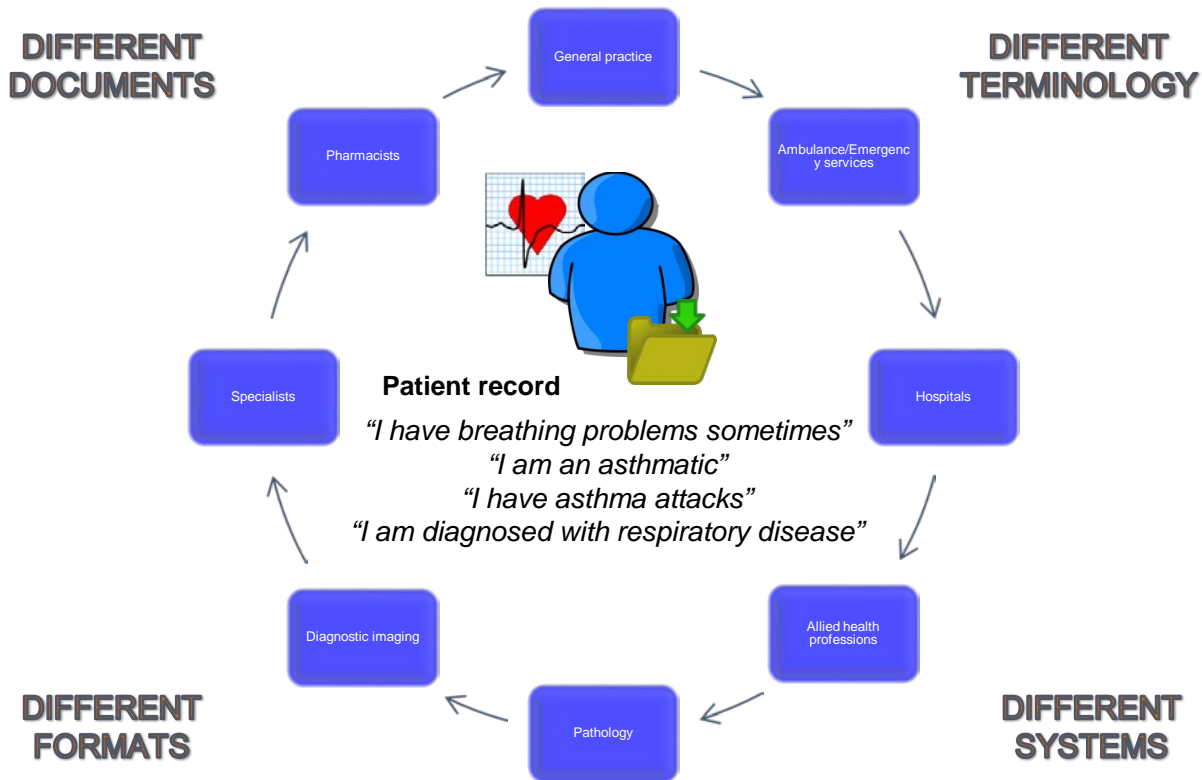# SNOMED CT as a Global Terminology
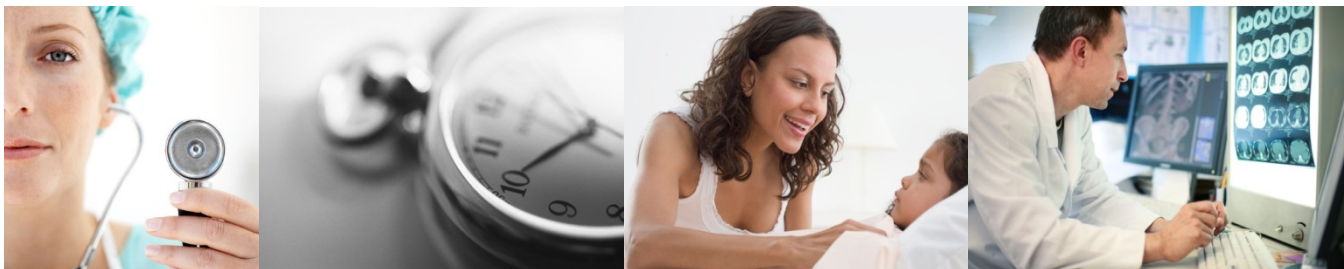
Germany – SNOMED CT Introduction

Ian Green
Customer relations Lead, Europe and Clinical Engagement
Business Manager

5th, June 2020

The interoperability challenge

DIFFERENT DOCUMENTS

DIFFERENT TERMINOLOGY

General practice

Ambulance/Emergency services

Pharmacists

Hospitals

Specialists

Patient record

"I have breathing problems sometimes"
"I am an asthmatic"
"I have asthma attacks"
"I am diagnosed with respiratory disease"

Allied health professions

Diagnostic imaging

Pathology

DIFFERENT FORMATS

DIFFERENT SYSTEMS

SNOMED CT – history and purpose

What is SNOMED CT ?

- SNOMED CT is a coded electronic clinical terminology

- SNOMED CT supports

    - Detailed recording of relevant clinical data, that can be patient focused

    - Effective retrieval of clinical information

    - Communication of clinical data interoperably

- SNOMED CT is the result of a collaboration between:

    - College of American Pathologists

    - United Kingdom's National Health Service

- SNOMED CT forms the foundation for a global clinical reference terminology

History of SNOMED CT

- College of American Pathologists
  - SNOMED 2 (1979)
  - SNOMED 3 - International (1993)
  - SNOMED RT - Reference Terminology (2000)
- United Kingdom – National Health Service
  - Read Codes - 4-byte (1984)
  - Read Codes 2 - 5-byte (1988)
  - Clinical Terms Version 3 (CTV3) - Read Codes - 1999
- A true confluence
  - All concepts in SNOMED RT and CTV3 are included in SNOMED CT

SNOMED CT - purpose

- To represent health information

- Recorded by healthcare professionals

- At the level of detail required for current clinical practice

- At point of care

- To retrieve and analyze health information

- Retrieving clinical statements according to their meaning

- At various levels of abstraction

- For all healthcare professionals, patient, researchers, organizations, public health, etc. . . .

- Meeting various healthcare use cases

# What can SNOMED CT be used for?

- Representation of patient-based health information

  - Recording health and care of individuals recording accurately the clinical situation

  - Indexing and retrieval of health information

  - Retrieval to support analysis based on meaning

- Important for the accurate use of decision support applications

- Examples

  - Outcome measurement by monitoring progress over time

  - Public health reporting – clinical registries, infectious diseases, cancer, bio-surveillance

  - Reminders and alerts for preventative care e.g. Diabetes care

Who uses SNOMED CT ?

- Healthcare professionals
  - End users of EHRs
- System developers and vendors / suppliers
- System implementers
  - Hospitals, clinics, laboratories, etc.
- Information specialists
- Public health specialists
- Policy makers (government, professions, etc.)
- Researchers

SNOMED CT - Key Features
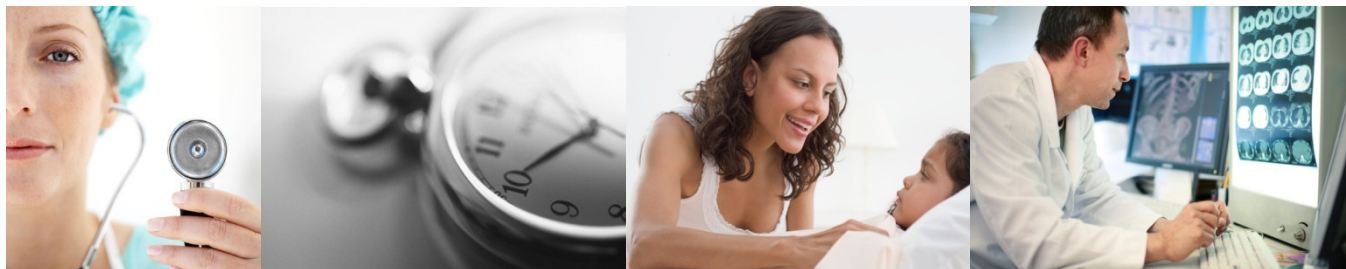
Key features of SNOMED CT

