.g. CliniClue Xplore, SNOB
2. Online browsers- provide easy online access to the terminology but require you to have an internet connection e.g. NPEX, IHTSDO and Snoflake.
3. Mobile Device browsers- Allows viewing of SNOMED CT on the move. No current free-to-use mobile applications but low cost applications are available.

Links to browsers

- CliniClue Xplore: <http://www.cliniclue.com/>
- SNOB: http://www.openclinical.org/dld_snob.html
- NPEx: <http://www.snomedbrowser.com/>
- IHTSDO: <http://browser.ihtsdotools.org/?>
- Snoflake: <http://www.snoflake.co.uk/Account/LogOn?ReturnUrl=%2f>

IHTSDO Online browser

The IHTSDO SNOMED CT Browser

The IHTSDO SNOMED CT Browser has just got better! This is version 2.0. Please go to the [release notes](#) to see what's changed!

The IHTSDO SNOMED CT Browser provides ways to browse and search SNOMED CT. The browser has been implemented as part of development within the IHTSDO Open Tooling Framework, by the IHTSDO and its development partners

The Browser is provided by the IHTSDO to anyone for reference purposes. The interface and REST APIs are **not** to be used as part of production systems in health care settings.

Please provide any feedback on the browser by clicking on the feedback button at the top of the page. Your feedback is essential to the evolution and improvement of this service. Please visit [SIRS](#) to provide content feedback.

International Editions



Local Extensions



or [take the Tour...](#)

Many thanks to the IHTSDO Member countries who have provided their extensions in this browser. If you would like to enquire further about any of the Member country extensions in this browser, please contact the relevant National Release Center via the URLs below:

IHTSDO Browser

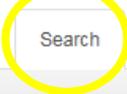
The screenshot displays the IHTSDO SNOMED CT Browser interface. At the top, the header includes the version '© IHTSDO 2016 v1.33', the release 'Release: United Kingdom Edition 20160401', and the perspective 'Perspective: Full'. The main interface is divided into two primary sections: a 'Taxonomy' panel on the left and a 'Concept Details' panel on the right.

Taxonomy Panel: This panel shows a hierarchical tree of SNOMED CT concepts. The root is 'SNOMED CT Concept', which is expanded to show various categories such as 'Body structure (body structure)', 'Clinical finding (finding)', 'Environment or geographical location (environment / location)', 'Event (event)', 'Observable entity (observable entity)', 'Organism (organism)', 'Pharmaceutical / biologic product (product)', 'Physical force (physical force)', 'Physical object (physical object)', 'Procedure (procedure)', 'Qualifier value (qualifier value)', 'Record artifact (record artifact)', 'Situation with explicit context (situation)', 'SNOMED CT Model Component (metadata)', 'Social context (social concept)', 'Special concept (special concept)', 'Specimen (specimen)', and 'Staging and scales (staging scale)'. A blue arrow points from the 'Content Hierarchies' callout to this taxonomy tree.

Concept Details Panel: This panel provides detailed information for a selected concept. The selected concept is 'Clinical finding (finding)' with SCTID: 404684003. The panel includes tabs for 'Summary', 'Details', 'Diagram', 'Expression', 'Refsets', 'Members', and 'References'. The 'Parents' section shows 'SNOMED CT Concept (SNOMED RT+CTV3)'. The 'Children (31)' section indicates there are 31 children for this concept. A 'No attributes' box is also visible.

Content Hierarchies

Search function



Type at least 3 characters Example: shou fra

appen

676 matches found in 0.643 seconds.

