



Australian Government

Australian Digital Health Agency

Searching SNOMED CT-AU using the Shrimp browser

The Shrimp terminology browser

- The Shrimp browser is a free, web-based terminology browser that can be used to browse SNOMED CT-AU (including AMT) content.
 - Allows people to browse terminology without having to build their own database, or implement the terminology data.
 - Provides descriptions of a given concept.
 - Displays how the concepts are related to each other, and the modelling of each concept.
- It is useful to use this browser when...
 - You are learning about SNOMED CT-AU (or the AMT).
 - You are evaluating SNOMED CT-AU for its clinical content.
 - You have a SNOMED CT code or description and want to see what the concept is.
 - You would like to request addition of a concept in SNOMED CT-AU and want to see where it could be suitably located in the SNOMED CT hierarchies.
 - You are looking for suitable SNOMED CT-AU descriptions or concepts for mapping.
 - You are interested in the properties of a concept for data analytics.

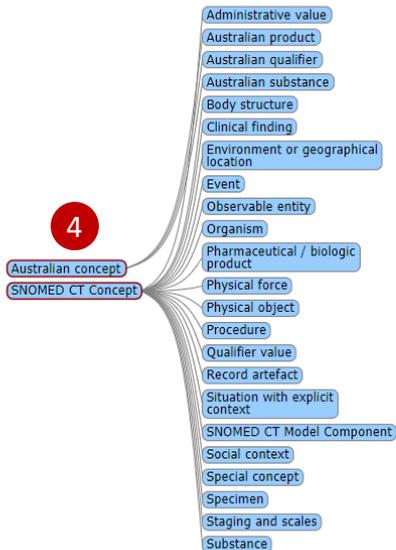


The Shrimp terminology browser

- It is owned and maintained by the Australian e-Health Research Centre of the CSIRO.
 - This is one example of a SNOMED CT-AU implementation.
 - How you search for content and what is displayed will be different to how you interact with SNOMED CT-AU implemented in your clinical information system.
- It can be accessed from either:
 - The NCTS website on <https://www.healthterminologies.gov.au/tools>; or
 - Directly from the link <https://ontoserver.csiro.au/shrimp>



Terminology browser



1. Menu bar (the default page is “Terminology”).
2. Filter search by:
 - Terminology.
 - Terminology version.
 - Reference set.
3. Search terms and search results.
4. Hierarchy/taxonomy panel.
5. Properties of selected concept.
6. Modelling of selected concept.
7. Link to NCTS content request submission.
8. Tour.

8 ?

SNOMED CT } 2

AU - 20181031

All concepts

search terms

3

Can't find the concept? 7

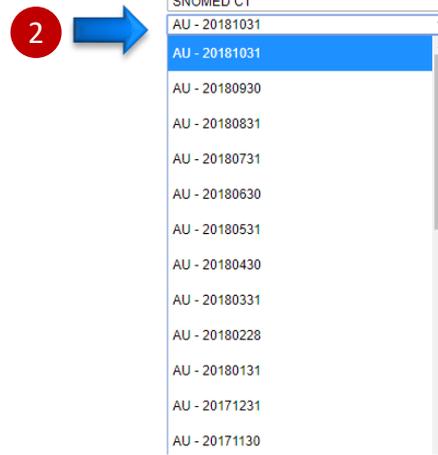
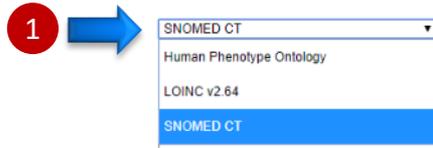
PROPERTY	VALUE
Code	138875005
Fully specified name	SNOMED CT Concept (SNOMED RT+CTV3)
Preferred	SNOMED CT Concept
Synonym (acceptable)	© 2002-2018 International Health Terminology Standards Development Organisation (IHTSDO). All rights reserved. SNOMED CT®, was originally created by The College of American Pathologists. "SNOMED" and "SNOMED CT" are registered trademarks of the IHTSDO.

6

SNOMED CT Concept <http://www.w3.org/2002/07/owl#Thing>

<https://ontoserver.csiro.au/shrimp>

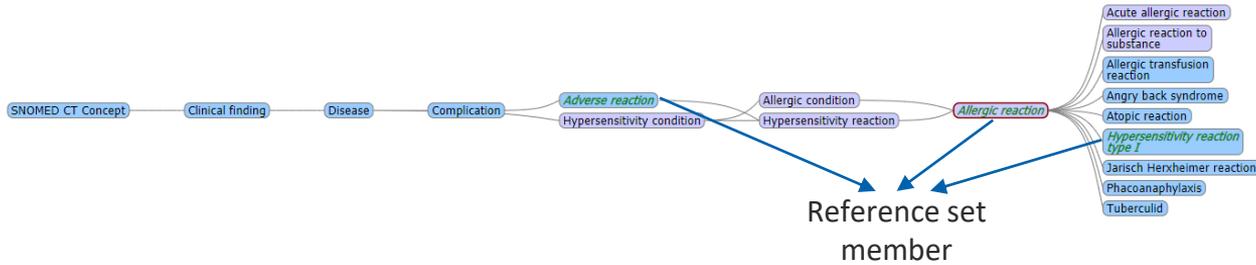
Filter by terminology and version



1. Filter by terminology:
 - Select from code systems that are in the server.
 - Default is SNOMED CT.
2. Filter by version:
 - Select from particular versions of the terminology.
 - Default is the current version of SNOMED CT-AU.

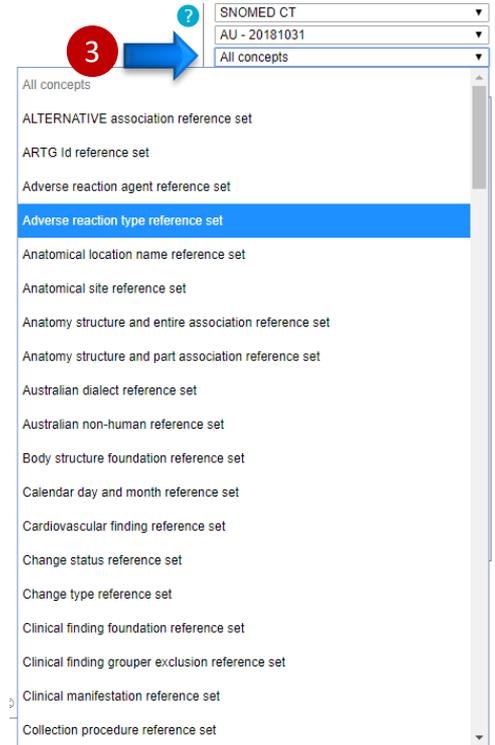


Filter by reference set



3. Filter by reference set:

- Limit the search to members of a particular reference set.
- Default is All concepts (everything included in SNOMED CT-AU).
- When filtered, the Hierarchy panel will show some concepts with green text to indicate they are members of the selected reference set.
- For more information, refer to the *SNOMED CT-AU Development Approach for Reference Sets* in the NCTS document library.
 - Provides a list of reference sets available from the NCTS.
 - Describes why and how the reference sets were developed, along with example content.



Search terms

1

SNOMED CT	SNOMED CT	SNOMED CT	SNOMED CT	SNOMED CT
AU - 20181031	AU - 20181031	AU - 20181031	AU - 20181031	AU - 20181031
All concepts	All concepts	Clinical finding foundation reference set	All concepts	All concepts
acute myo in	500 mg amox 20	liver failure	hiv	32570581000036105

2a partial word search

2b partial words, any order

2c search by synonym

2c search by acronym

2d search by concept ID

1. Type in one or more terms in the Search bar.
 - Capitalisation is ignored, for example, “hiv” will return “HIV”, “HIV antibody”, etc.
2. Shrimp supports searching on:
 - a. Partial words (at least two characters).
 - b. Words in any order.
 - c. Synonyms (including many acronyms).
 - d. SNOMED CT concept IDs or codes.

Search results

1. Preferred term of the concept is displayed.
2. Semantic tag (word in brackets) to the right of each term describes the sub-hierarchy in which the concept is located.
 - The Semantic tag is a part of the Fully specified name, however this tool displays it with the Preferred term to allow easier interpretation of the search result.
3. Searching returns the top 100 matches only.
 - Type in more search terms to narrow down the list.
4. If you cannot find a concept you're looking for, either:
 - a. Click on the "Can't find the concept?" button.
 - » This links to the content request submission page on the NCTS website.
 - » Fill in details of any missing content you'd like added to SNOMED CT-AU or AMT.
 - b. Email help@digitalhealth.gov.au (not shown in this diagram).

