

# SNOMEDCT

## An Introduction

SCIMP

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# Stands for!

- **S**ystematised
- **N**omenclature
- **O**f
- **MED**icine
- **C**linical
- **T**erms

Is...

## What is SNOMED CT?

SNOMED CT:

- Is the most comprehensive
- Is a resource with comprehensive
- Enables consistent, precise
- Is mapped to other international
- Is already used in more than 100 countries

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

records.



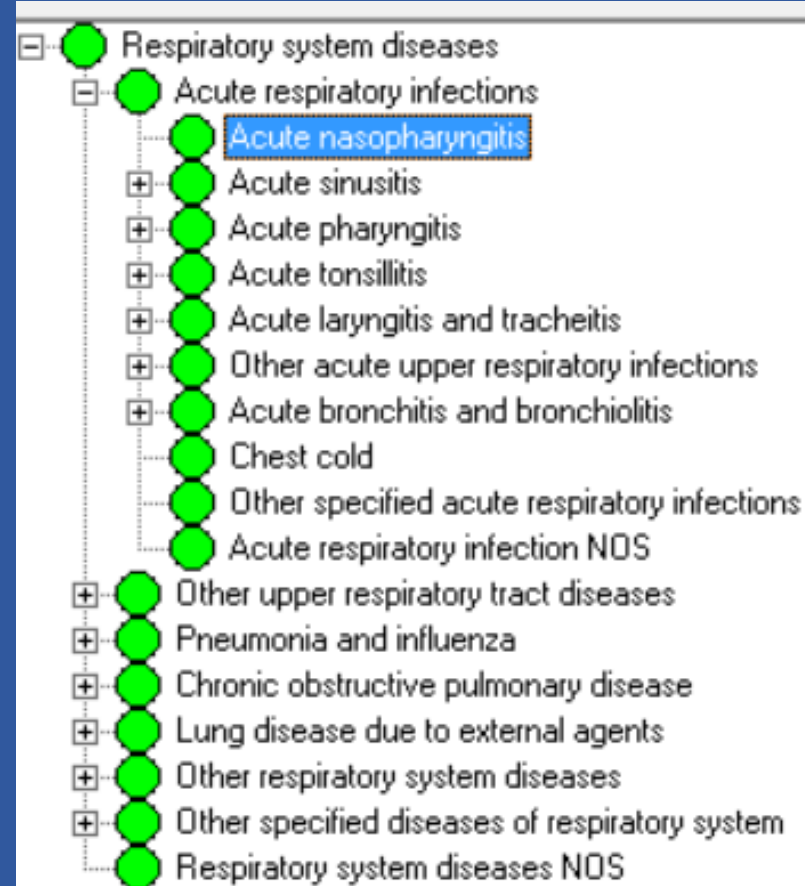
= A spade



= Common Cold

82272006

# Read Codes



- Flat Hierarchy
- Parent & Child
- One way up or down

# Keyword

**Read Dictionary**

**Find Read Term**

**Keyword:**  **Search Text:**  **Find**

Code	Term	<input type="checkbox"/> Display from Formulary	<input type="checkbox"/> Display
12C2	FH: MI- Myocardial infarct <60		
12C3	FH: MI- myocardial infarct >60		
G111	Mitral incompetence - rheumatic		
G132	Mitral incompetence and aortic stenosis		
*G133	Mitral and aortic incompetence		
G30	Cardiac rupture following myocardial infarction (MI)		
G30	MI - acute myocardial infarction		
G3110	MI - myocardial infarction aborted		
*G32	Old myocardial infarction		
G32	Healed myocardial infarction		
G32	Personal history of myocardial infarction		
*G35	Subsequent myocardial infarction		
*G36	Certain current complication follow acute myocardial infarct		
*G38	Postoperative myocardial infarction		