- Concept
  - A clinical idea to which a unique code is assigned.
- Descriptions
  - A human-readable phrase (term) used to express the meaning of a concept
- Relationships
  - Provides concept-to-concept links used to express information in computer processable language
  - Primary purpose: supports formal logical meaning and poly-hierarchical representation
  - Supports the tracking of retired concepts, represents facts that may vary and supports post-coordination

Concepts and codes

- One code per meaning (concept), one meaning per code
  - Code (strings of digits) length 6 to18 numbers (most commonly 8 or 9)
    - 22298006 means "myocardial infarction (MI)"
    - 399211009 means "past history of MI"
  - Code is unique, and has no meaning except to identify the concept
- Concepts are unambiguous
- Concepts versus Codes versus Real things
  - Concepts are ideas in people's heads
  - Codes represent concepts in the terminology
  - The codes refer to real things in the real world

Descriptions and terms

- A "description" is a term string attached to a concept

- A term string is a sequence of readable characters
    - E.g. "immunosuppression"

- Description types
    - Fully specified name (FSN) – unique
    - Synonyms - may not be unique and the same term string maybe associated with more than concept
        - Immunosuppressive therapy (procedure): Immunosuppression
            - Description ID = 507152014
        - Immunosuppression (finding): Immunosuppression
            - Description ID = 63394015

Precoordination and post coordination

Precoordination

Representation of a clinical meaning using a single concept identifier is referred to as a Precoordinated concept

SNOMED CT includes a Precoordinated concept for 71620000 |fracture of femur|.

- 71620000 |fracture of femur|

Post coordination

Representation of a clinical meaning using a combination of two or more concept identifiers is referred to as Post coordination.

SNOMED CT includes the following concepts:

- 125605004 |fracture of bone|

- 363698007 |finding site|

- 71341001 |bone structure of femur|

SNOMED CT supports a Post coordinated expression:

125605004 |fracture of bone| : 363698007 |finding site| = 71341001 |bone structure of femur|

Both representations are computably identical, using a description logic approach

Relationship types

- Definitional
  - statements that are necessarily true about the concept, e.g. procedure site

- Qualifiers
  - may be added to further specify the concept e.g. laterality

- Historical
  - provides a pointer to "active" concepts from "inactive" concepts

- Additional
  - allows non-definitional information to be distributed, e.g. subject of the record, defining how concept is used

Active and inactive concepts

Release files contain Active and Inactive components to provide a historical record of the content of the terminology at different points in time.

Active concept

- A Concept that is intended for current clinical use.

Inactive concept

- A Concept that is no longer intended for clinical use

How are the concepts organized?

1. Directed acyclic graph

   - A set of concepts connected to one another by lines (edges) in which each connection has a specified direction such that no route that follows the direction of the connections enters a loop (cycle). This provides logical subsumption relationships, with a single root.

2. Attributes with values

   - A relationship between two concepts in which one concept specifies the value of a defining characteristic of the other concept

3. Description logic definitions of each concept code

   - Structured combinations of relationships, using an attribute-value approach

Directed acyclic graph (DAG)

- SNOMED CT structure is based on an "Is_a" hierarchy

  - "A" Is_a "B" means all instances of A are also instances of B

  - Represents logical subsumption
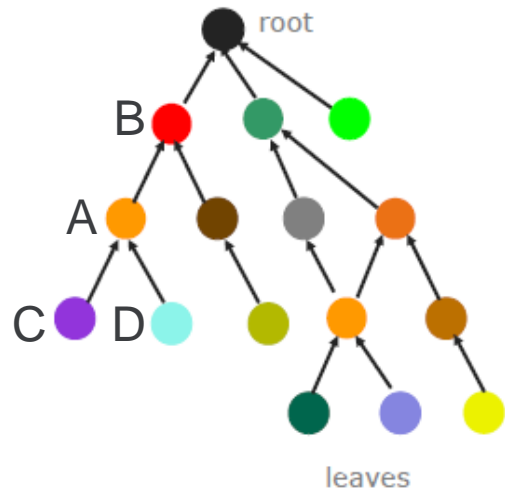
SNOMED CT example of a "Is_a" hierarchy
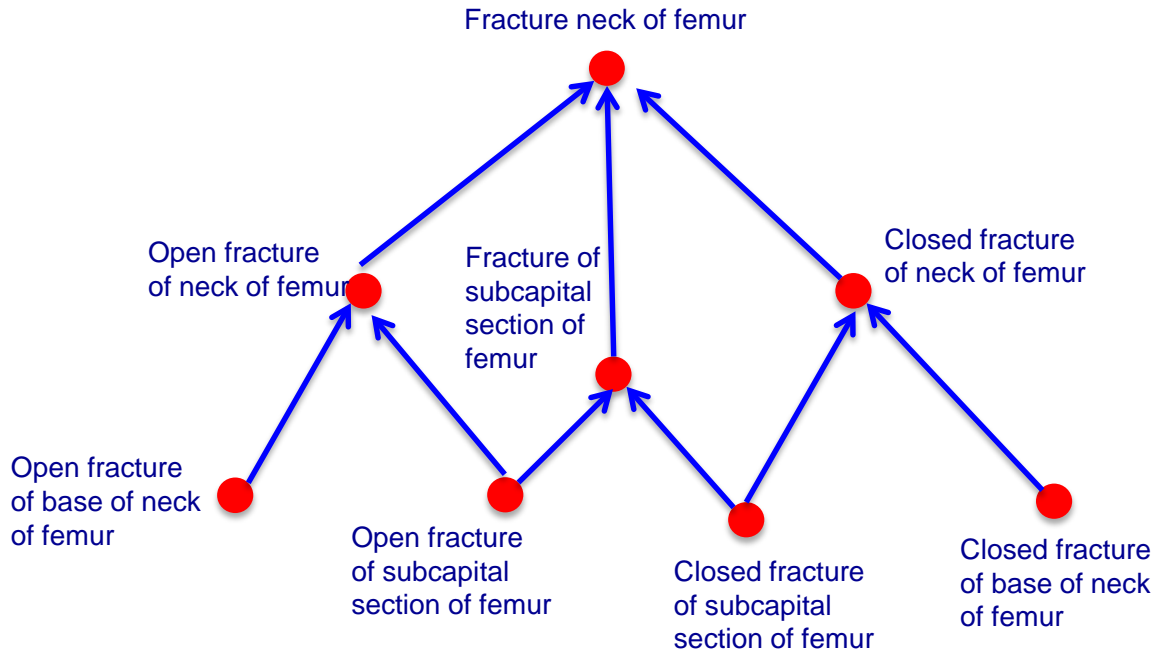
Defining relationships

Lower limb finding

Pain

finding site

Pain in lower limb

Lower limb structure

Calf structure

Pain in calf
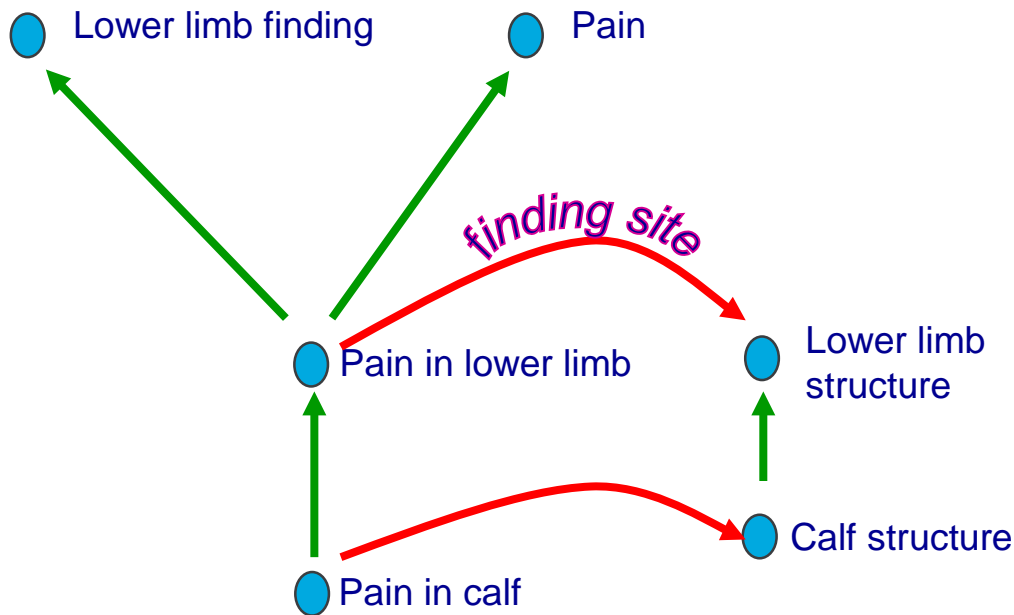
Pain in the calf *has finding site* calf structure
Pain in the lower limb *has finding site* lower limb

ATTRIBUTE	VALUE
= Finding site (attribute)	Lower limb structure (body structure)

Description logic definition

Description logic - A representation of semantic knowledge that allows formal reasoning to be applied based on axioms that state relationships between concepts.