SNOMED CT
AU - 20181031
All concepts
HIV

HIV (organism)
Cachexia associated with AIDS (finding)
Congenital HIV positive status syndrome (disorder)
HIV antibody (substance)
HIV antibody titre measurement (procedure)
HIV encephalitis (disorder)
HIV enteropathy (disorder)
HIV infection (disorder)
HIV infection classification systems (staging scale)
HIV infection constitutional disease (disorder)
HIV leucoencephalopathy (disorder)
HIV myopathy (disorder)
HIV test (procedure)
Hives (disorder)
Neuropathy due to HIV - human immunodeficiency virus (disorder)
HIV carrier (finding)
HIV counselling (procedure)
HIV culture (procedure)
HIV DNA (substance)
HIV encephalopathy (disorder)
HIV negative (finding)
HIV positive (finding)

SNOMED CT
AU - 20181031
All concepts
zyx

0 matches

Can't find the concept?
100 of 424 matches

PROPERTY	VALUE
Code	19030005
Fully specified name	Human immunodeficiency virus (organism)
Preferred	HIV
Synonym (acceptable)	Human immunodeficiency virus HIV - Human immunodeficiency virus HIV AIDS virus
Effective Time	20020131
Primitive	true
Module ID	900000000000207008

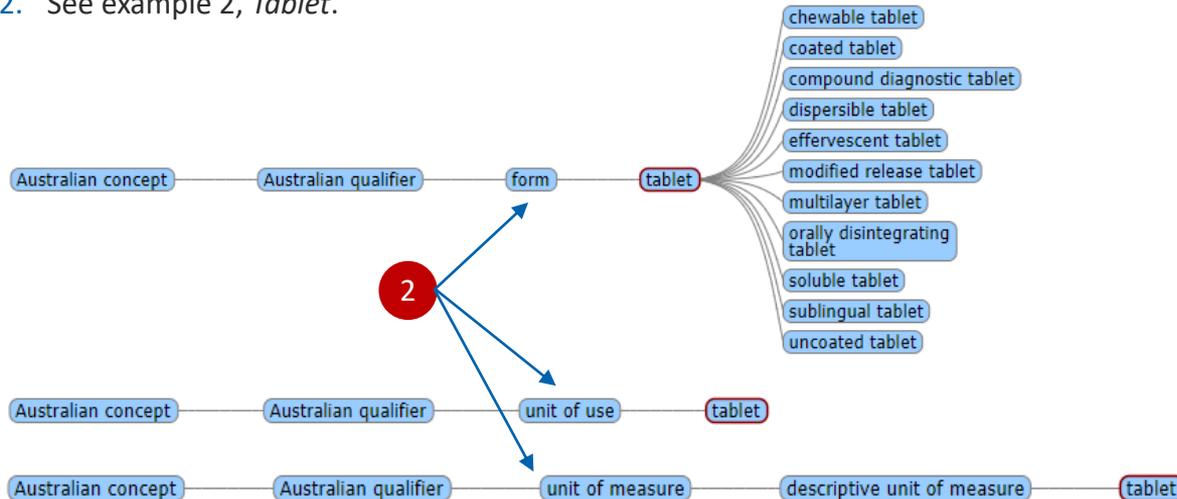


Search results can appear duplicated

- Multiple results may look the same because of the preferred term.
 - See example 1, *Haemolysis*.
- However, each of these concepts is different in meaning and can be distinguished by the **Semantic tag** or **Hierarchy panel** and **Modelling view**.
 - See example 2, *Tablet*.

The screenshot shows a search interface for SNOMED CT. The search term is 'haemolysis'. The results list various concepts with their semantic tags in parentheses. A red circle with the number '1' is placed next to the first three results: 'Haemolysis (observable entity)', 'Haemolysis (finding)', and 'Haemolysis (attribute)'. A blue bracket groups these three results.

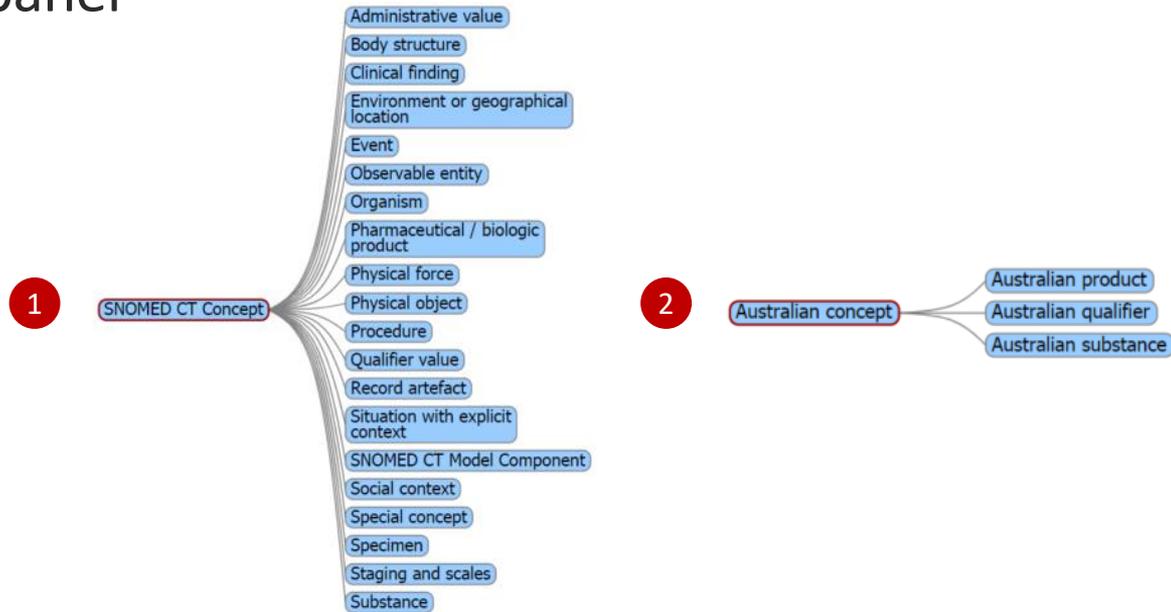
Concept	Semantic Tag
Haemolysis	(observable entity)
Haemolysis	(finding)
Haemolysis	(attribute)
% hemol	(qualifier value)
Extravascular haemolysis	(finding)
Haemolysis monitoring	(regime/therapy)
Intravascular haemolysis	(finding)
Bacterial colony haemolysis	(finding)
Haemolysis screening test	(procedure)
Single radial haemolysis	(qualifier value)
Sucrose haemolysis test	(procedure)
Synergistic haemolysis test	(procedure)
Bacterial colony haemolysis, alpha	(finding)
Bacterial colony haemolysis, beta	(finding)
Bacterial colony haemolysis, gamma	(finding)
Miscarriage with intravascular haemolysis	(disorder)
Bacterial colony haemolysis, alpha prime	(finding)
Determination of amount of haemolysis	(procedure)
Evaluation of rate of haemolysis	(procedure)
Examination of specimen for haemolysis	(procedure)



Can't find the concept?

53 matches

Hierarchy panel

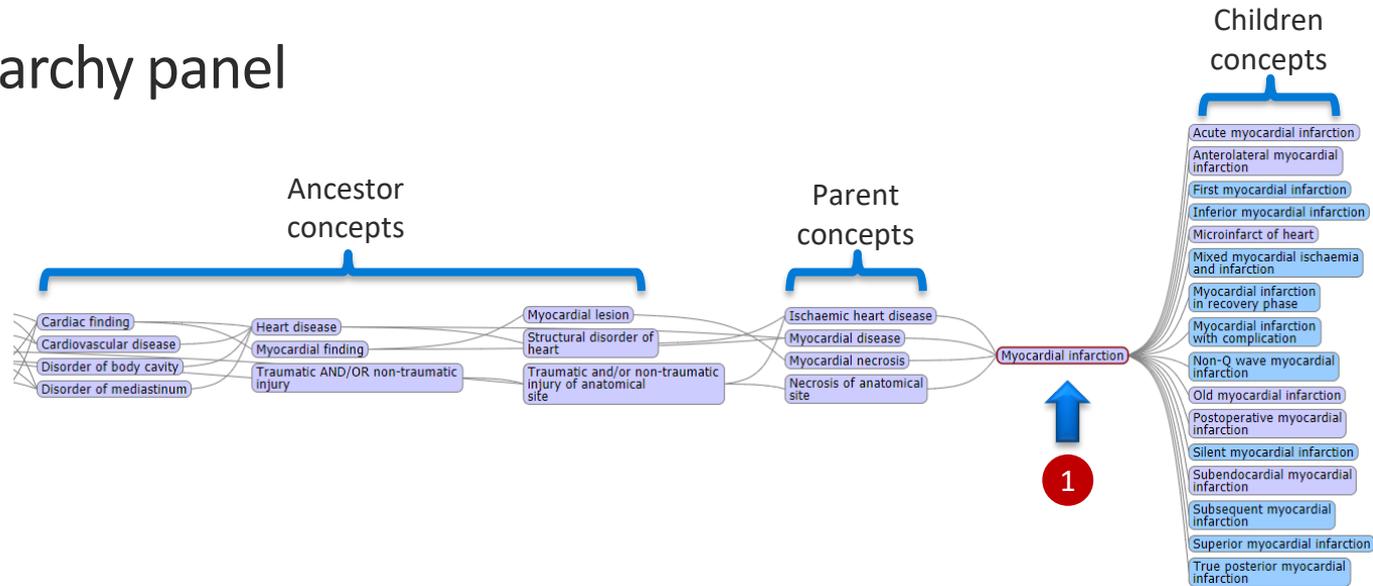


Shows how concepts are linked together via the IS A relationship.

1. SNOMED CT-AU content is contained within |*SNOMED CT Concept*|.
2. Australian Medicines Terminology (AMT) content is contained within |*Australian concept*|.