**Keywords:** ☒ **Display All Keywords**

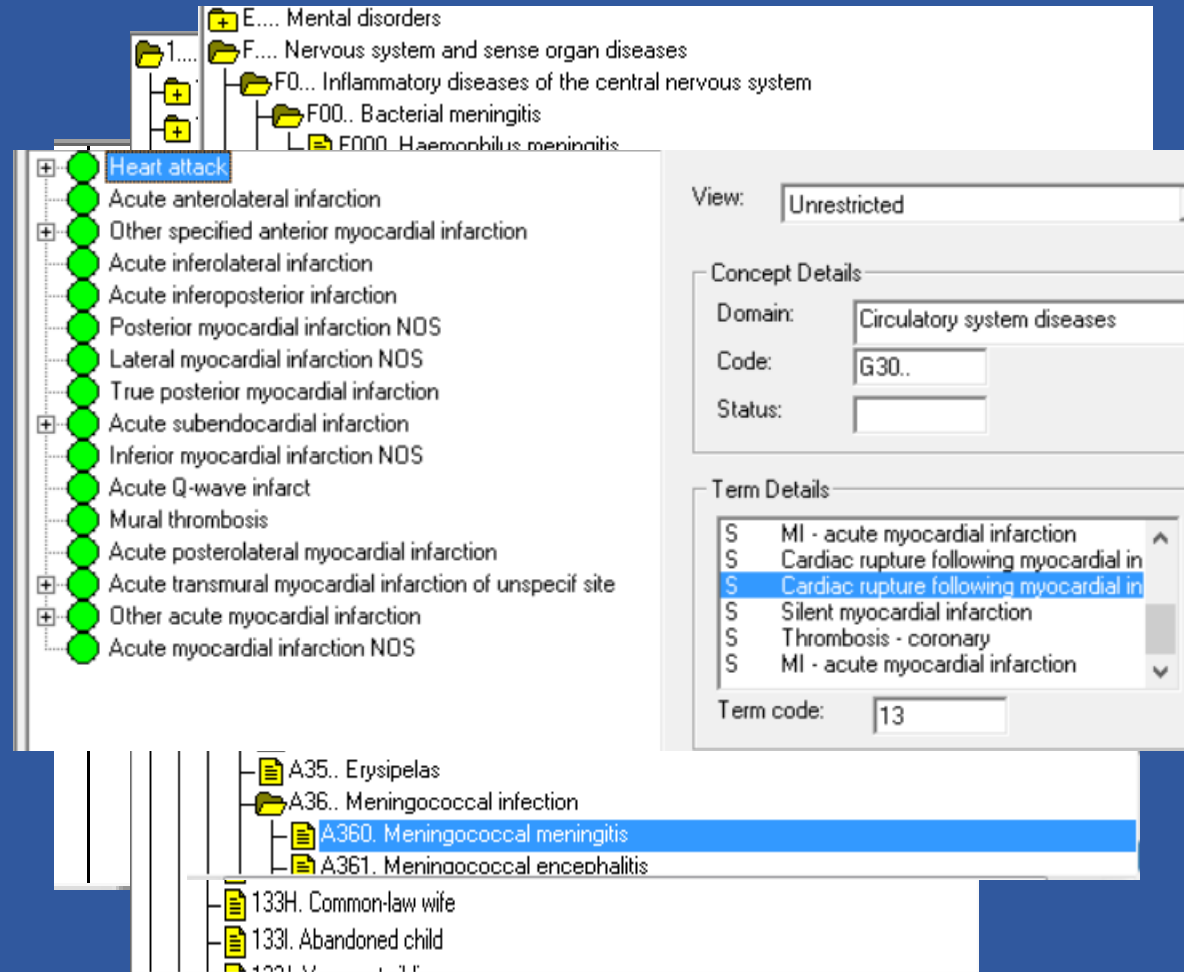
**Synonyms:** ☒ **Display Preferred Term** ☒ **Display Synonyms**

\*Acute myocardial infarction  
Attack - heart  
Coronary thrombosis

- Code – 5 Bytes H33..
- Term – the description
- Keywords – shorthand (not in SNOMEDCT)
- Synonyms and Preferred Terms

# Problems with Read

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









# Concept



“Common cold”

Common cold (disorder)

SCTID: 82272006



“On Exam Blood Pressure”

On examination – bp reading (finding)

SCTID: 163020007



“Gout”

Gout (disorder)

SCTID: 90560007

Crucial to patient care  
Only in clinical exam

- ▼ ● SNOMED CT Concept
  - ▶ ● 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)
  - ▶ ● Staging and scales (staging scale)
  - ▶ ● Substance (substance)

“Body parts”  
“Illnesses”  
Body Structure (body structure)  
Clinical finding (finding)  
SCTID: 123037004  
SCTID: 404684003