Fully defined – A concept with a formal logic definition that is sufficient to distinguish its meaning from other similar concepts.

Viral pneumonia (disorder) 75570004
- Pathological process → Infectious process
- Associated morphology → Inflammation and consolidation
- Finding site → Lung structure
- Causative agent → Virus

Pneumonia caused by Human coronavirus (disorder) 713084008
- Pathological process → Infectious process
- Associated morphology → Inflammation and consolidation
- Finding site → Lung structure
- Causative agent → Human coronavirus

Differentiating attribute in this example is causative agent

Both of the above examples are "Fully defined concepts", that are required to support description logic functionality

SNOMED International Browser
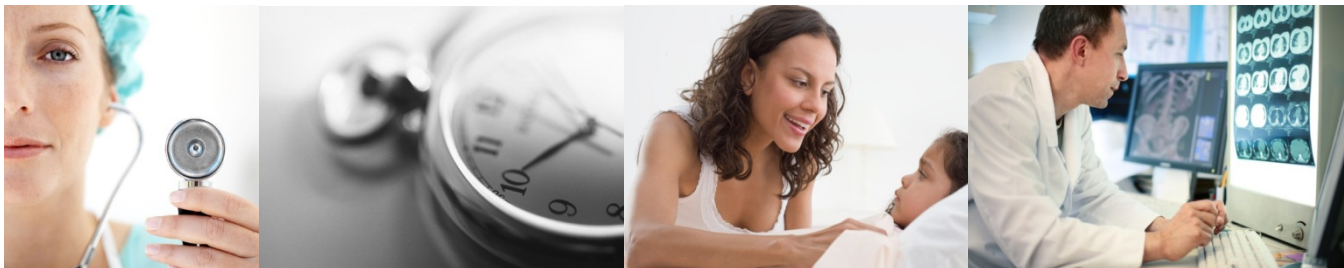
SNOMED International SNOMED CT Browser

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

The Browser is provided by SNOMED International to anyone for reference purposes. The interface and REST APIs are **not** to be used as part of production systems in health care settings.
Any abuse of the REST APIs will result in the offending IP address being banned from accessing the browser.

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 the SNOMED CT Content Request Service to provide content feedback.

This site has been optimized for the Google Chrome browser and **it will not work with Internet Explorer.**

International Editions

| Go browsing... International Edition 2020-03-09 | Go browsing... Spanish Edition 2020-04-30 |

Local Extensions

| Go browsing... Argentinian Edition 2020-05-31 | Go browsing... Australian Edition 2019-07-31 | Go browsing... Belgian Edition 2020-03-15 | Go browsing... Canadian Edition 2020-03-31 | Go browsing... Danish Edition 2020-03-31 | Go browsing... Estonian Edition 2020-05-30 | Go browsing... Irish Edition 2020-04-21 | Go browsing... Netherlands Edition 2019-09-30 |

| Go browsing... New Zealand Edition 2020-04-01 | Go browsing... Norwegian Edition 2020-04-15 | Go browsing... Swedish Edition 2020-05-31 | Go browsing... United States Edition 2020-03-01 | Go browsing... Uruguay Edition 2019-12-15 |

Go browsing... All Editions

or take the Tour...

Externally Hosted Extensions

Go browsing... United Kingdom edition (hosted by the UK)

https://browser.ihtsdotools.org

Browser – first page . . . .

SNOMED International

Browser - searching

SNOMED
International

Browser – refining the search

SNOMED International – International Releases

SNOMED CT International release
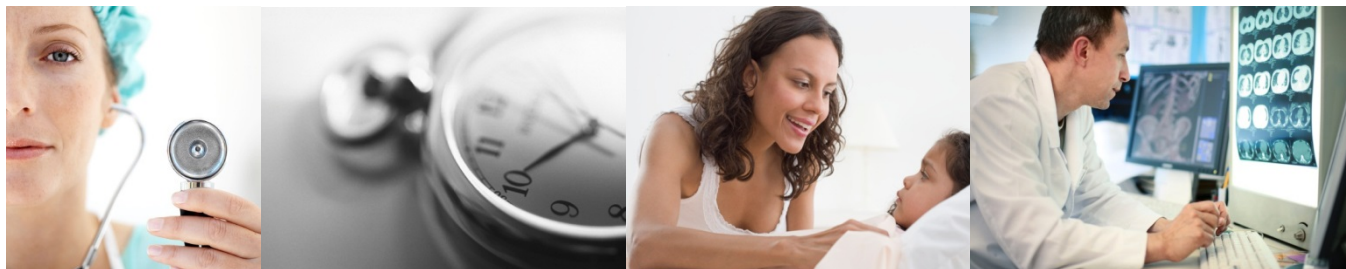
- SNOMED CT International Release, published twice yearly (January and July)
    - Main release files – Concept file, Descriptions file and Relationships file
    - SNOMED CT maps to classifications
        - SNOMED CT to ICD-10
    - Release notes
    - SNOMED CT editorial guidance
- Each release will be updated with new/changed content, based on user requests, and systematic content development and quality assurance

SNOMED CT International release – associated products

- Additional products associated with the International Release
  - Clinical reference sets (refsets)
    - Nursing health issues
    - Nursing health actions
    - General dentistry diagnosis
    - Dentistry odontogram
    - GP-FP refset (health issues and reasons for encounter)
  - Linkages
    - SNOMED CT to GMDN map
    - SNOMED CT to ICPC-2
    - ICNP to SNOMED CT
- The maps and reference sets are updated/aligned to an identified international release

SNOMED CT – Scope and usage
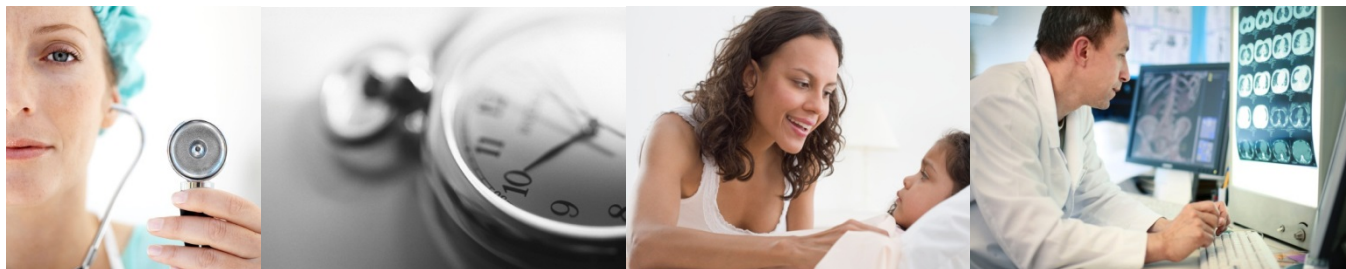
Scope of SNOMED CT content

- SNOMED CT is a collection of about 400,000 clinical concepts, associated with about 800,000 description terms for these concepts, and related to each other by a hierarchy (also known as a 'taxonomy') consisting of about 1,200,000 relationships

- SNOMED CT International Release is published every 6 months and the content continuously evolves to meet ever changing clinical needs, both in terms of new content and revision of outdated content

What kind of things can be coded?