Appendix	Entire appendix (body structure)
Appendix	Appendix structure (body structure)
Appendicitis	Appendicitis (disorder)
Appendectomy	Appendectomy (procedure)
Appendicotomy	Incision of appendix (procedure)
Appendix mass	Mass of appendix (finding)
Appendicectomy	Appendectomy (procedure)
Skin appendage	Skin appendage structure (body structure)
Eye appendages	Ocular adnexa structure (body structure)
Appenzell goat	Appenzell goat breed (organism)
Appendicolysis	Lysis of adhesions of appendix (procedure)
Appendicostomy	Fistulization of appendix (procedure)
Skin appendage	Entire skin appendage (body structure)
Appenzeller dog	Appenzeller dog breed (organism)
Appendix sample	Appendix sample (specimen)

Options

Search Mode: Partial matching search mode

Status: Active components only

Group by concept

Filter results by Language

english 676

Filter results by Semantic Tag

disorder 268

procedure 149

body structure 131

finding 37

morphologic abnormality 34

organism 18

specimen 13

situation 12

observable entity 5

qualifier value 3

Concept Details

Concept Details Summary Details Diagram Expression Refsets Members References

Stated Inferred

Parents - SNOMED CT Concept (SNOMED RT+CTV3)

Clinical finding (finding) ☆

SCTID: 404684003

404684003 | Clinical finding (finding)

Clinical finding (finding)

Clinical finding

No attributes

Children (31) 31 Children

Search

Options

Search Mode: Partial matching search mode

Status: Active components only

Group by concept

Filter results by Language

english 676

Filter results by Semantic Tag

- disorder 268
- procedure 149
- body structure 131
- finding 37
- morphologic abnormality 34
- organism 18
- specimen 13
- situation 12
- observable entity 5
- qualifier value 3

Type at least 3 characters Example: shou fra

676 matches found in 0.643 seconds.

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Concept Details

Concept Details

Summary Details Diagram Expression Refsets Members References

Stated Inferred

- Parents
- Operation on appendix (procedure)
 - Partial excision of large intestine (procedure)

Parent concept(s)

Appendectomy (procedure)
SCTID: 80146002

80146002 | Appendectomy (procedure) |

- Appendectomy
- Excision of appendix
- Appendicotomy
- Appendectomy (procedure)

Procedure site - Direct →
Appendix structure
Method → Excision - action

Synonyms

- Children (8)
- Appendectomy with drainage (procedure)
 - Emergency appendectomy (procedure)
 - Emergency excision of normal appendix (procedure)
 - Laparoscopic emergency appendectomy (procedure)
 - Excision of appendiceal stump (procedure)
 - Excision of ruptured appendix by open approach (procedure)
 - Incidental appendectomy (procedure)
 - Interval appendectomy (procedure)
 - Laparoscopic appendectomy (procedure)
 - Laparoscopic appendectomy using robotic assistance (procedure)
 - Laparoscopic emergency appendectomy (procedure)
 - Laparoscopic interval appendectomy (procedure)

Concepts below parent (subtypes)

Search

Options

Search Mode: Partial matching search mode

Status: Active components only

Group by concept

Filter results by Language

english

2704

Filter results by Semantic Tag

procedure

898

disorder

506

physical object

294

body structure

290

finding

282

observable entity

115

situation

91

regime/therapy

82

qualifier value

76

substance

22

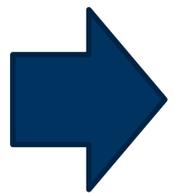
Type at least 3 characters ✓ Example: *shou fra*

cardiac

2704 matches found in 0.761 seconds.

Cardiac CT	Computed tomography of heart (procedure)
Cardiac MRI	Magnetic resonance imaging of heart (procedure)
Cardiac ITU	Cardiac intensive care unit (environment)
Cardiac bed	Cardiac bed (physical object)
Cardiac vein	Structure of cardiac vein (body structure)
Cardiac axis	Cardiac axis (observable entity)
Cardiac flow	Cardiac flow, function (observable entity)
Cardiac vein	Entire cardiac vein (body structure)
Cardiac base	Entire base of heart (body structure)
Cardiac apex	Structure of apex of heart (body structure)
Cardiac care	Cardiac care (regime/therapy)
Cardiac rate	Heart rate (observable entity)
Cardiac echo	Echocardiography (procedure)
Cardiac sound	Heart sound, function (observable entity)

Filter by hierarchy



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Taxonomy Search Favorites Refset

Search



Options

Search Mode: Partial matching search mode

Status: Active components only

Group by concept

procedure

Filter results by Language

english 898

Filter results by Module

SNOMED CT core module (core metadata concept) 755

SNOMED CT United Kingdom clinical extension module (core metadata concept) 143

Filter results by Refset

Care planning activities simple reference set (foundation metadata concept) 892

SNOMED RT identifier simple map (foundation metadata concept) 825

Type at least 3 characters Example: shou fra

cardiac

898 matches found in 1.063 seconds.