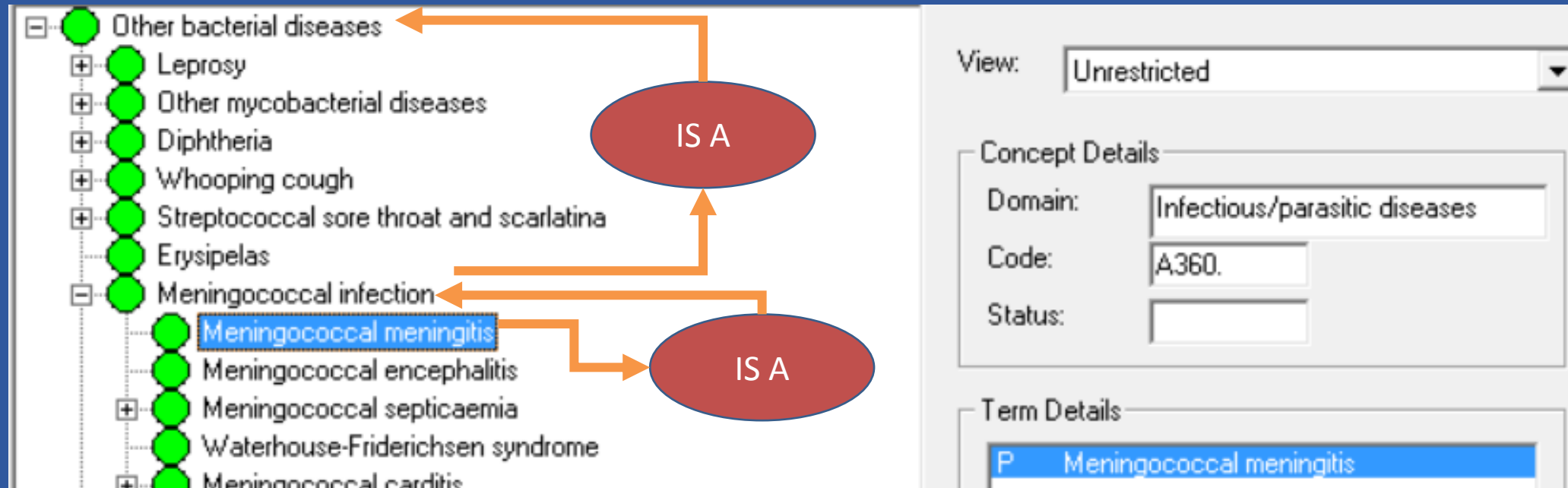
**| Clinical finding |** represents the result of a clinical observation, assessment or judgment and includes normal and abnormal clinical states (e.g. | asthma |, | headache |, | normal breath sounds |). The | clinical finding | hierarchy includes concept used to represent diagnoses.

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

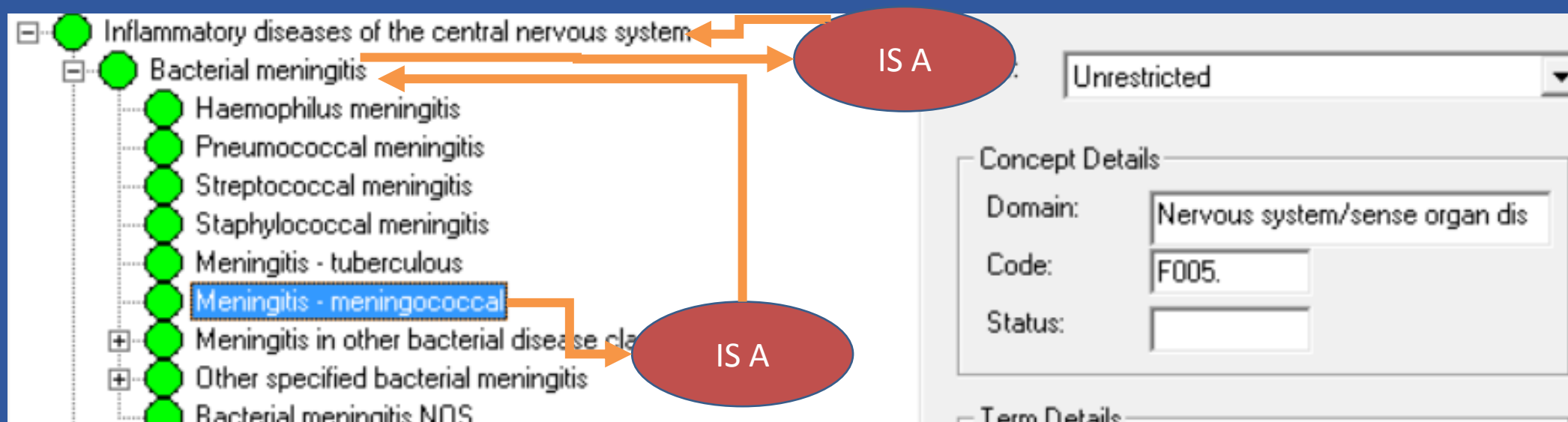
**| Observable entity |** represents a question or assessment which can produce an answer or result (e.g. | systolic blood pressure |, | color of iris |, | gender |).