Hierarchy panel



1. The selected concept of *Myocardial infarction*, with its immediate children (right) and all parents and ancestors (left).
 - Purple box = fully defined concept (all defining attributes are modelled).
 - Light blue box = primitive concept (some defining attributes not modelled).

Children concepts may have further descendants (to the right). Descendants can be found by clicking on each child concept displayed consecutively and “following” each branch.

Click on any of the boxes in the Hierarchy panel to select a different concept, display its properties, and move around the terminology.



Properties box

PROPERTY	VALUE
Code	22298006
Fully specified name	Myocardial infarction (disorder)
Preferred	Myocardial infarction
Synonym (acceptable)	Myocardial infarction
	Myocardial infarct
	MI - Myocardial infarction
	Infarction of heart
	Heart attack
	Cardiac infarction
Effective Time	20020131
Primitive	false
Module ID	900000000000207008

Descriptions

1

2

3

The properties of the selected concept of |*Myocardial infarction*| are shown in the diagram.

1. Code is the SNOMED CT or AMT identifier of the selected concept.
2. “Preferred” is the preferred way of naming the concept in Australia.
3. Synonyms are other ways of naming the concept.

Code, descriptions, effective time, primitive and module ID are available for all concepts.

All entries in the Properties box can be copied & pasted, or dragged & dropped, into another application.



Properties box

PROPERTY	VALUE
Code	123178004
Fully specified name	Annual (qualifier value)
Preferred	Annual
Synonym (acceptable)	Annual
Effective Time	20020131
Primitive	false
Inactive	true
Module ID	900000000000207008
Replaced By	53281000

1 →

2 →

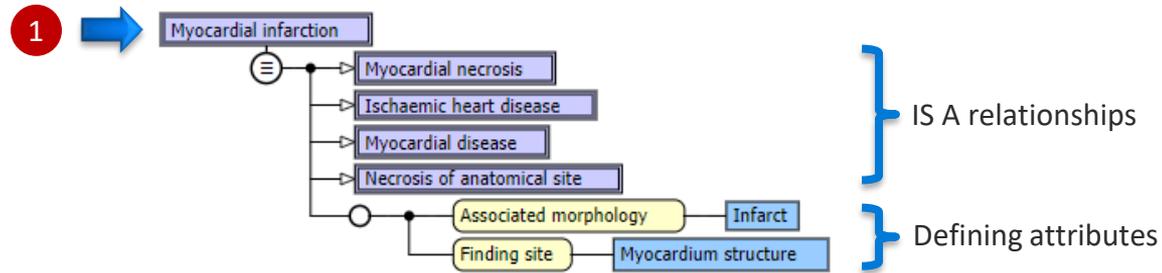
PROPERTY	VALUE
Code	69505011000036107
Fully specified name	Paroven Forte (oxerutins 500 mg) uncoated tablet, 60 tablets, blister pack (containered trade product pack)
Preferred	Paroven Forte 500 mg uncoated tablet, 60, blister pack
Synonym (acceptable)	Paroven Forte 500 mg uncoated tablet, 60, blister pack
	Paroven Forte (hydroxyethylrutosides 500 mg) uncoated tablet, 60 tablets, blister pack
Effective Time	20090630
Primitive	false
Module ID	900062011000036108
ARTG Id	52171

3 →

Additional properties are available in certain circumstances:

1. The inactive property is only shown for inactive concepts.
2. Inactive concepts may be replaced by, or are possibly equivalent to, other concepts. Replacement concepts are clickable.
3. ARTG Id is only shown for AMT Containered Trade Product Pack (CTPP) concepts that have an associated ARTGID.

Modelling view



1. The selected concept of *Myocardial infarction*, with the modelling based on SNOMED CT diagramming notation, showing IS A relationships and defining attributes.
 - Purple box = fully defined concept (all defining attributes are modelled).
 - Light blue box = primitive concept (some defining attributes not modelled).
 - Yellow box = attribute relationship.

Click on any of the boxes in the Modelling view to select a different concept, display its properties, and move around the terminology.



How to find the right concept

SNOMED CT
AU - 20181031
All concepts
haemolysis

Haemolysis (observable entity)
Haemolysis (finding)
Haemolysis (attribute)
% hemol (qualifier value)
Extravascular haemolysis (finding)
Haemolysis monitoring (regime/therapy)
Intravascular haemolysis (finding)
Bacterial colony haemolysis (finding)
Haemolysis screening test (procedure)
Single radial haemolysis (qualifier value)
Sucrose haemolysis test (procedure)

1

SNOMED CT
AU - 20181031
Clinical finding foundation reference set
haemoly

Haemolysis (finding)
Extravascular haemolysis (finding)
Haemolysin factor (finding)
Haemolytic anaemia (disorder)
Haemolytic crisis (finding)
Haemolytic disorder (disorder)
Haemolytic glaucoma (disorder)
Haemolytic jaundice (disorder)
Intravascular haemolysis (finding)
Sample haemolysed (finding)
Acquired haemolytic anaemia (disorder)
Autoimmune haemolytic anaemia (disorder)
Bacterial colony haemolysis (finding)
Chronic haemolytic anaemia (disorder)
Congenital haemolytic anaemia (disorder)

2

SNOMED CT
AU - 20181031
Clinical finding foundation reference set
haemoly anaemia

Haemolytic anaemia (disorder)
Acquired haemolytic anaemia (disorder)
Autoimmune haemolytic anaemia (disorder)
Chronic haemolytic anaemia (disorder)
Congenital haemolytic anaemia (disorder)

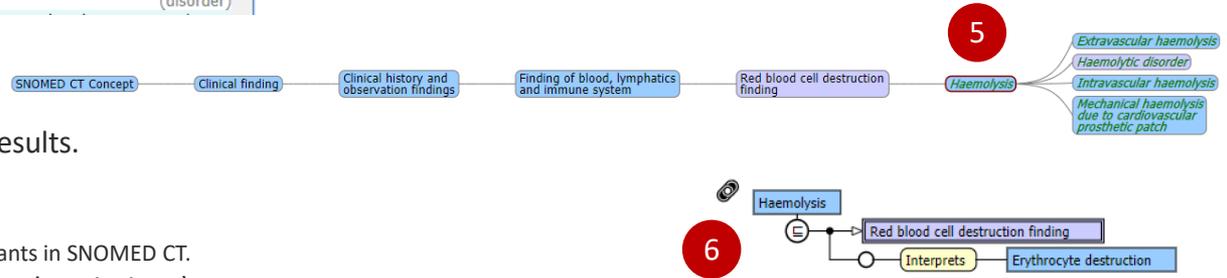
3

PROPERTY	VALUE
Code	73320003
Fully specified name	Hemolysis (finding)
Preferred	Haemolysis
Synonym (acceptable)	Haemolysis
Synonym (other)	Hemolysis
Effective Time	20020131
Primitive	true
Module ID	900000000000207008

4

After typing in some search terms...

1. Check the semantic tags of the search results.
2. Filter on a reference set.
3. Add to or change your search terms.
 - Remember there can be spelling or word variants in SNOMED CT.
4. Look at the Properties box (i.e. check the descriptions).
5. Look at the Hierarchy panel (i.e. check ancestors and descendants).
6. Look at the Modelling view.



5

6

Inactive concepts

- When found, do NOT use inactive concepts. They are not recommended for clinical use
 - Note: When a reference set is selected in the filter, only active concepts are displayed in Search.
- The concept is coloured yellow in the Hierarchy panel, with no ancestors or descendants displayed. The Modelling view is also not available.
 - Inactive concepts are displayed in yellow text in the search results.
 - The property inactive = true.
 - Alternative concepts that are currently active may be suggested, and are clickable.
 - E.g. |*Nasal airway obstruction*| has two possible active replacements
 - Clicking on “68235000” refreshes the hierarchy panel, modelling view and properties box change to reflect the active replacement concept |*Nasal congestion*|.
 - If this is not the right concept, go back and click on the “232209000” link to check if |*Nasal obstruction*| is more suitable.

The screenshot illustrates the process of identifying and replacing an inactive concept. It shows a search for 'Nasal airway obstruction' (inactive) and its replacement with 'Nasal congestion' (active). The interface includes a hierarchy panel, search results, and a properties table.

Step 1: The concept 'Nasal airway obstruction' is highlighted in yellow in the hierarchy panel.

Step 2: The search results show 'Nasal airway obstruction (finding)' in yellow text. A message 'Can't find the concept?' with '100 of 177 matches' is displayed.

Step 3: The properties table for 'Nasal airway obstruction' shows 'Inactive: true'. A message 'Can't find the concept?' with '25 matches' is displayed.

Step 4: The properties table for 'Nasal congestion' shows 'Inactive: false'. A message 'Can't find the concept?' with '100 of 177 matches' is displayed.