- Cardiac CT Computed tomography of heart (procedure)
- Cardiac MRI Magnetic resonance imaging of heart (procedure)
- Cardiac echo Echocardiography (procedure)
- Cardiac pacing Cardiac pacing (procedure)
- Cardiac US scan Echocardiography (procedure)
- Cardiac mapping Cardiac mapping (procedure)
- Cardiac markers Cardiac markers (procedure)
- Cardiac ablation Cardiac ablation using fluoroscopy guidance (procedure)
- Cardiac angiogram Fluoroscopic angiography of heart (procedure)
- Cardiac valvotomy Cardiac valvotomy (procedure)
- Cardiac stress MRI Magnetic resonance imaging stress study of cardiac function (procedure)
- Cardiac tomography Cardiac tomography (procedure)
- Teach cardiac care Cardiac care education (procedure)
- Cardiac assessment Cardiac assessment (procedure)

Concept Details

Concept Details

Summary Details Diagram Expression Refsets Members

Parents

- Cardiac pacemaker procedure (procedure)
- Procedure by method (procedure)
- Procedure on heart (procedure)

Cardiac pacing (procedure) ☆

SCTID: 18590009

18590009 | Cardiac pacing (procedure) |

- Cardiac pacing
- Electrical cardiac pacing
- Cardiac pacing (procedure)

Using device → Cardiac pacemaker, device

Procedure site - Direct → Heart structure

Method → Pacing - action

Children (13)

- Atrial overdrive pacing (procedure)
- Atrioventricular sequential pacing (procedure)
- Bundle of His pacing (procedure)
- Cardiac resynchronisation therapy (procedure)
- Demand pacing (procedure)
- Induction of arrhythmia by electrical pacing (procedure)
- Intra-atrial pacing (procedure)
- Intraoperative cardiac pacing and mapping (procedure)
- Intraventricular pacing (procedure)
- Magnet induced pacing (procedure)
- Temporary transcutaneous pacing (procedure)
- Transcatheter cardiac pacing procedure (procedure)

Methodology 1 – browsing through current terminology

Things to consider:

- Your requirements might not yet be fully elaborated
- This method could mean you do not consider other ways of listing diagnoses/ procedures
- May be ‘starter set’ for pilot use
- May be time consuming

Tips for searching SNOMED CT

Body structures are normally in the singular, e.g. eye not eyes



Most abbreviations are present (with their expanded form), e.g. PID - prolapsed intervertebral disc



Search for most unique words in string and add other search tokens to limit results, eg implantation of lumbar epidural catheter and there is (usually) no need to worry about word order