- Organizing the world into types or classes is the work of "ontology"

- SNOMED CT focuses on classes that are useful in health and health care:

    - Findings and disorders

    - Procedures

    - Situations (applying context – completed, planned etc . . .)

    - Observations (measurements, tests etc . . .)

    - Body structures (anatomical or morphologically abnormal)

    - Pharmaceutical products

    - Medical devices

    - Things that contribute to illness:
        - Organisms, substances, forces, objects

    - Functioning and Social history

    - Other things important for healthcare

SNOMED CT and Classifications

- SNOMED CT
  - Adequate detail for clinical recording
  - Broad scope of coverage
  - Clinical data can be aggregated in multiple ways
  - Links between concepts enable meaningful data querying
- Classifications such as ICD-10 and ICD-11
  - Essential to the big picture view of healthcare
  - Used for aggregated level reporting and billing
  - Statistical classifications group each code into a single category to avoid double counting
- SNOMED CT maps to Classifications
  - Existing international maps ICD-O, ICPC-2, ICD-10-CM and ICD-10

Clinical terminology principles - terms, classifications and groups

Resource management, costing and contracting, needs assessment for service planning	Hundreds of groups	GROUPING (Resource groups)
Datasets for local and national service planning, contracting, national needs assessment, epidemiology	Thousands of categories	CLASSIFYING (ICD)
Clinical records, guidelines, audit, decision support	Hundreds of thousands of clinical terms	TERMING (SNOMED CT)

33

Supporting clinical queries – ICD-10

Data entry

J12 Viral pneumonia, not elsewhere classified

EHR Data

J12

Does patient have respiratory disorder?

Yes: code starts with "J" ✔

Does patient have an infection?

No: code does not start with "A" ✖

Does the disorder affect the lung?

Unknown: no easy way to tell this ✖

Is the disorder caused by a virus?

Unknown: cannot identify specific virus ✖

SNOMED International

Supporting clinical queries – SNOMED CT

SNOMED
International
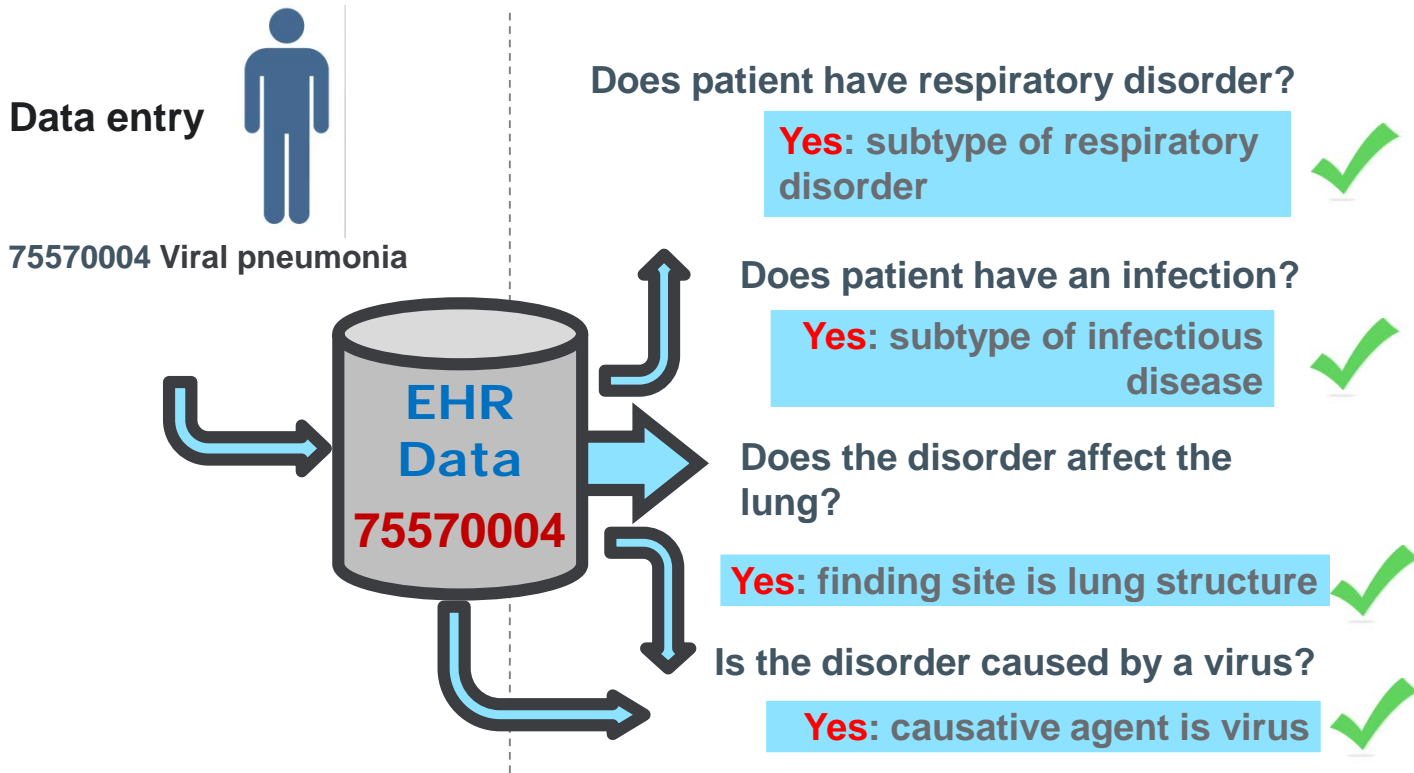
The main reason for SNOMED use in <u>clinical care</u> rather than ICD is Logical Classification

Unlike ICD codes, SNOMED's logical foundation allows classification so that, all types of a cancer can be found regardless of the words used to describe them (for example Kidney vs Renal vs Nephro)

Regardless of the parents (which can be multiple) or the words used to describe the term, the list of codes for all types of lung cancer are found based on the formal logical definition of the terms. Words don't come into play.

Classification

Multiple Parents

Definition

ICD codes have only one parent, so "Lung Cancer" has to be either a lung disease or a cancer but can not be classified as both.

Customizing SNOMED CT
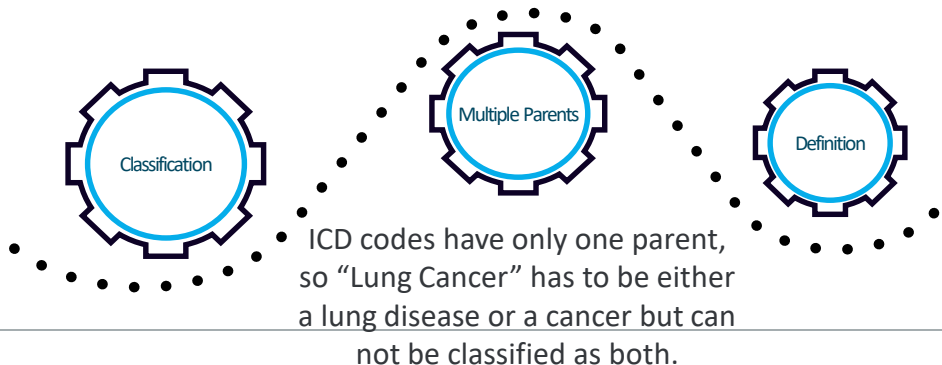
- Customization is an important part of implementing SNOMED CT
  - Identifying a group of concepts for a specific use case requirement
- SNOMED CT derivatives are often needed to support local requirements
- The standard format for distributing most types of SNOMED CT derivatives is through the reference set mechanism
  - Identification of specific concepts
  - Provision of a history mechanism (when a concept was removed from the set)
- Customization can be done at different levels – local, national, international

SNOMED CT Subsets

- Reference set specification allows specification of subsets of SNOMED CT content for specific use cases

- Subsets can used to specify specific vocabulary based on specified requirements at local, national or international levels

- Subsets allow SNOMED CT content to be constrained for specific purposes, for example in a cardiology clinic, you would want to constrain the content viewed by a clinician to cardiology terms, under normal circumstances – enabling faster and relevant data entry

- Subsets can be defined in a number of different ways, dependent on the coverage and use cases supported