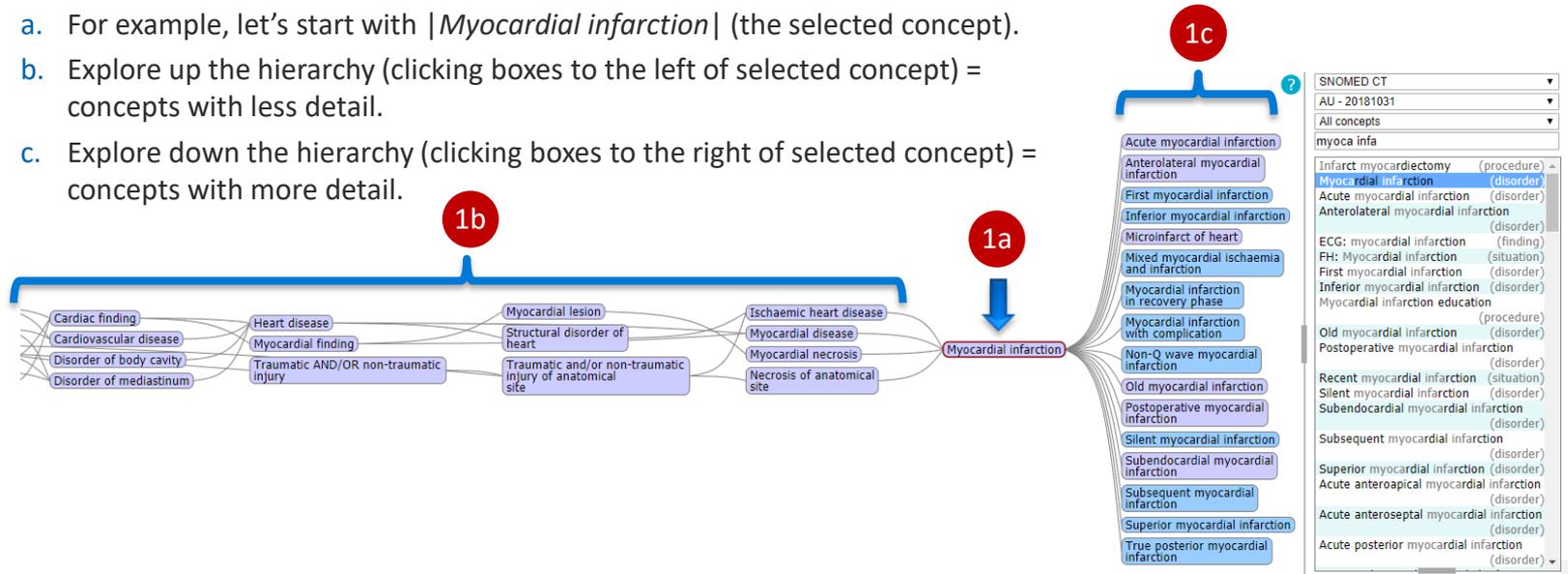
PROPERTY	VALUE
Code	162384000
Fully specified name	Nasal airway obstruction (finding)
Preferred	Nasal airway obstruction
Synonym (acceptable)	Nasal airway obstruction
Effective Time	20020131
Primitive	false
Inactive	true
Module ID	900000000000207008
Inactivation Reason	Ambiguous
Possibly Equivalent To	232209000
Possibly Equivalent To	68235000

PROPERTY	VALUE
Code	30561000036104
Fully specified name	Voltaren Osteo (diclofenac sodium 10 mg / 1 g) gel, 75 g, tube (containered trade product pack)
Preferred	Voltaren Osteo 1% gel, 75 g, tube
Synonym (acceptable)	Voltaren Osteo 1% gel, 75 g, tube
Effective Time	20171130
Primitive	false
Inactive	true
Module ID	900062011000036108
Inactivation Reason	Erroneous
Replaced By	1037121000168107

Using the Hierarchy panel to explore
SNOMED CT-AU content

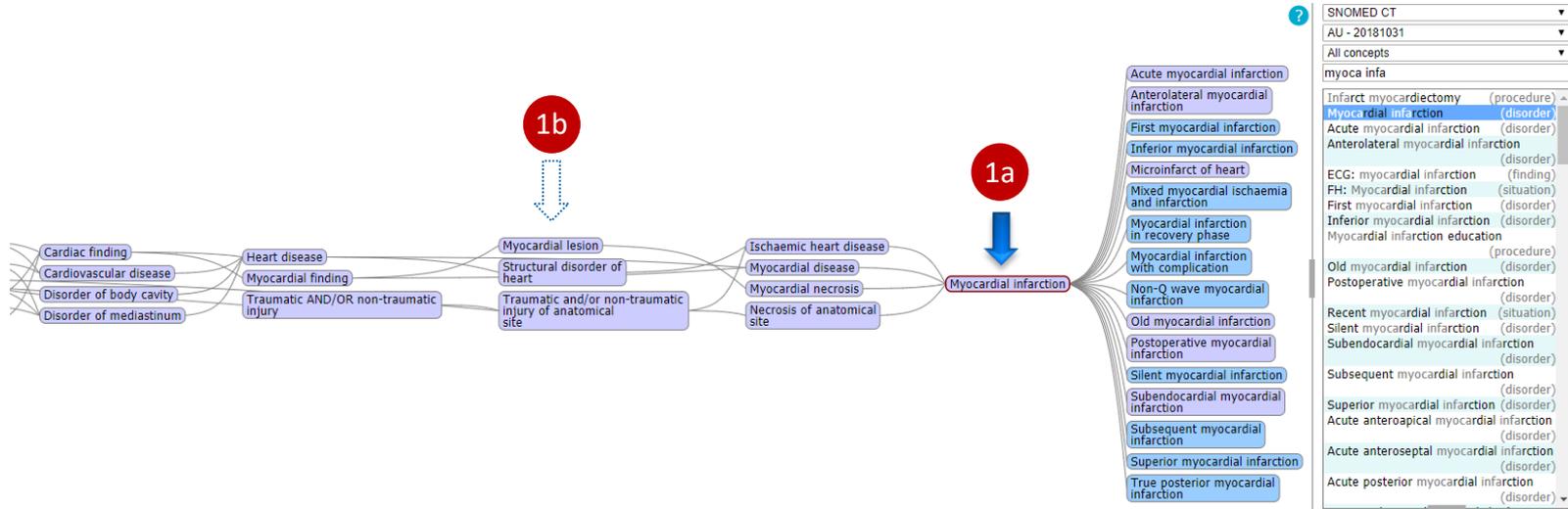
Exploring SNOMED CT-AU content in the Hierarchy panel

1. A good way to explore SNOMED CT-AU content is to type in some search terms, select a concept from search results, and then click on the various boxes to the left or right in the Hierarchy panel. In other words, by exploring up or down the hierarchy of concepts.
 - a. For example, let's start with |Myocardial infarction| (the selected concept).
 - b. Explore up the hierarchy (clicking boxes to the left of selected concept) = concepts with less detail.
 - c. Explore down the hierarchy (clicking boxes to the right of selected concept) = concepts with more detail.



Exploring up the hierarchy – parents and ancestors

1. Exploring the ancestors of a selected concept.
 - a. Let's start with |*Myocardial infarction*| (the selected concept).
 - b. The ancestor |*Myocardial lesion*| may be of interest to explore this branch.

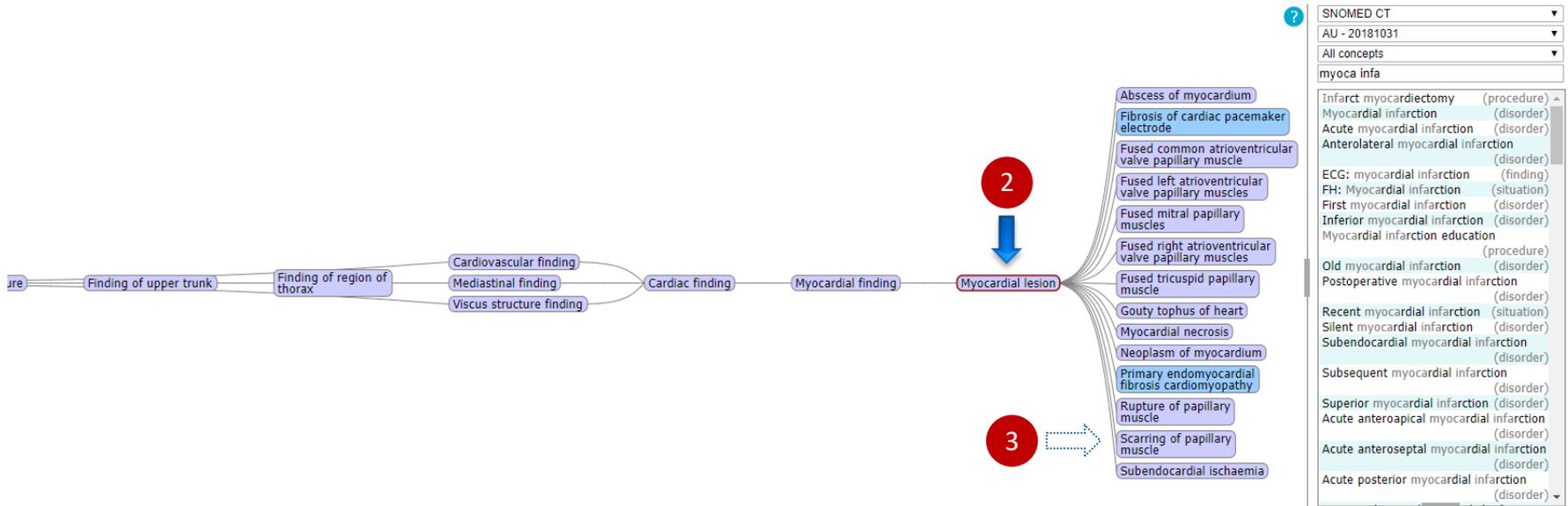


SNOMED CT
AU - 20181031
All concepts
myoca infa
Infarct myocardiectomy (procedure)
Myocardial infarction (disorder)
Acute myocardial infarction (disorder)
Anterolateral myocardial infarction
ECG: myocardial infarction (finding)
FH: Myocardial infarction (situation)
First myocardial infarction (disorder)
Inferior myocardial infarction (disorder)
Myocardial infarction education
Old myocardial infarction (procedure)
Old myocardial infarction (disorder)
Postoperative myocardial infarction
Recent myocardial infarction (disorder)
Recent myocardial infarction (situation)
Silent myocardial infarction (disorder)
Subendocardial myocardial infarction (disorder)
Subsequent myocardial infarction (disorder)
Subsequent myocardial infarction (situation)
Superior myocardial infarction (disorder)
Acute anteroapical myocardial infarction (disorder)
Acute anteroseptal myocardial infarction (disorder)
Acute posterior myocardial infarction (disorder)



Exploring up the hierarchy – parents and ancestors (cont.)