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

Is a



# ISA



# “Meningitis caused by meningococci”

Other Bacterial Disease

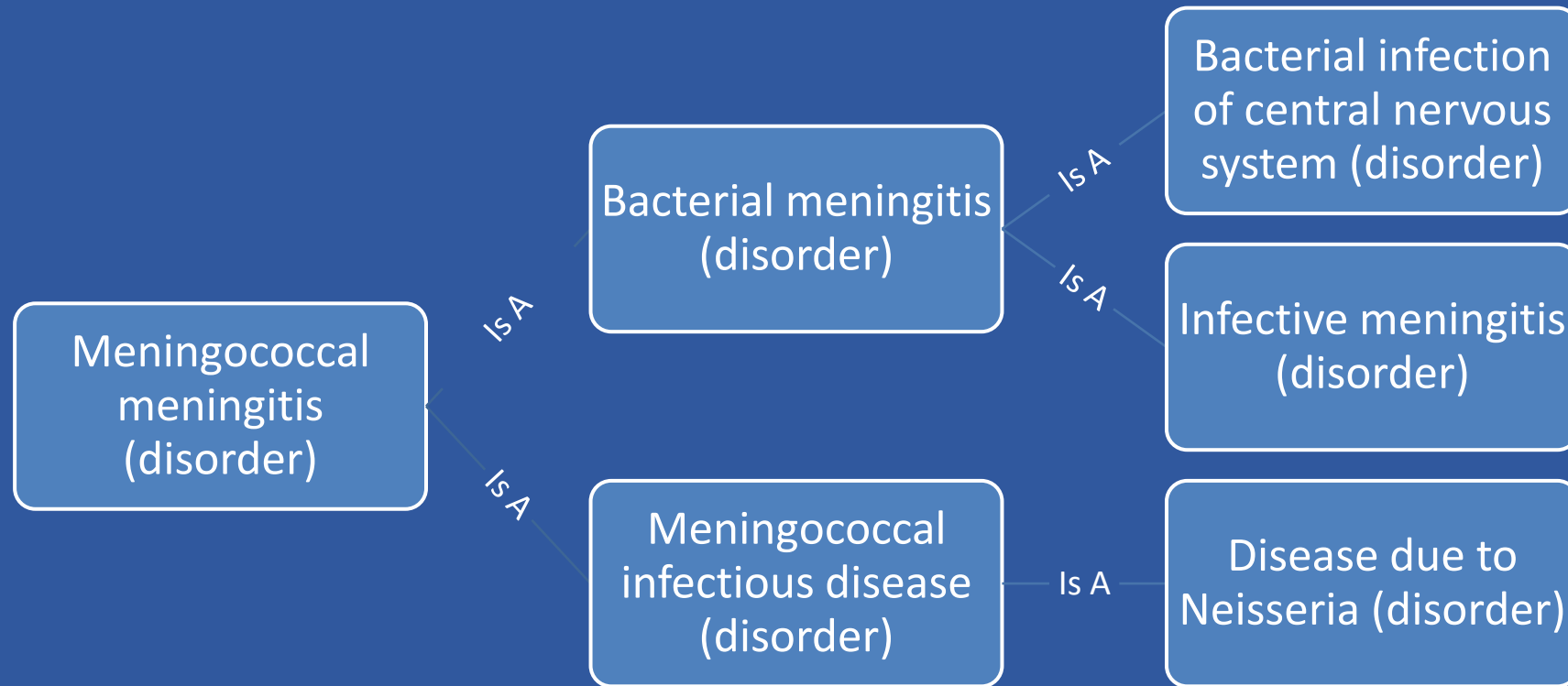
A360..