Always check the fully specified name

Methodology 2: Create your subset list

Original content	Hierarchy	Subtypes?
Diagnosis/Inication		
Deformity		
Achilles Shortening	Clinical finding	No
Contracture in Foot and Ankle	Clinical finding	Yes
Talipes Calcaneovarus	Clinical finding	No
Valgus ankle/hindfoot Deformity	Clinical finding	No
Varus ankle/hindfoot Deformity	Clinical finding	Yes
Congenital Toe Deformity		
Acquired Toe Deformity	Clinical finding	Yes
Degenerative Disease		
Ankle Osteoarthritis - Primary	Clinical finding	No
Ankle Osteoarthritis - Secondary (Inflammatory)	Clinical finding	No
Ankle Osteoarthritis - Secondary (Post Infection)		
Ankle Osteoarthritis - Secondary (Post Trauma)	Clinical finding	No
Ankle Inflammatory Arthropathy		
Ankle Osteophytes		
Subtalar Joint Osteoarthritis - Primary	Clinical finding	No
Subtalar Joint Osteoarthritis - Secondary (Inflammatory)	Clinical finding	No
Subtalar Joint Osteoarthritis - Secondary (Post Infection)		
Subtalar Joint Osteoarthritis - Secondary (Post Trauma)	Clinical finding	No
Subtalar Joint Inflammatory Arthropathy	Clinical finding	Yes
Talonavicular Joint Osteoarthritis - Primary	Clinical finding	No
Talonavicular Joint Osteoarthritis - Secondary (Inflammatory)	Clinical finding	No
Talonavicular Joint Osteoarthritis - Secondary (Post Infection)		
Talonavicular Joint Osteoarthritis - Secondary (Post Trauma)	Clinical finding	No
Talonavicular Joint Inflammatory Arthropathy		
Calcaneocuboid Osteoarthritis - Primary	Clinical finding	No
Calcaneocuboid Osteoarthritis - Secondary (Inflammatory)	Clinical finding	No
Calcaneocuboid Osteoarthritis - Secondary (Post Infection)		
Calcaneocuboid Osteoarthritis - Secondary (Post Trauma)	Clinical finding	No
Calcaneocuboid Joint Inflammatory Arthropathy		
Midfoot Joint Osteoarthritis - Primary	Clinical finding	No
Midfoot Joint Osteoarthritis - Secondary (Inflammatory)	Clinical finding	No
Midfoot Joint Osteoarthritis - Secondary (Post Infection)		

Orthopaedic surgeon's classification of ankle OA



Same concept in SNOMED

☰ Osteoarthropathy	Disorder of skeletal system (disorder)
☰ OA - Osteoarthritis	Osteoarthritis (disorder)
☰ OA - Osteoarthrosis	Osteoarthritis (disorder)
● Spinal osteoarthritis	Spondylosis without myelopathy (disorder)
☰ Osteoarthritis of hip	Osteoarthritis of hip (disorder)
☰ Osteoarthritis of knee	Osteoarthritis of knee (disorder)
☰ Osteoarthrosis of hand	Degenerative joint disease of hand (disorder)
● Erosive osteoarthrosis	Erosive osteoarthrosis (disorder)
☰ Chronic osteoarthritis	Chronic osteoarthritis (disorder)
● Endemic osteoarthritis	Endemic osteoarthritis (disorder)
● Primary osteoarthritis	Idiopathic osteoarthritis (disorder)
☰ Osteoarthritis of ankle	Osteoarthritis of ankle (disorder)
☰ Thoracic osteoarthritis	Thoracic spondylosis (disorder)
☰ Osteoarthritis of spine	Spondylosis (disorder)
☰ Osteoarthritis of wrist	Osteoarthritis of wrist (disorder)
● Cervical osteoarthritis	Cervical spondylosis (disorder)

Concept Details

Concept Details

Summary Details Diagram Expression Refsets Members References

Stated Inferred

Parents

- ☰ Degenerative joint disease of ankle AND/OR foot (disorder)
- ☰ Disorder of ankle joint (disorder)

☰ Osteoarthritis of ankle (disorder) ☆

SCTID: 239874001

239874001 | Osteoarthritis of ankle (disorder) |

- OA - Osteoarthritis of ankle
- Osteoarthritis of ankle
- Osteoarthritis of ankle (disorder)
- Degenerative joint disease of ankle

Finding site → Ankle joint structure

Associated morphology → Degeneration

Children (2)