SNOMED CT
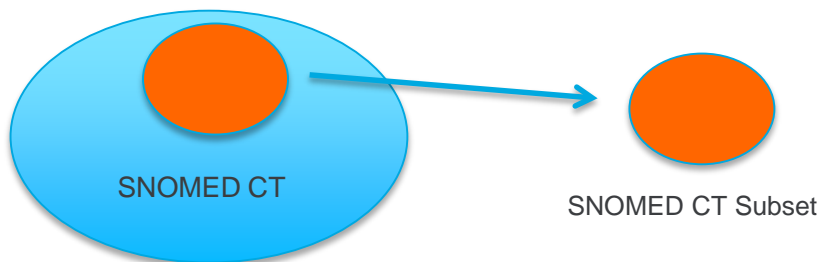
SNOMED CT Subset

Using SNOMED CT for subsets

- When using SNOMED CT to create a subset for a data item in a clinical record, the following rules always apply:
    - * * * DO NOT SEARCH SNOMED CT "BLIND" * * *
    - Use a defined set of requirements from source materials
    - Search SNOMED CT based on your requirements
    - Requirements need to be at the detailed data level, for example:
        - Existing record content
        - Assessment scale content
        - Pre-formatted nursing plans
        - Billing data requirements

SNOMED CT subsets produced by SNOMED International

- Subsets produced by SNOMED International have been developed:
    - Based on international use cases
    - By international group of SMEs
    - Often in collaboration with international professional organizations
- Current subsets include:
    - General Dentistry Diagnoses
    - Dentistry Odontogram
    - GP/FP – Reasons for Encounter/Health Issues
    - Nursing health issues
    - Nursing Actions

Mapping - introduction

- Mapping - identifying associations between particular codes, concepts or terms in one code system and codes, concepts or terms in another code system that have the same (or similar) meanings

- Maps are developed in accordance with a documented rationale, for a given purpose
  - There may be different maps between the same pair of code systems to meet different uses cases
  - Maps are directional from a code system to another code system

- SNOMED CT specifications and content support simple, complex and extended mappings.

- Simple maps, where there is a one-to-one Relationship between a SNOMED CT concept and code in a target scheme, are represented using a Simple Map Reference Set.

- Complex and Extended Map Reference Sets enable the representation of:
  - Maps from a single SNOMED CT concept to a combination of codes (rather than a single code) in the target scheme.
  - Maps from a single SNOMED CT concept to choice of codes in the target scheme.

Mapping

- Mapping has a direction, mainly SNOMED CT related maps are distributed using the reference set mechanism and have agreed principles and rules based on the use case

- Current maps developed by SNOMED International:

  - SNOMED CT to ICD-10 (WHO release)

  - SNOMED CT to ICD-O

  - SNOMED CT to GMDN (Global Medical Device Nomenclature)

  - SNOMED CT to ICPC-2 (based on GP/FP subset)

- Maps under development:

  - SNOMED CT and MedDRA.

  - SNOMED CT to Orphanet

Mapping – example (SNOMED CT to ICD-10)

SNOMED CODE	SNOMED Description	Map advice	ICD-10 code	ICD-10 Term
57406009	Carpal tunnel syndrome (disorder)	ALWAYS G56.00 | CONSIDER LATERALITY SPECIFICATION	G56.00	Carpal tunnel syndrome, unspecified upper limb
34436003	Blood in urine (finding)	ALWAYS R31.9	R31.9	Hematuria, unspecified
53773002	Mucocele of appendix (disorder)	ALWAYS K38.8	K38.8	Other specified diseases of appendix
111900000	Pneumonia in aspergillosis (disorder)	ALWAYS B44.1	B44.1	Other pulmonary aspergillosis

Translation

- SNOMED CT International release
    - US English
    - South American Spanish
- Translation
    - is the responsibility of individual Member countries.
    - are released as part of Member Releases
- Current translation examples
    - Swedish
    - Danish
    - Dutch
    - Canadian French
    - European Spanish
- Language variation examples
    - UK English
    - Australian English

SNOMED CT Translation Heuristics (principles)

Unambiguity (FSN)

Transparency

Psychological acceptability

Systematic and consistent

Linguistic correctness

Translation of Concepts not Terms

SNOMED
International

- Concept equivalence is essential
- Concept translation requires clarifying the underlying meaning of the concept by considering the
  - meaning of the source language term
  - hierarchical position of the concept
  - relationships of the concept to other concepts

Original term	Actual translation	Correct translation
Sore bottom	Øm **bund**	Ømt sædeparti

The lowest or deepest part of anything, as distinguished from the top

Translation Process

Read the source term (FSN)

Check the concept's |is a| relationship(s) and its position in the hierarchy

Check the concept's attribute relationships

In case of any doubt, find examples of the source term used in context in order to elucidate the meaning

Find equivalent concept and term in target language (if necessary verify the use of the target term in contexts)

Write target language terms

SNOMED CT Implementation Approaches

Electronic Health Records

- Making health records electronic

  A significant step forward

  Improves communication

  Increases availability of relevant information

  … but this is only a partial solution; the real challenge is …

- Making health records meaningful

  Identifying significant facts in oceans of data

  Enabling effective meaning-based retrieval

  Linking the EHR to authoritative clinical knowledge

  SNOMED CT represents clinical meaning and contributes to meaningful health records

SNOMED CT Implementation Approaches

- There are many different ways to implement SNOMED CT

- SNOMED CT can be used as ...

| What	Why
A common language	To communicate in a meaningful way
	To integrate heterogeneous data
An indexing system	To retrieve clinical information
A code system	To store clinical information
An interface terminology	To capture and display clinical information
A dictionary	To query, analyze and report
	To link health records to knowledge resources
Extensible foundation	To represent new types of clinical data

SNOMED CT – A Common Language

- Existing systems using different languages

- Map to/from SNOMED CT as a common language for communication code systems internally

- New systems using SNOMED CT communicate without needing to map
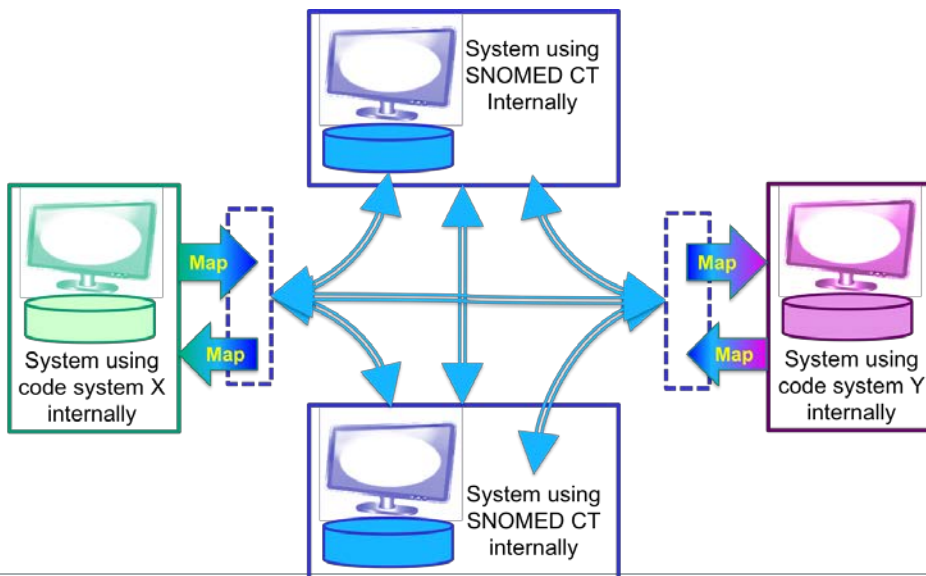
SNOMED CT – An Indexing System