OR

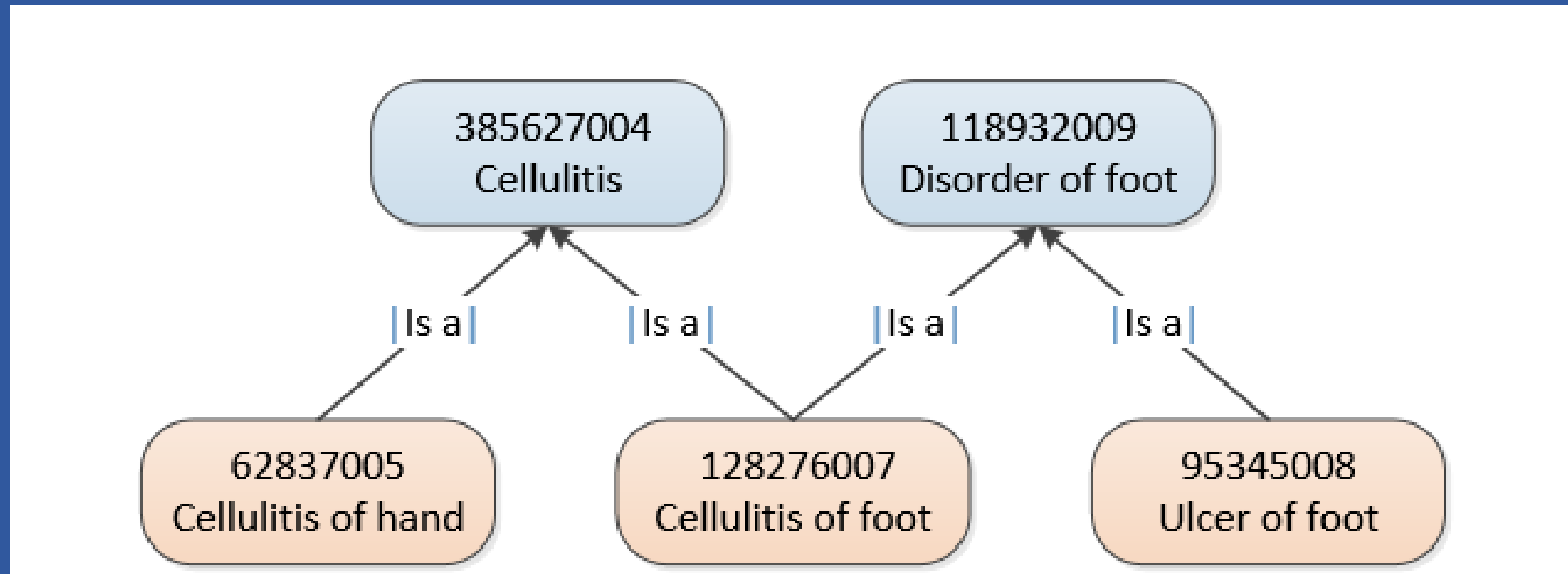
Inflammatory Disease of CNS

F005.

But not both at the same time...







coffee & chat

MORE  
FUN than  
a handbag  
Full of  
SNAKES

# Review!

- SNOMEDCT – Stands for...
- Concept – core idea
- Fully Specified Name
- Concept ID
- Polyhierarchy



# Attributes (Relationship Types)

- Further defines concepts
  - Finding Site – what bit does it affect?
  - Causative Agent – what thing causes this?
  - Associated Morphology – what happens at a tissue level?
- 50 types used by 9 hierarchies
- Logical model stops silliness
  - Domain – The Hierarchy to which the attribute can be applied  
|Procedure| cannot have |associated morphology|
  - Range – the set of concepts allowed as values  
The range for the attribute |finding site| is |body structure|

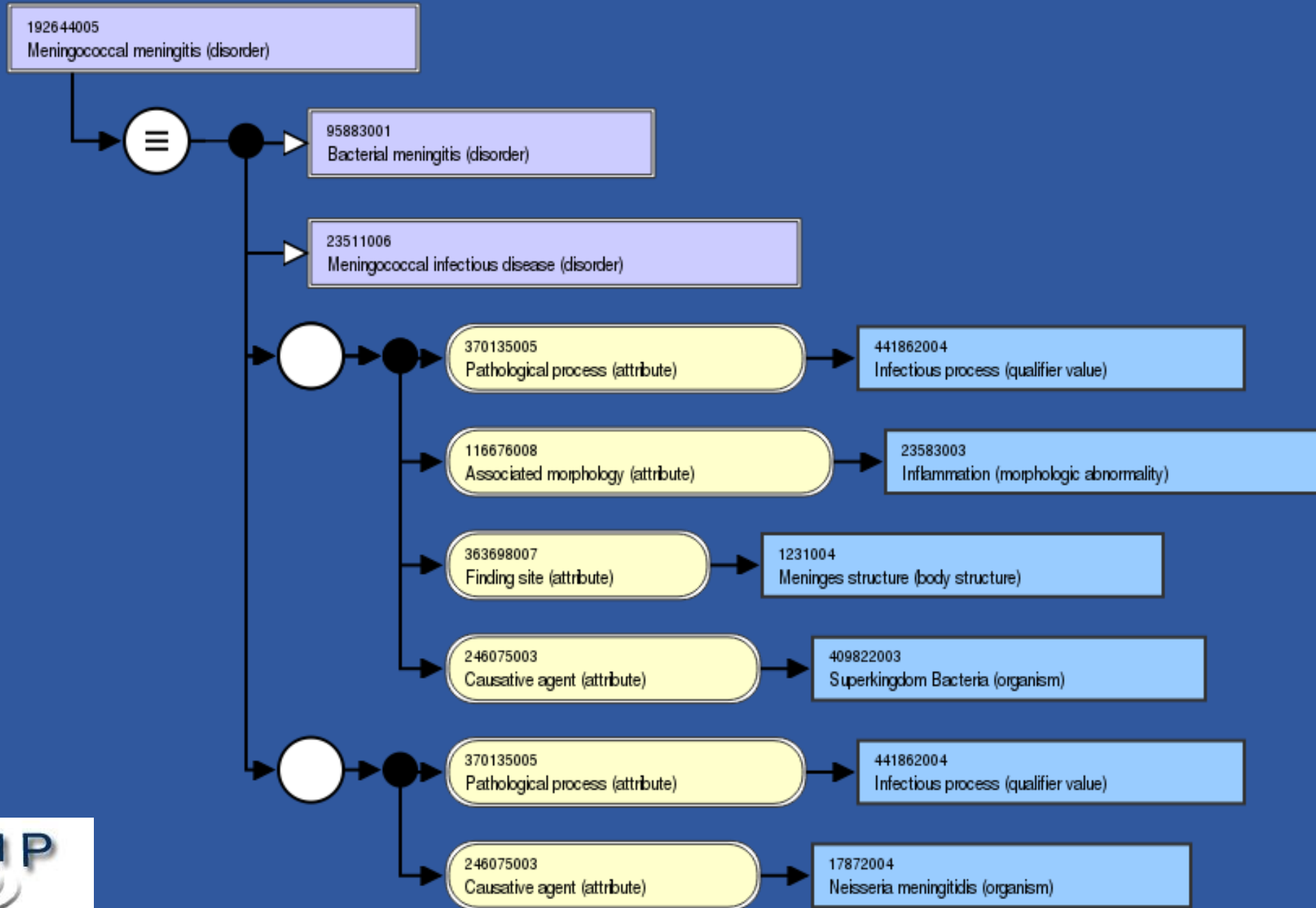
Meningococcal  
meningitis  
(disorder)