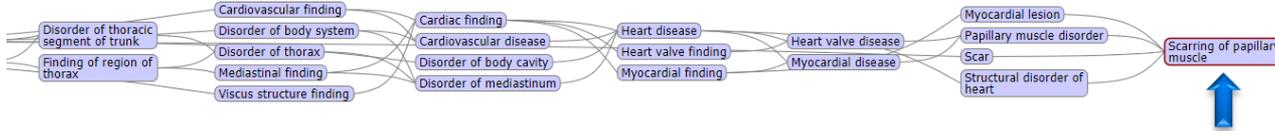
2. The concept |*Myocardial lesion*| is selected. It has 14 child concepts.
3. Exploring further, one of its child concepts |*Scarring of papillary muscle*| may be of interest.



Exploring up the hierarchy – parents and ancestors (cont.)

4. The concept |*Scarring of papillary muscle*| is selected as the final concept.

- It has no children concepts, therefore it is the most specific concept found in this particular branch.



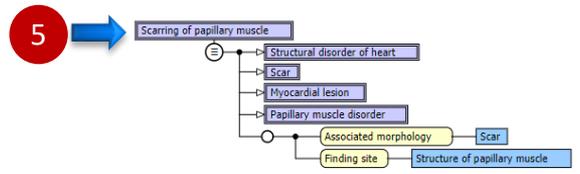
SNOMED CT
 AU - 20181031
 All concepts
 myoca inf

Infarct myocardiectomy (procedure)
 Myocardial infarction (disorder)
 Acute myocardial infarction (disorder)
 Anterolateral myocardial infarction (disorder)
 ECG: myocardial infarction (finding)
 FH: Myocardial infarction (situation)
 First myocardial infarction (disorder)
 Inferior myocardial infarction (disorder)
 Myocardial infarction education (procedure)
 Old myocardial infarction (disorder)
 Postoperative myocardial infarction (disorder)
 Recent myocardial infarction (situation)
 Silent myocardial infarction (disorder)
 Subendocardial myocardial infarction (disorder)
 Subsequent myocardial infarction (disorder)
 Superior myocardial infarction (disorder)
 Acute anterolateral myocardial infarction (disorder)
 Acute anteroseptal myocardial infarction (disorder)
 Acute posterior myocardial infarction (disorder)

4

5. Also check the descriptions and modelling, to ensure selection of the correct concept.

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5

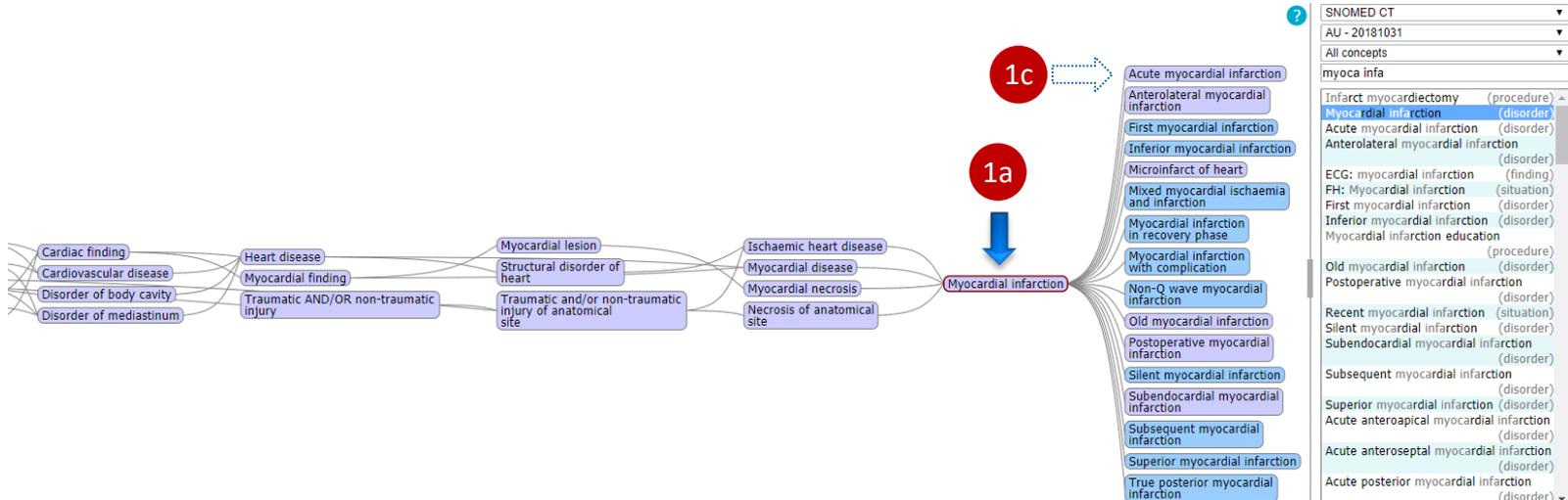
Can't find the concept?
 100 of 202 matches

PROPERTY	VALUE
Code	27007008
Fully specified name	Scarring of papillary muscle (disorder)
Preferred	Scarring of papillary muscle
Synonym (acceptable)	Scarring of papillary muscle
Effective Time	20020131
Primitive	false
Module ID	900000000000207008



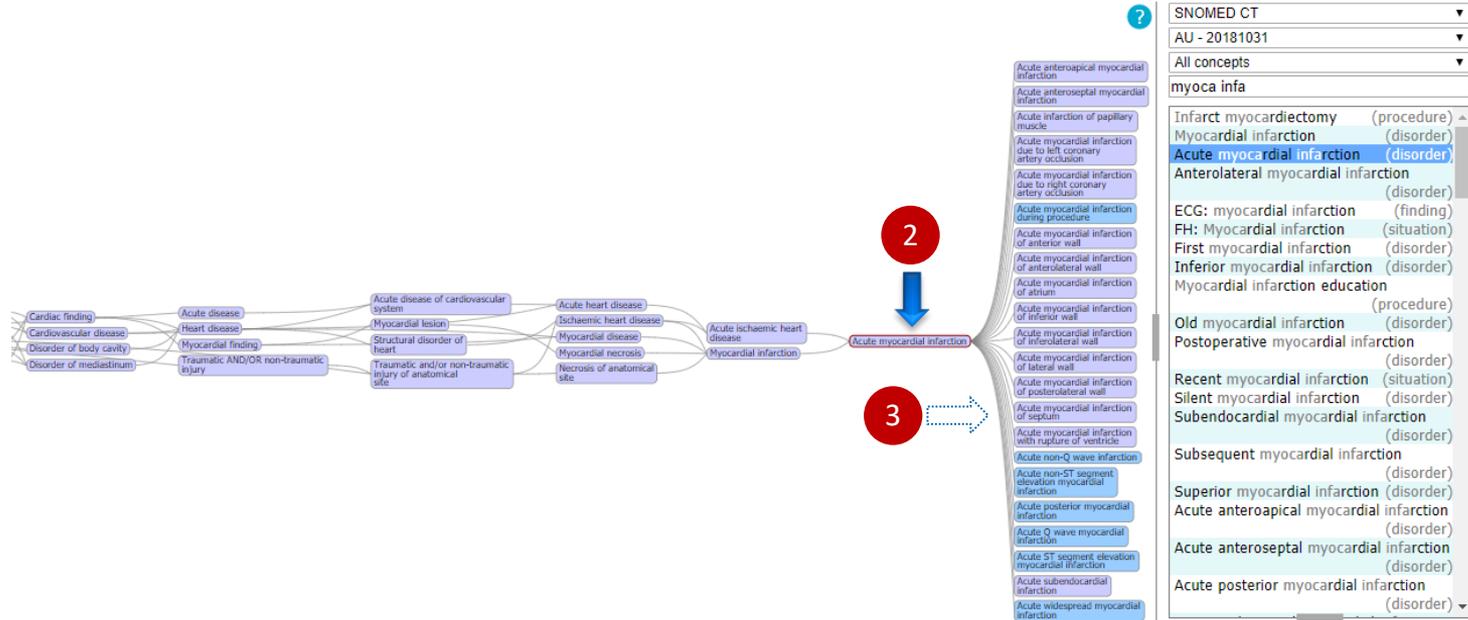
Exploring down the hierarchy – children and descendants

1. Exploring the descendants of a selected concept.
 - a. Going back to |*Myocardial infarction*| (the selected concept).
 - b. The parent |*Myocardial disease*| may be of interest.
 - c. The child |*Acute myocardial infarction*| may be of interest.