- EHR system using local codes, classification and text in records
- Algorithmic rules map and index data with SNOMED CT codes
  - For local analysis using SNOMED CT semantics
  - For export to data warehouse for larger scale aggregation/analysis
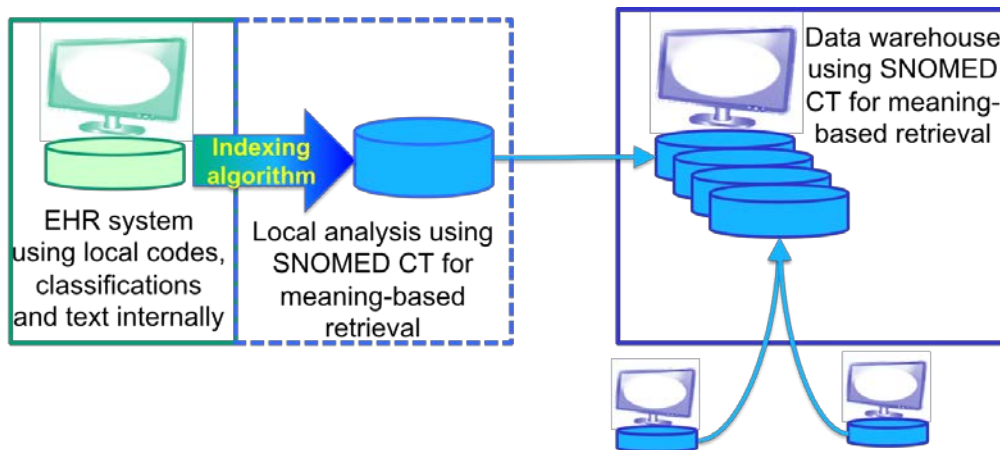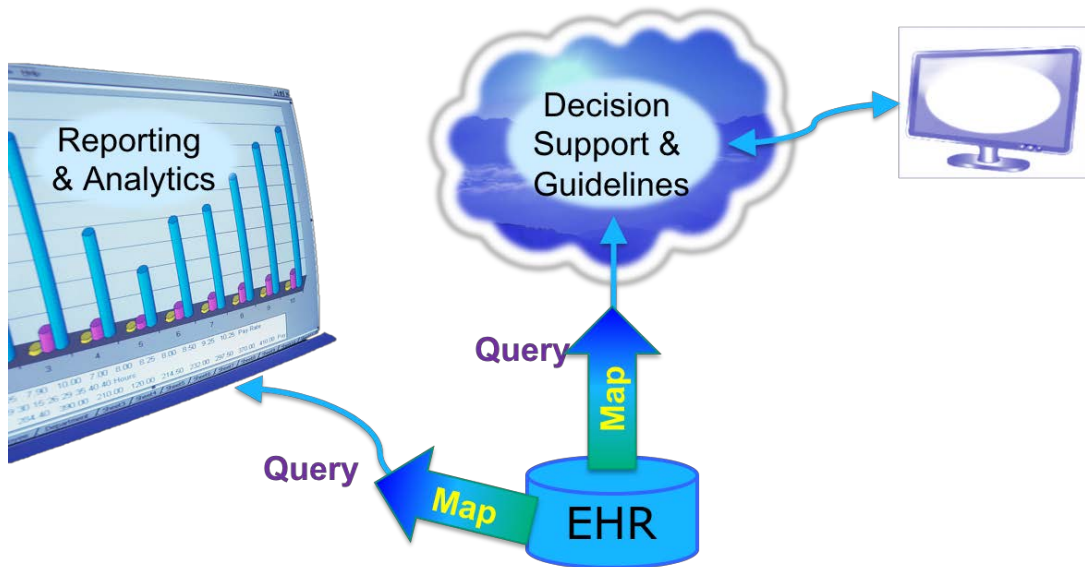
SNOMED CT – A Code System for Storage

- Data capture (and display) uses a local user interface terminology

- Interface terminology is mapped or linked to SNOMED CT

- EHR system uses SNOMED CT for storage, indexing and communication
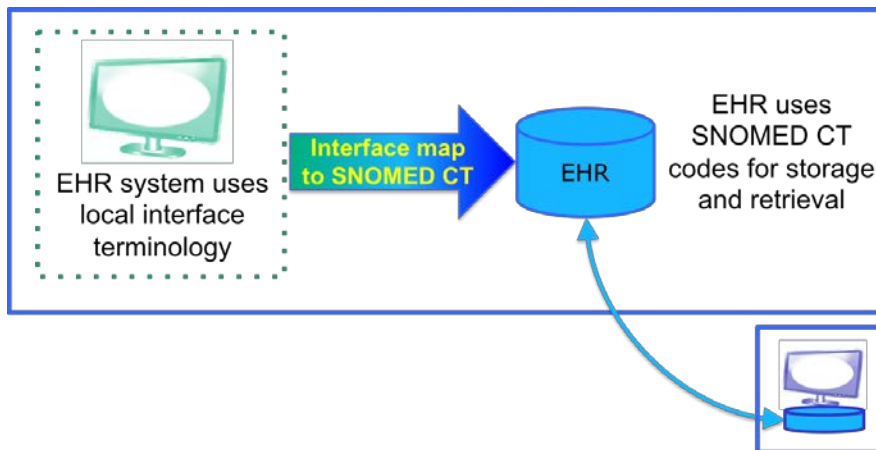
SNOMED CT – A Dictionary

- Reporting, analytics and decision support systems use SNOMED CT features to support meaning-based analysis

Stepwise Approach to Implementation

- SNOMED CT can be used as
  - A simple code system, or
  - A powerful terminological resource
- SNOMED CT Implementation is not all or nothing
  - Simple use still benefits from a common coding system
  - More complete use delivers more benefits
- A stepwise approach can meet evolving requirements

SNOMED CT Implementation Examples

United Kingdom

- National adoption of SNOMED CT
    - 'Personalised Health and Care 2020: A Framework for Action'
    - Endorses adoption of SNOMED CT as the single terminology to be used in all care settings in England
    - Partners will actively collaborate to ensure that all primary care systems adopt SNOMED CT by the end of 2018
    - The entire health system should adopt SNOMED CT by April 2020
- Examples of SNOMED CT use
    - Hospital implementations include Leeds Teaching Hospital, Moorfields Eye Hospital and many more
    - National representation of clinical imaging
    - National drug dictionary (dm+d)
    - National care plan standards

United States

- National adoption of SNOMED CT

    - Meaningful Use, EHR certification and health information exchange
        - SNOMED CT adopted as one of the key vocabularies
        - SNOMED CT is recommended for patient problems, encounter diagnosis, procedures, family health history and smoking status
        - Stage 2 requires SNOMED CT for problem lists

- Example of SNOMED CT use

    - Kaiser Permanente – largest non-profit health plan in USA
        - SNOMED CT is foundation for its EHR system
        - Used directly by clinicians to encode problem lists etc
        - Used to support disease management programs

Hong Kong, China

- Hong Kong Hospital Authority

    - Manages public hospitals and services, including 42 hospitals, 48 specialist outpatient clinics and 73 general outpatient clinics

    - Code systems used for capturing data include
        - SNOMED CT, ICPC2, ICD10, LOINC, local drug dictionary
        - All non-SNOMED code systems are mapped to SNOMED CT

    - SNOMED CT used as the common dictionary for
        - Data analysis, reporting and clinical decision support
        - Diagnosis, procedure, medication, laboratory, organisms

    - SNOMED CT used
        - To increase decision support and data retrieval capabilities
        - Due to comprehensive domain coverage and underlying description logic
        - As it allows development of rich, criteria-based queries

Singapore

- National healthcare IT infrastructure
  - Includes National Electronic Health Record
  - Uses SNOMED CT
    - As a common language for healthcare communication
    - To integrate local code systems in the national record
    - To aggregate clinical data in the Patient Dashboard
    - To analyze healthcare records
    - To develop business processes and decision support rules
- Local SNOMED CT releases
  - SNOMED CT Singapore extension
  - SNOMED CT Singapore Drug Dictionary

SNOMED CT in use around the world

- SNOMED CT is used in more than 80 countries and growing
- Government policy endorses use of SNOMED CT in several countries / territories, including

  Australia

  Canada

  England
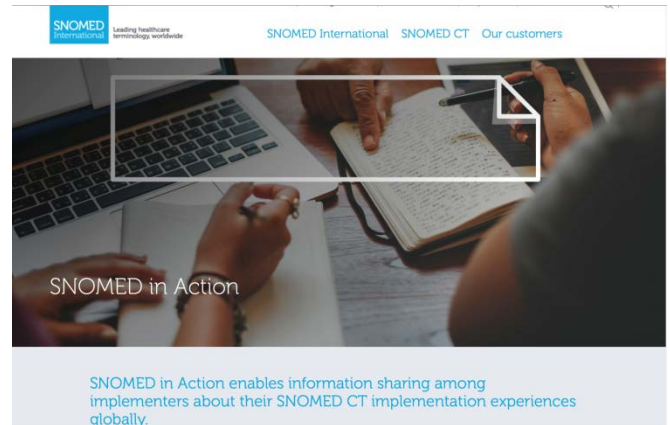
  Hong Kong

  India

  Netherlands

  Singapore

  United States

- Examples of SNOMED CT deployments - http://snomedinaction.org/

SNOMED In Action

- Inclusion of clinical use cases

- Inclusion of clinical research projects utilizing SNOMED CT

- Aim is to provide a comprehensive resource of clinical usage of SNOMED CT

https://www.snomed.org/snomed-ct/snomed-in-action

SNOMED in Action enables information sharing among implementers about their SNOMED CT implementation experiences globally.