Pathological  
Process

Infectious  
Process

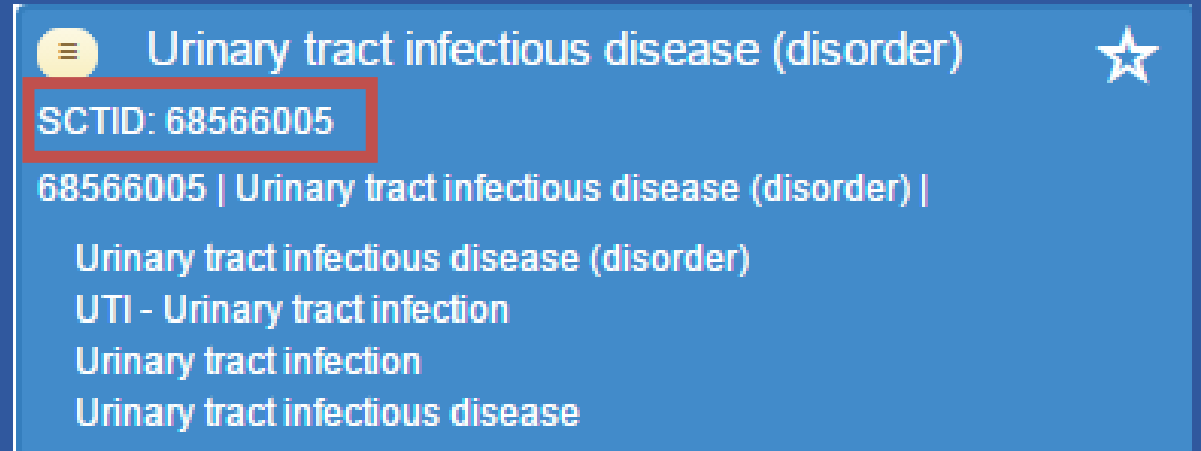
Associated  
Morphology

Inflammation



# Identifiers

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



A screenshot of a medical concept card from a system like SNOMED CT. The card has a blue background. At the top, it shows a menu icon, the text "Urinary tract infectious disease (disorder)", and a star icon. Below this, the "SCTID: 68566005" is highlighted with a red rectangular box. Underneath the box, the text "68566005 | Urinary tract infectious disease (disorder) |" is displayed. At the bottom, there is a list of synonyms: "Urinary tract infectious disease (disorder)", "UTI - Urinary tract infection", "Urinary tract infection", and "Urinary tract infectious disease".

Urinary tract infectious disease (disorder)

**SCTID: 68566005**

68566005 | Urinary tract infectious disease (disorder) |

Urinary tract infectious disease (disorder)  
UTI - Urinary tract infection  
Urinary tract infection  
Urinary tract infectious disease