Exploring down the hierarchy – children and descendants (cont.)

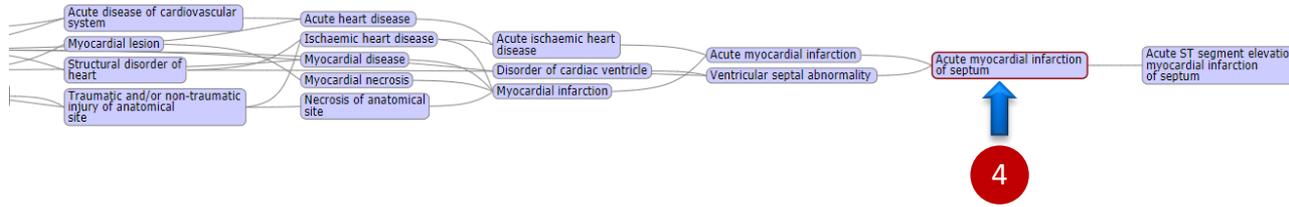
2. The concept |*Acute myocardial infarction*| is selected, which has 22 children.
3. Exploring further, the child concept |*Acute myocardial infarction of septum*| may be of interest.



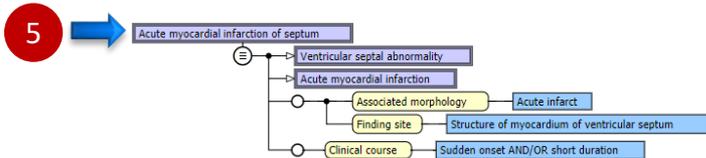
Exploring down the hierarchy – children and descendants (cont.)

4. The concept |*Acute myocardial infarction of septum*| is selected as the final concept.

- In this fictional example, the single child concept |*Acute ST segment elevation myocardial infarction of septum*| has additional detail which is not of interest.



5. Also check the descriptions and modelling, to ensure selection of the correct concept.



SNOMED CT
AU - 20181031
All concepts
myoca infa

Infarct myocardioectomy (procedure)
Myocardial infarction (disorder)
Acute myocardial infarction (disorder)
Anterolateral myocardial infarction (disorder)
ECG: myocardial infarction (finding)
FH: Myocardial infarction (situation)
First myocardial infarction (disorder)
Inferior myocardial infarction (disorder)
Myocardial infarction education (procedure)
Old myocardial infarction (disorder)
Postoperative myocardial infarction (disorder)
Recent myocardial infarction (situation)
Silent myocardial infarction (disorder)
Subendocardial myocardial infarction (disorder)
Subsequent myocardial infarction (disorder)
Superior myocardial infarction (disorder)
Acute anteroapical myocardial infarction (disorder)
Acute anteroseptal myocardial infarction (disorder)
Acute posterior myocardial infarction (disorder)

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Can't find the concept?
100 of 202 matches

PROPERTY	VALUE
Code	79009004
Fully specified name	Acute myocardial infarction of septum (disorder)
Preferred	Acute myocardial infarction of septum
Synonym (acceptable)	Acute septal infarction Acute myocardial infarction of septum alone Acute myocardial infarction of septum
Effective Time	20020131
Primitive	false
Module ID	900000000000207008

Searching medicinal content in the AMT

Medicinal content in SNOMED CT and the AMT

- When browsing for medicinal content in Shrimp, there may be concepts that appear to be duplicated.
- For example, searching for “amoxicillin” with no filters yields many results that include:
 - Medicinal products (MP).
 - Substances.
 - Procedures.
 - Disorders.
 - AMT trade product concepts.
- Some of these results have the same meaning but belong to different hierarchies. For example:
 - |*amoxicillin (medicinal product)*| is a medicinal product concept from the AMT.
 - |*amoxicillin (AU substance)*| is a substance concept from the AMT.
 - |*Amoxicillin (substance)*| is a substance concept from SNOMED CT.
 - |*Amoxicillin product (medicinal product)*| is a medicinal product concept from SNOMED CT.

same meaning

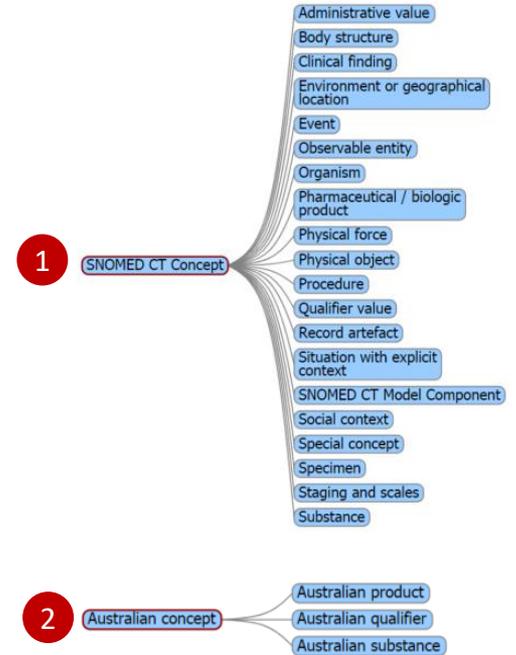
same meaning

SNOMED CT	▼
AU - 20181031	▼
All concepts	▼
amoxicillin	✕
amoxicillin	(MP) ▲
amoxicillin	(AU substance) ← b
Amoxicillin	(substance) →
Amoxicillin (Noumed)	(TP)
Amoxicillin measurement	(procedure)
Amoxicillin product	(MP)
Amoxicillin sodium	(substance)
Amoxicillin trihydrate	(substance)
Amoxycillin allergy	(disorder)
amoxicillin + clavulanic acid	(MP)
Amoxicillin and clavulanate	(substance)
Amoxicillin specific IgE	(substance)
Amoxicillin specific IgE antibody	
measurement	(procedure)
Amoxycillin overdose	(disorder)
Amoxicillin + clavulanate potassium	
allergy	(disorder)
amoxicillin 1 g tablet	(MPUU)
amoxicillin 250 mg capsule	(MPUU)
amoxicillin 500 mg capsule	(MPUU)
Amoxicillin (Noumed) 250 mg capsule	
	(TPUU)
Amoxicillin (Noumed) 500 mg capsule	
	(TPUU)
Amoxicillin + clavulanate potassium	
adverse reaction	(disorder)
amoxicillin 1 g injection, vial	(MPUU) ▼



Why do SNOMED CT and the AMT have similar medicinal content?

- The AMT describes commonly used medicines in Australia and supports electronic medication management.
- It was developed independently of SNOMED CT, while still conforming to these specifications.
 1. SNOMED CT-AU content is contained within the root concept |*SNOMED CT Concept*|.
 2. AMT content is contained within the root concept |*Australian concept*|.
- Integration of the AMT with SNOMED CT-AU content is in progress.
 - When completed, duplicate AMT concepts will be inactivated, and the corresponding SNOMED CT-AU concept will be recommended for use.



How to differentiate between SNOMED CT and the AMT

There are many ways to differentiate between SNOMED CT and the AMT, for example the |*amoxicillin*| substances.

1. The semantic tag (**AU substance**) instead of (**substance**)
2. A code that contains the string “**1000036**” or “**1000168**” describes a SNOMED CT-AU or AMT concept, while a code without these strings describes a SNOMED CT concept.
3. The Hierarchy panel root concept of |**Australian concept**| instead of |**SNOMED CT Concept**|.

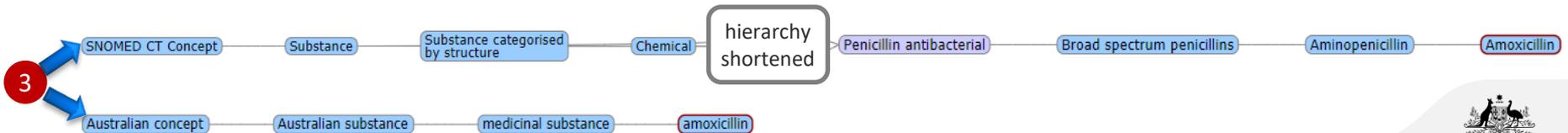
SNOMED CT	▼
AU - 20181031	▼
All concepts	▼
amoxicillin	✕
amoxicillin	(MP) ▲
amoxicillin	(AU substance)
Amoxicillin	(substance)
Amoxicillin (Noumed)	(TP)
Amoxicillin measurement	(procedure)
Amoxicillin product	(MP)

1

PROPERTY	VALUE
Code	1799011000036105
Fully specified name	amoxicillin (AU substance)
Preferred	amoxicillin
Synonym (acceptable)	amoxycillin
Effective Time	20090630
Primitive	true
Module ID	900062011000036108

2

PROPERTY	VALUE
Code	372687004
Fully specified name	Amoxicillin (substance)
Preferred	Amoxicillin
Synonym (acceptable)	Amoxicillin
Effective Time	20020731
Primitive	true
Module ID	900000000000207008



How to differentiate between SNOMED CT and the AMT

4. Applying a filter is a good way to retrieve only AMT product concepts. For example:
 - a. Selecting “Medicinal product reference set” results in only AMT MP concepts.
 - b. Selecting “Containerized trade product pack reference set” results in only AMT CTPP concepts.