SNOMED CT in Action Domains

- Clinical research
  - Public health
- Computerized Physician Order Entry
- Electronic prescriptions
- Immunization history
- Infection prevention
- Electronic health records
  - Hospital, Emergency care, Outpatient, Primary Care, Personal
- Specialties
  - Rheumatology, Pathology, Oncology, Ophthalmology, Optometry, Surgery
- And many more …
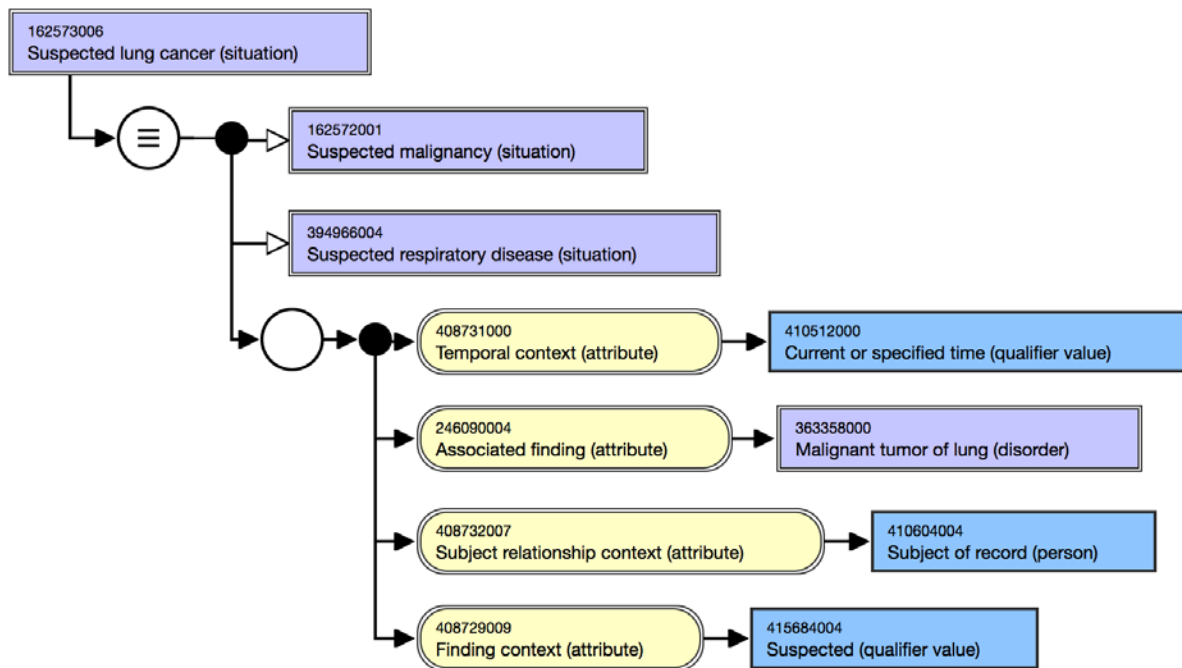
Interoperability Challenges

Example – suspected lung cancer

Hospital A	Hospital B	Hospital C
Condition	**Problem**	**Diagnosis**
Problem/Dx	Problem/Dx Name	Name
Cancer ▾	Lung cancer ▾	Suspected lung cancer ▾
Body site	Status	
Lung ▾	Suspected ▾	
Status		
◉ Suspected		
○ Confirmed		
○ Not found		
OK Cancel	OK Cancel	OK Cancel

Example – suspected lung cancer

Condition	Hospital A	Hospital B	Hospital C
code	Cancer	Suspected cancer	Suspected lung cancer
bodySite	Lung	Lung	
status	Suspected		

SNOMED CT definitions – solving interoperability

SNOMED CT definitions – solving interoperability
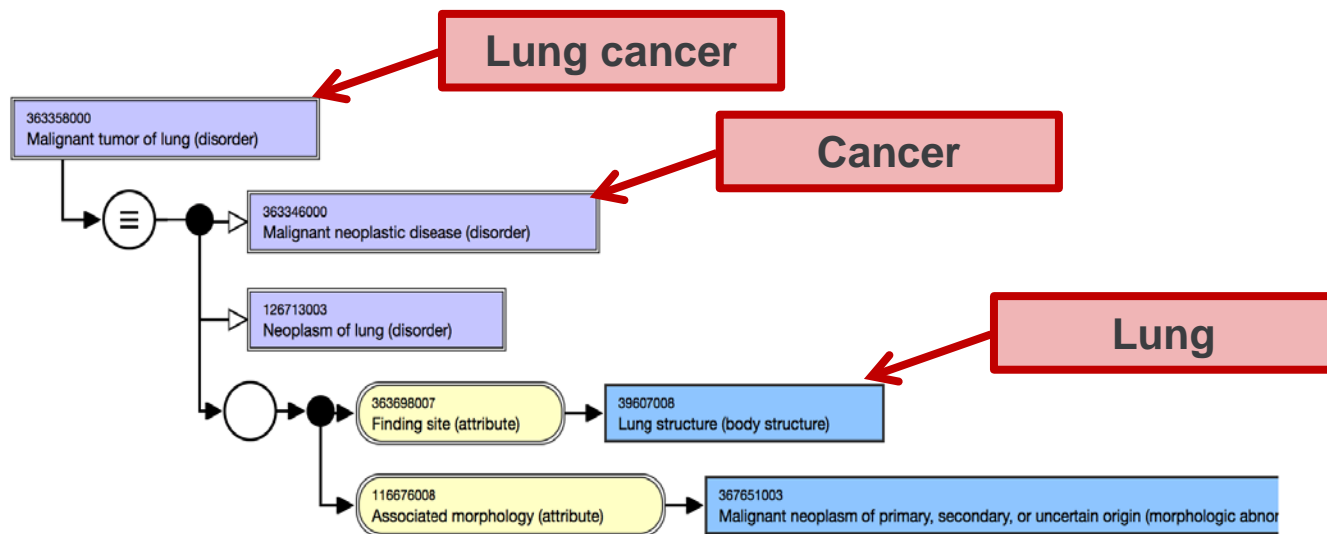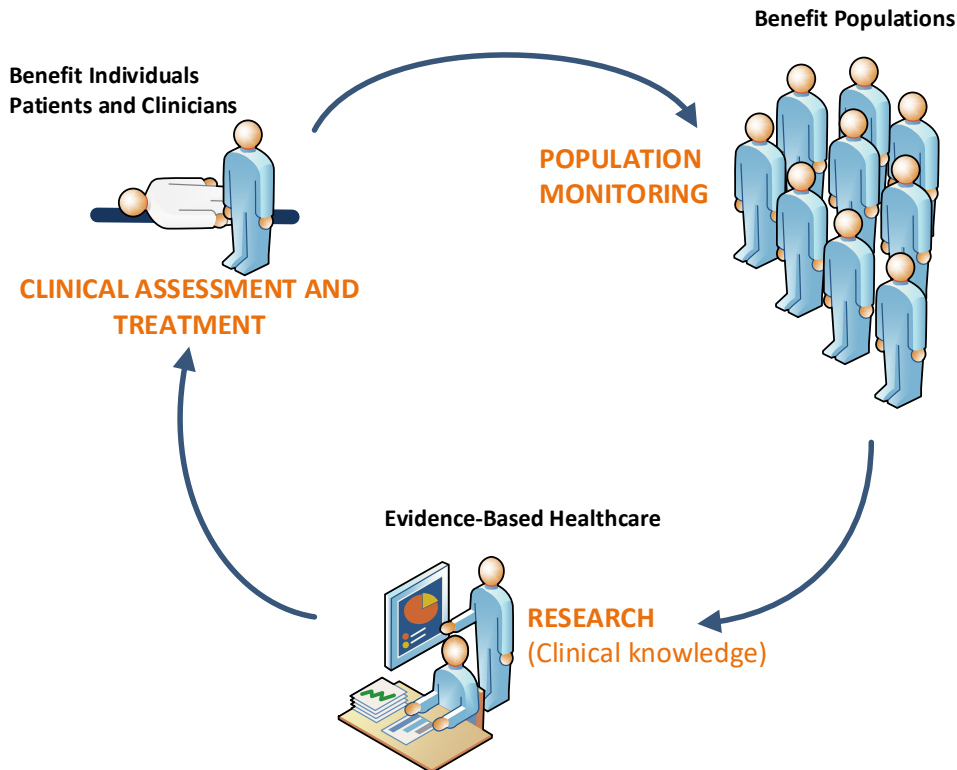
Common representation for querying