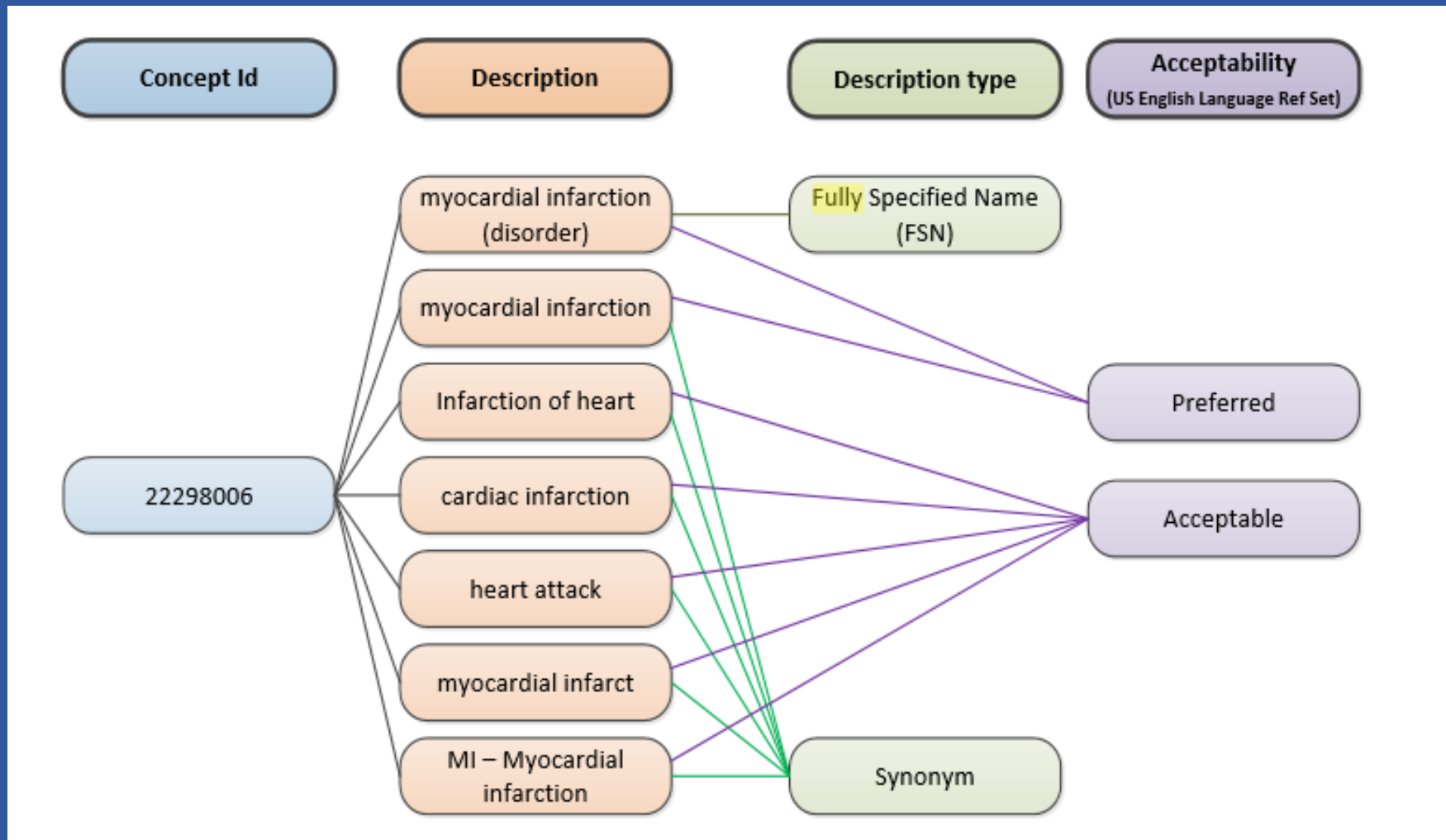
# Descriptions

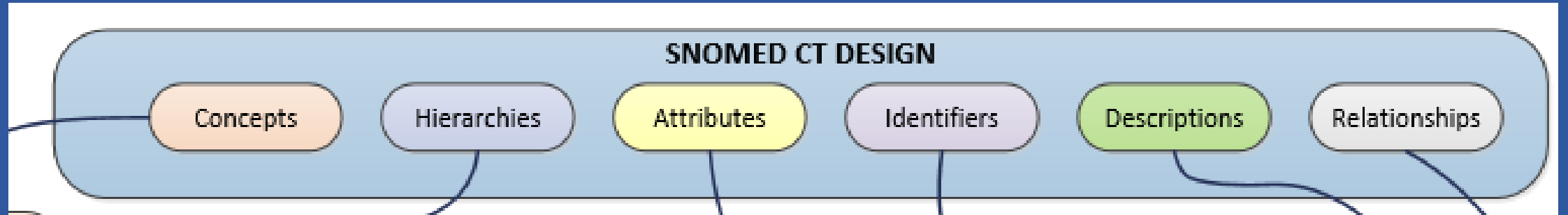
- Description Types
  - Fully Specified Name (has brackets (hierarchy))
    - Not meant to be used in records interfaces (!)
  - Synonyms
- Acceptability
  - Preferred (only one)
  - Acceptable (none to many)

☰ Myocardial infarction (disorder)

SCTID: 22298006 , Fully defined , Active

Term	Acceptability(GB)
F ☆ Myocardial infarction (disorder)	Preferred
S ✓ Cardiac infarction	Acceptable
S ✓ Heart attack	Acceptable
S ✓ Infarction of heart	Acceptable
S ✓ MI - Myocardial infarction	Acceptable
S ✓ Myocardial infarct	Acceptable
S ★ Myocardial infarction	Preferred