Unfiltered search for
|amoxicillin| = 822 matches

SNOMED CT
AU - 20181031
All concepts
amoxicillin

amoxicillin (MP)
amoxicillin (AU substance)
Amoxicillin (substance)
Amoxicillin (Noumed) (TP)
Amoxicillin measurement (procedure)
Amoxicillin product (MP)
Amoxicillin sodium (substance)
Amoxicillin trihydrate (substance)
Amoxicillin allergy (disorder)
amoxicillin + clavulanic acid (MP)
Amoxicillin and clavulanate (substance)
Amoxicillin specific IgE (substance)
Amoxicillin specific IgE antibody measurement (procedure)
Amoxicillin overdose (disorder)
Amoxicillin + clavulanate potassium allergy (disorder)
amoxicillin 1 g tablet (MPUU)
amoxicillin 250 mg capsule (MPUU)
amoxicillin 500 mg capsule (MPUU)
Amoxicillin (Noumed) 250 mg capsule (TPUU)
Amoxicillin (Noumed) 500 mg capsule (TPUU)
Amoxicillin + clavulanate potassium adverse reaction (disorder)
amoxicillin 1 g injection, vial (MPUU)

Can't find the concept?
100 of 822 matches

SNOMED CT
AU - 20181031
All concepts

MRCM attribute range international reference set
MRCM domain international reference set
MRCM module scope reference set
Medication container type reference set
Medication form reference set
Medicinal product pack reference set
Medicinal product reference set
Medicinal product unit of use reference set
Mental health disorder reference set
Microorganism reference set
Module dependency
Musculoskeletal finding reference set
Neoplasm and/or hamartoma reference set
Non-medical adverse reaction agent reference set
Observable entity foundation reference set
Organism foundation reference set
Out of range indicator reference set
POSSIBLY EQUIVALENT TO association reference set
Physical force foundation reference set
Physical object foundation reference set

4a

Filtered search for
|amoxicillin| = 2 matches

SNOMED CT
AU - 20181031
Medicinal product reference set
amoxicillin

amoxicillin (MP)
amoxicillin + clavulanic acid (MP)

Can't find the concept?
2 matches

Refset Viewer

What are refsets?

- A refset (contraction of “reference set”) is a smaller set of SNOMED CT-AU or AMT data designed for a specified use case.
- The most common type of refsets are subsets, but there are also mapping refsets and those that add non-defining information for SNOMED CT-AU and AMT content.
- The Refset Viewer in Shrimp is currently best suited to view subsets only.
- Refer to the SNOMED CT-AU Development Approach for Reference Sets in the NCTS [document library](#).
 - Provides a list of refsets available from the NCTS.
 - Describes why and how the refsets were developed, along with some example content.
- Refset information is also available on the NCTS [Access](#) page.

Reference Sets

Keyword Status

View	Name	Description
	Type of hearing loss reference set	Supports the recording of hearing loss types.

Terminology

Refsets

ValueSets

ECL 

Ontoserver

5

1

4

6

2

3

1. Menu bar: select “Refsets”.
2. Version.
3. Available NCTS reference sets.
4. Members of the reference set.
5. Hierarchy/taxonomy panel.
6. Navigate between results pages.

Navigation: < Prev | 1 | Next >

SCTID	PREFERRED TERM
	AU - 20181031
	ALTERNATIVE association
	ARTG Id
	Adverse reaction agent
	Adverse reaction type
	Anatomical location name
	Anatomical site
	Anatomy structure and entire association
	Anatomy structure and part association
	Australian dialect
	Australian non-human
	Body structure foundation
	Calendar day and month
	Cardiovascular finding
	Change status
	Change type
	Clinical finding foundation
	Clinical finding grouper exclusion
	Clinical manifestation
	Collection procedure
	Concept inactivation indicator
	Containered trade product pack
	Days of the week
	Degree of hearing loss
	Description format
	Description inactivation indicator
	Disease caused by microorganism or bacteri
	Dose based prescribing dose form
	Dose based prescribing dose frequency and
	Dose based prescribing medication course ty
	Dose based prescribing route of administrac

Example: Viewing the *Adverse reaction type* reference set

1. Select a reference set from the dropdown to view its members.
2. Click on a member/concept to bring up the hierarchy view.
3. The concepts in green text are also members of the selected reference set.

Shrimp/ Refset Viewer: Adverse reaction type

Terminology Refsets ValueSets ECL Ontoserver

Showing 1 to 13 of 13 rows

SCTID	PREFERRED TERM
79899007	Drug interaction
12263007	Hypersensitivity reaction type I
28031001	Hypersensitivity reaction type IV
419076005	Allergic reaction
235719002	Food intolerance
281647001	Adverse reaction
75478009	Toxicity
83699005	Hypersensitivity reaction type III
90092004	Hypersensitivity reaction type II
401207004	Medication side-effect
404204005	Drug interaction with drug
95907004	Drug interaction with food
609406000	Non-allergic reaction

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https://r4.ontoserver.csiro.au/fhir
Terminology Server endpoint URL

AU - 20181031

ALTERNATIVE association
ARTG id
Adverse reaction agent
Adverse reaction type
Anatomical location name
Anatomical site
Anatomy structure and entire association
Anatomy structure and part association
Australian dialect
Australian non-human
Body structure foundation
Calendar day and month
Cardiovascular finding
Change status
Change type
Clinical finding foundation
Clinical finding grouper exclusion
Clinical manifestation
Collection procedure
Concept inactivation indicator
Containerized trade product pack
Days of the week
Degree of hearing loss
Description format
Description inactivation indicator
Disease caused by microorganism or bacteri
Dose based prescribing dose form
Dose based prescribing dose frequency and
Dose based prescribing medication course by
Dose based prescribing route of administrat

ValueSet Viewer

What are ValueSets?

- A ValueSet is a type of HL7 FHIR® resource.
- A ValueSet specifies a list of codes taken from one or more FHIR® CodeSystems, for a particular use.
- A ValueSet is similar to an NCTS reference set, except it conforms to the FHIR® specification.
- Read more about FHIR® and ValueSets - <https://www.hl7.org/fhir/valueset.html>

Shrimp ValueSet Viewer:

- Still under construction so some errors may be displayed.
- Many of the ValueSets listed are of test data only.



4

1

3

5

2

id: [< Prev | Next >]

SYSTEM	CODE	DISPLAY
		AMT Medicinal Product Pack
		AMT Trade Product Unit of Use
		AbstractType
		AccountStatus
		ActClassClinicalDocument
		ActClassROI
		ActConsentType
		ActIncidentCode Codes
		ActIncidentCode Codes
		ActMoodPredicate
		ActRelationshipFulfills
		ActionParticipantRole
		ActionType
		Activity Reason
		Acute-CHF
		AcuteRenalFailure
		AddressUse
		AdministrativeGender
		Adverse Reaction Agent
		AdverseEventCategory
		AlcoholType
		All Security Labels
		AllergicRhinitis
		AllergyIntoleranceCertainty
		Allied Health ValueSet - CLINFIND
		AncestorOf
		AspirationPneumonia
		AttentionDeficit
		Audit Event ID
		Australian Healthcare Clinical Document Arcl

1. Menu bar: select “ValueSets”.
2. Available ValueSets.
3. Members of the ValueSet.
4. Hierarchy/taxonomy panel.
5. Navigate between results pages.

Example: Viewing the AMT Medicinal Product Pack ValueSet

1. Select a value set from the dropdown to view the members.
2. Click on a member/concept to bring up the hierarchy view
3. The concepts in green text are members of the selected value set.

The screenshot shows the 'Shrimp ValueSet Viewer: AMT Medicinal Product Pack' interface. The top navigation bar includes 'Terminology', 'Refsets', 'ValueSets', 'ECL', and 'Ontoserver'. The main content area displays a table of medicinal product pack codes with columns for 'SYSTEM', 'CODE', and 'DISPLAY'. A red circle '2' highlights the first row. Below the table, a hierarchy view shows a path from 'Australian product' to 'medical product pack' to 'nilotinib 200 mg capsule, 112', which is highlighted in green. A red circle '3' is placed over this green text. A text box above the hierarchy shows the 'Terminology Server endpoint URL' as 'https://stu3.ontoserver.csiro.au/fhir'. A red circle '1' is placed over the 'AMT Medicinal Product Pack' dropdown menu on the right side of the interface.

SYSTEM	CODE	DISPLAY
http://snomed.info/sct	39479011000036101	nilotinib 200 mg capsule, 112
http://snomed.info/sct	720371000168109	insulin glargine 300 units/mL injection, 1.5 mL injection device
http://snomed.info/sct	79209011000036102	bisoprolol fumarate 5 mg tablet, 30
http://snomed.info/sct	995391000168103	cetylpyridinium chloride 1.3 mg + benzocaine 8.2 mg lozenge, 2
http://snomed.info/sct	958161000168109	pegvisomant 10 mg injection [30 vials] (&) inert substance diluent [30 vials], 1 pack
http://snomed.info/sct	872261000168105	sodium chloride 6.43 g/L + potassium chloride 1.19 g (potassium 16 mmol)/L + magnesium chloride hexahydrate 3.25 g



SNOMED ECL Builder

What is Expression Constraint Language (ECL)?