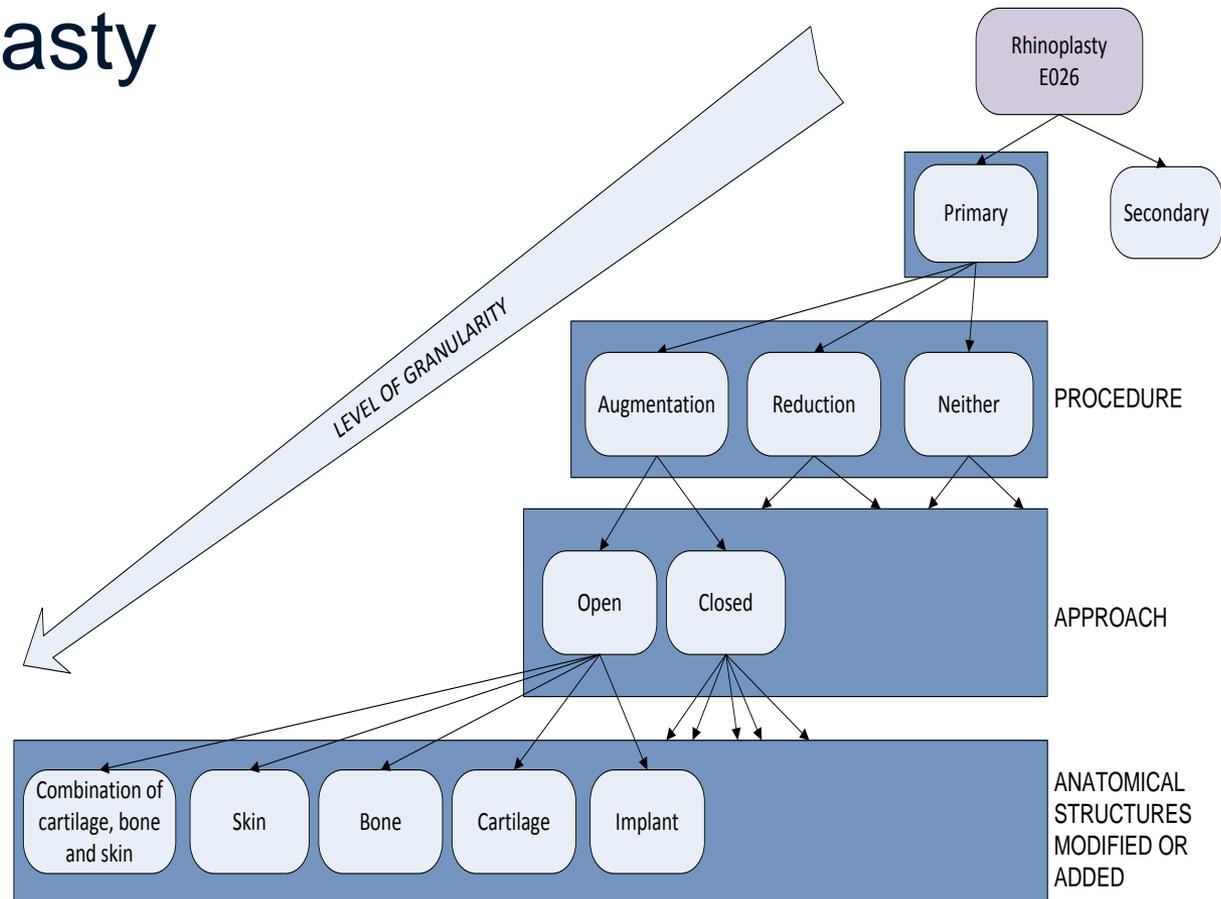
- Primary osteoarthritis of ankle (disorder)
- ☑ ☰ Secondary osteoarthritis of ankle (disorder)
 - ☰ Osteoarthritis of ankle secondary to inflammatory arthritis (disorder)
 - ☰ Osteoarthritis of ankle secondary to trauma (disorder)

Methodology 2: Create your subset list

- Requirements are well understood and articulated
- Methodology might be to harvest existing records for frequently occurring content
- Can define concepts within prescribed subset that meets your clinical needs
- May have formal editorial oversight

Methodology 3: compositional approach

Rhinoplasty



Methodology 3: cont

- Possible concepts from diagram:
 - Primary augmentation rhinoplasty via an open approach with bone modification
 - Primary reduction rhinoplasty via a closed approach and cartilage modification
- You can decide the level of granularity required