# Pre & Post Co-ordination

## Pre-coordinated

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

## Post-coordinated

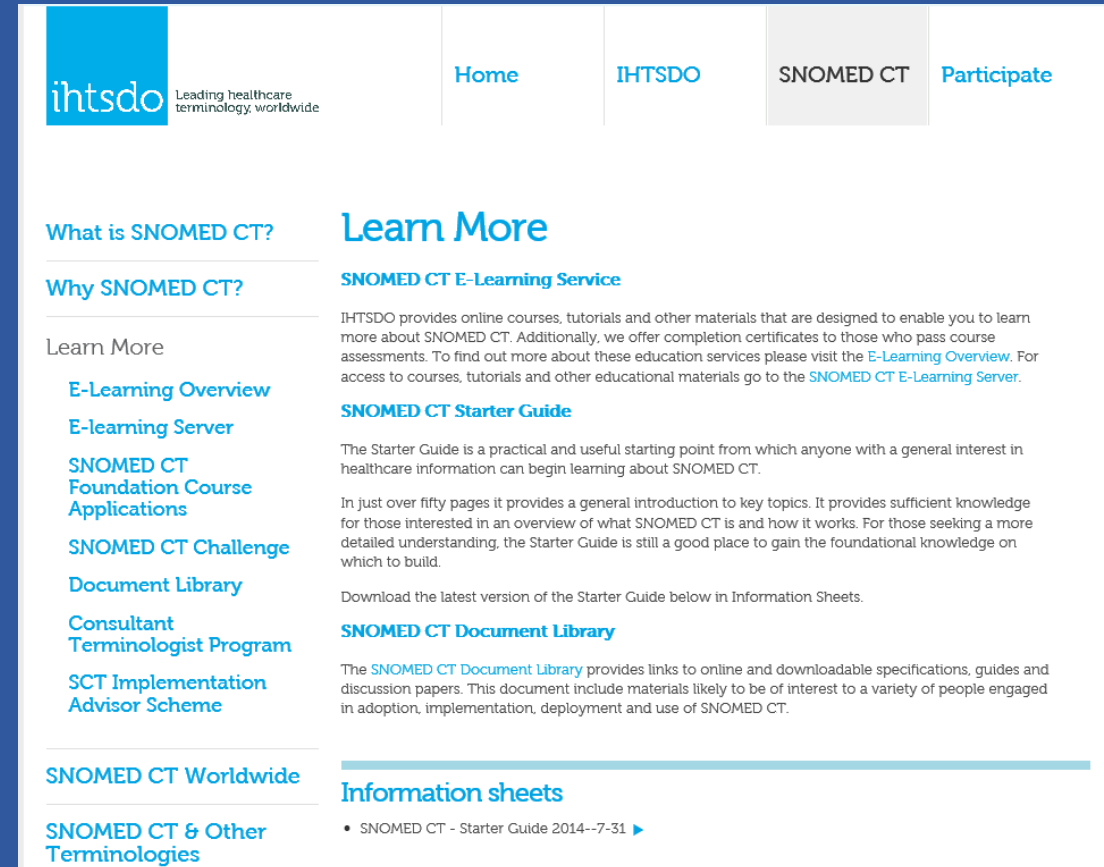
- Contain more than one SNOMED CT identifier
- Allows additional detail e.g. laterality
- Expressed using SNOMED CT compositional grammar
- Can be computed to equivalence
- Can be used to generate clinical ideas not in SNOMED CT Pre-coordinated concepts

# Reference Sets

- A defined mechanism to:
  - Refer to a subset of SNOMED CT components
  - Add customised information to components
- Allows for:
  - Languages
  - Maps (from Read, ICD10)
  - Picklists
  - Hierarchies and Ordered Lists
- Need authored and maintained!

# More Information

- SNOMEDCT Starter Guide:
  - <http://snomed.org/sg.pdf.html>
- Browser:
  - <http://browser.ihtsdotools.org/>
- IHTSDO Learning Centre:
  - <http://www.ihtsdo.org/snomed-ct/learn-more>



The screenshot shows the IHTSDO website with a blue header. The IHTSDO logo is on the left, with the tagline "Leading healthcare terminology worldwide". Navigation links include "Home", "IHTSDO", "SNOMED CT" (highlighted), and "Participate". The main content area is divided into two columns. The left column has links for "What is SNOMED CT?", "Why SNOMED CT?", "Learn More" (with sub-links: "E-Learning Overview", "E-learning Server", "SNOMED CT Foundation Course Applications", "SNOMED CT Challenge", "Document Library", "Consultant Terminologist Program", "SCT Implementation Advisor Scheme"), "SNOMED CT Worldwide", and "SNOMED CT & Other Terminologies". The right column has a "Learn More" section with a link to "SNOMED CT E-Learning Service", followed by text about online courses and a link to the "E-Learning Overview". Below this is a link to the "SNOMED CT Starter Guide", followed by text about its purpose and a link to "Information Sheets". At the bottom right, there is a link to "SNOMED CT - Starter Guide 2014--7-31".