- A computer processable language that allows searching for concepts using their structure and attributes.
- Developed specifically to work with SNOMED CT content.
- Can be used to:
 - Explore and analyse SNOMED CT content.
 - Create a simple subset of concepts which eases the burden of maintaining the reference set.
 - Bind SNOMED CT concepts to an information model.
- Read more about ECL and some example functions - https://ontoserver.csiro.au/shrimp/ecl_help.html

Expression Constraint Language (ECL) High-level Reference

A brief overview of the SNOMED CT Expression Constraint Language (ECL), which is based on the post coordination syntax. The complete specification can be found at <http://snomed.org/ecl>

- All expression constraints are evaluated with respect to a specific version of SNOMED CT.
- An expression constraint always returns a set of codes (zero or more). That is, no duplicates.

Argument	Description
• conceptId	An SCTID optionally including a term surrounded by symbols. 307082005 ability to process information
• arg	An expression or conceptId. Bracketting may be required to avoid ambiguity. 11687002 << 73211009 (<< 73211009 . 36369007)

Category	Function	Description	Example
Basic	conceptId	The set containing the single concept with the specified conceptId. No change from previous.	11687002
	Any	All active and inactive concepts.	any
	+		+
	MemberOf conceptId + conceptId	The referencedComponents that are active members of the Reference Set identified by the conceptId. This may include both active and inactive concepts, but will not include concepts that were once members of the Reference Set but are no longer.	MemberOf_32579481000036102 MemberOf_32579481000036102 emergency_department_diagnosis reference.set! + 32579481000036102
Hierarchy	DescendantOf conceptId DescendantOrSelfOf conceptId	All descendants of the concept with the specified conceptId	DescendantOf_80146002
	< conceptId << conceptId	The descendantOrSelfOf and << forms also include the specified conceptId. Previously descendants(conceptId) AND DescendantsAndSelf(conceptId)	DescendantOf_404684003 clinical_finding! DescendantOrSelfOf_73211009 Diabetes_mellitus! + 80146002 + 404684003 clinical_finding! << 73211009 Diabetes_mellitus!



Features of the Shrimp SNOMED ECL Builder

- Create new queries from scratch or existing templates, to build your own library.
- Select operators from dropdown lists, and enter concepts by typing in the description.
- Buttons to add concepts, refinements, groupings, linked subquery (i.e. queries that are in your library), and free text.
- Final expression is visible to you as you build.
- Results and errors appear as you build.

Name: Australian tablet dose forms

Match

Self Find code... +C +R +G +L +T

Self

Descendants

Descendants Or Self

Children

Ancestors

Ancestors Or Self

Parents

Members Of

57302

CODE	DISPLAY
928061000168109	Dixarit 25 microgram sugar coated tablet, 100

Name: Australian tablet dose forms

Match

Descendants Or Self tablet +C +R +G +L +T

EXCLUDE

<< *

Total matches: 578847

CODE	DISPLAY
283994001	Semantic memory
1133851000168107	Valaciclovir (Chem
263025001	Dislocation of midc
124003003	Increased galactos
130806006	2-hydroxymuconat
84121000036103	Glypressin 850 microgram/8.5 mL injection, 8.5 mL ampoule

SNOMED ECL Builder: Untitled-3405 https://ontosever.csiro.au/stu3-latest

Terminology Refsets ValueSets **ECL** Ontosever

[ECL help] [ECL spec]
New query New from template

Use the buttons to the left to create new ECL queries. Use the green buttons in the query builder to add new parts to your query.
Note, the '+' button allows you to enter arbitrary ECL.

Version: default

Untitled-3405

Name: Untitled-3405

Match
Self Find code...

EXCLUDE

*

Total matches: 567302

CODE	DISPLAY
928061000168109	Dixarit 25 microgram sugar coated tablet, 100
441503001	Fospropofol disodium
395723006	Operation for transposition of great vessels
261145003	Palatal
258193004	Gravis type 1 dominant
247614002	Cannot remember wedding anniversary
122123001	Measurement of Strongyloides stercoralis antibody
256701005	Oral mucosal flap
148913009	Orbit/eyeball operation NOS
87626005	Minor salivary gland structure
4703008	Cardinal vein structure
55818011000036107	Paracetamol Extra (Guardian) uncoated tablet, 48
60925011000036109	Nurofen 200 mg sugar coated tablet, 24, blister pack
165874003	Serum indirect platelet antibody screening

Dixarit 25 microgram sugar coated tablet, 100
trade product pack
clonidine hydrochloride 25 microgram tablet, 100
has unit tablet
has TPUU Dixarit 25 microgram sugar coated tablet
Unit of use quantity = 100
has TP Dixarit

1. Ensure ECL is selected on the menu bar.
2. Select SNOMED CT-AU version (defaults to current release).
3. "ECL help" provides a guide to most ECL functions and examples of each.
4. "ECL spec" describes the detailed SNOMED CT ECL specifications.
5. Create new queries from scratch or templates to build your own library.
6. Build the query.
 - Hover over each green button to see its function
7. The actual ECL expression.
8. Number of results and results table.
9. Modelling for the concept selected in the results table (blue text).

<https://ontosever.csiro.au/shrimp/ecl/?fhir=https://r4.ontosever.csiro.au/fhir>

Example 1 – A simple SNOMED CT-AU query

- Find all children of |*Diabetes mellitus (disorder)*|.

Name:

Match

EXCLUDE

<! 73211009|Diabetes mellitus|

Total matches: 25

CODE	DISPLAY
199223000	Diabetes mellitus during pregnancy, childbirth and the puerperium
724136006	Diabetic mastopathy
123763000	Houssay's syndrome
127013003	Disorder of kidney co-occurrent and due to diabetes mellitus
609569007	Diabetes mellitus due to genetic defect in insulin action
421895002	Peripheral vascular disorder co-occurrent and due to diabetes mellitus
25093002	Disorder of eye co-occurrent and due to diabetes mellitus
703136005	Diabetes mellitus in remission
609568004	Diabetes mellitus due to genetic defect in beta cell function
105401000119101	Diabetes mellitus due to pancreatic injury
46635009	Type 1 diabetes mellitus
73211009	Diabetes mellitus

```
graph TD; T1DM[Type 1 diabetes mellitus] --- DM[Diabetes mellitus]; DM --- FS[Finding site]; DM --- SES[Structure of endocrine system];
```

This results in only the immediate children of the |*Diabetes mellitus (disorder)*| concept, and not the further descendants.

Click on a query result to display the modelling.

Example 2 – A complex AMT query using subqueries

- List all **single** Containered trade product packs (CTPPs) that contain amoxicillin.

1

Name: Ingredients of amoxicillin MP

Match

2141501100036100.7000008100036101

2

Name: Descendants of amoxicillin MP that only have that ingredient

Match

Descendants amoxicillin

none Self has intended active ingredient !=

Match

Self Ingredients of amoxicillin MP

3

Name: CTPPs that only contain amoxicillin

Match

Members Of Contained trade product pack reference set

none Self has TPUU !=

Match

Self Descendants of amoxicillin MP that only have that ingredient

3 steps to build:

- Create a query that uses the free text field to find the ingredients of the amoxicillin MP.
- Create another query that finds the descendants of amoxicillin MP that only have the ingredients specified in (1).
- Find CTPPs that only have TPUUs resulting from (2).

Example 2 – A complex AMT query using subqueries

Name:

Match +C +R +G +L +T

Members Of 🗑️

none has TPUU 🗑️

Match +C +R +G +L +T

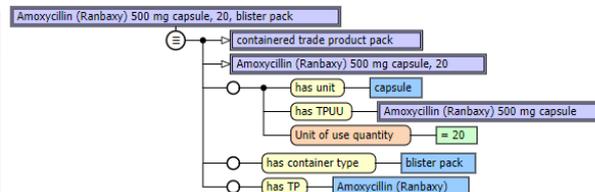
EXCLUDE +C +R +G +L +T

```

^ 929360051000036108|Containered trade product pack reference set| : [0..0] 30409011000036107|has TPUU| != (
  (
    < 21415011000036100|amoxicillin| : [0..0] 700000081000036101|has intended active ingredient| != (
      (
        (21415011000036100.700000081000036101)
      )
    )
  )
)
    
```

Total matches: 113

CODE	DISPLAY
30606011000036100	Amoxil Sugar Free 125 mg/5 mL powder for oral liquid, 100 mL, bottle
73340011000036109	Amoxicillin (Ranbaxy) 500 mg capsule, 20, blister pack
1012681000168105	Amoxicillin (GN) 250 mg capsule, 20, blister pack
901941000168105	Amoxicillin (Watson) 250 mg capsule, 20, blister pack
59931000036107	Amoxicillin (PS) 500 mg capsule, 3, blister pack
74361000036100	Yomax 500 mg capsule, 20, blister pack
69347011000036107	Fisamox 500 mg powder for injection, 5 vials



This results in CTPP concepts that only have “amoxicillin (AU substance)” as an ingredient.

Questions?

Contact us

Help Centre	1300 901 001
Email	help@digitalhealth.gov.au
Website	healthterminologies.gov.au digitalhealth.gov.au
Twitter	twitter.com/AuDigitalHealth

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