Condition	Hospital A	Hospital B	Hospital C
code	Cancer	Suspected cancer	Suspected lung cancer
bodySite	Lung	Lung	
status	Suspected		

Data Analytics

Discovery and communication of meaningful patterns in data

- May describe, predict and improve business performance

- May recommend action or guide decision making

- Scope:

  - Individual patient

  - Individual healthcare worker

  - Patient groups / cohorts

  - Enterprise groups

  - Geographic groups

- Substrate:

  - Unstructured free text documents

  - Structured documents using SNOMED CT

  - Structured documents using other coding systems

  - 'Big data'

Analytics Purposes - Overview

Benefit Individuals Patients and Clinicians

POPULATION MONITORING

Benefit Populations

CLINICAL ASSESSMENT AND TREATMENT

Evidence-Based Healthcare

RESEARCH
(Clinical knowledge)

Analytics Purposes – Individual Care

- SNOMED CT may be used to support analytics that improves care and its delivery for individuals by enabling:

    - Retrieval and sharing of information to better support care
    - Reduction in duplication of investigations and interventions
    - Integration with decision support tools to guide care
    - Context sensitive presentation of guidelines and care pathways
    - Identification of patients requiring follow-up or treatment changes
    - Professional logs and performance tracking
    - Work list generation and workload monitoring

Analytics Purposes – Population Care

- SNOMED CT may be used to support analytics that improves the care of populations by enabling:

    - Epidemiological monitoring and reporting

    - Audit of clinical care and service delivery

    - Systems that measure and maximize the delivery of cost-effective treatments and minimize the risk of costly errors
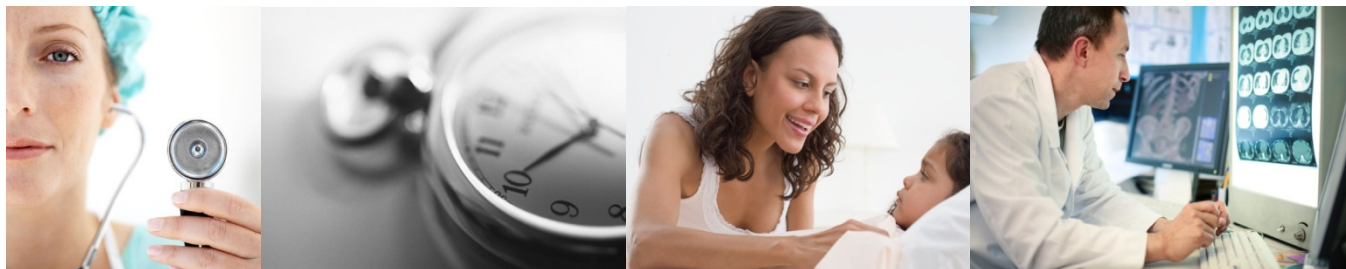
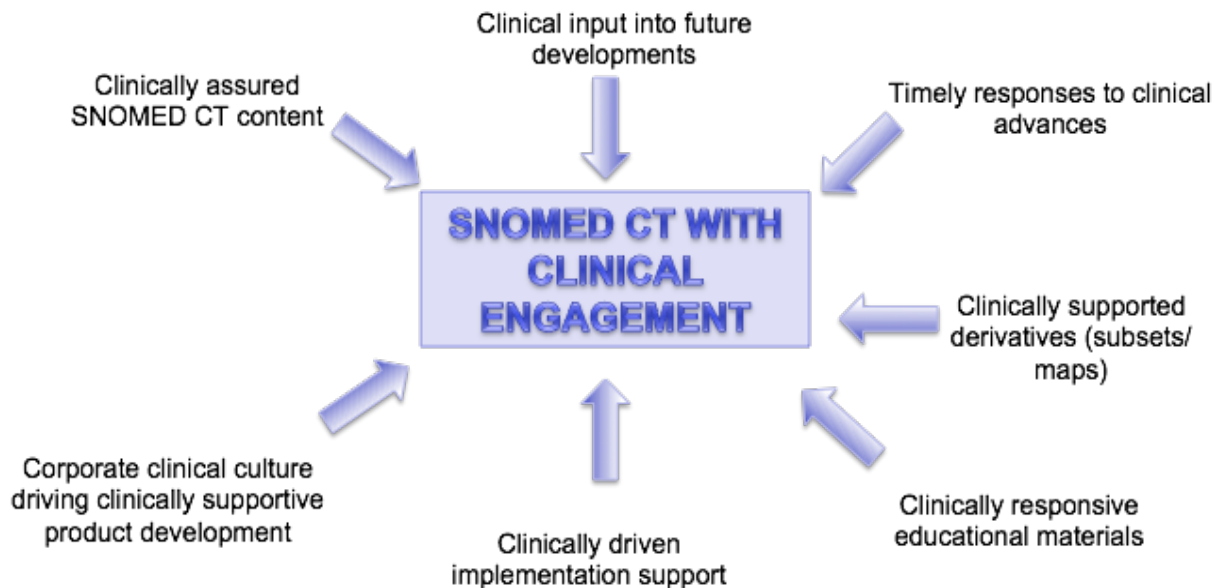# Analytics Purposes – Evidence Based Healthcare

- SNOMED CT may be used to support analytics that supports evidence-based healthcare and clinical knowledge research by enabling:

  - Identification of clinical trial candidates

  - Research into the effectiveness of different approaches to disease management

  - Clinical care delivery planning

  - Planning for future service delivery provision

Clinical Input to SNOMED CT

Clinical Engagement Approach

Clinical input into future developments

Clinically assured SNOMED CT content

Timely responses to clinical advances

SNOMED CT WITH CLINICAL ENGAGEMENT

Clinically supported derivatives (subsets/ maps)

Corporate clinical culture driving clinically supportive product development

Clinically driven implementation support

Clinically responsive educational materials

SNOMED CT, enhanced by clinicians, to support current and future clinical practice

Clinical Portal -
https://confluence.ihtsdotools.org/display/CP/Clinical+Engagement

Pages

This is the home page for all Clinical Engagement activities within Confluence. The site directs you to all resources you will need as a clinician to participate in the development of SNOMED CT, and also provides access to clinically focused educational materials

ⓘ **Contact**
For queries relating to Clinical Engagement, please email crg@snomed.org

About Us

Clinical input into the development of SNOMED CT ensures that the terminology meets current and future clinical requirements. These activities form part of the broader approach of Clinical Engagement. Clinical engagement is currently supported by a dedicated team.

Although, each member of the Clinical Engagement team is located in a regional area, the Americas and Europe Middle East & Africa, the team looks to support clinical engagement activities across all regions through discussion and collaboration with local-based clinical colleagues.

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CRG Coordinator
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Clinical Reference Groups (CRG's)
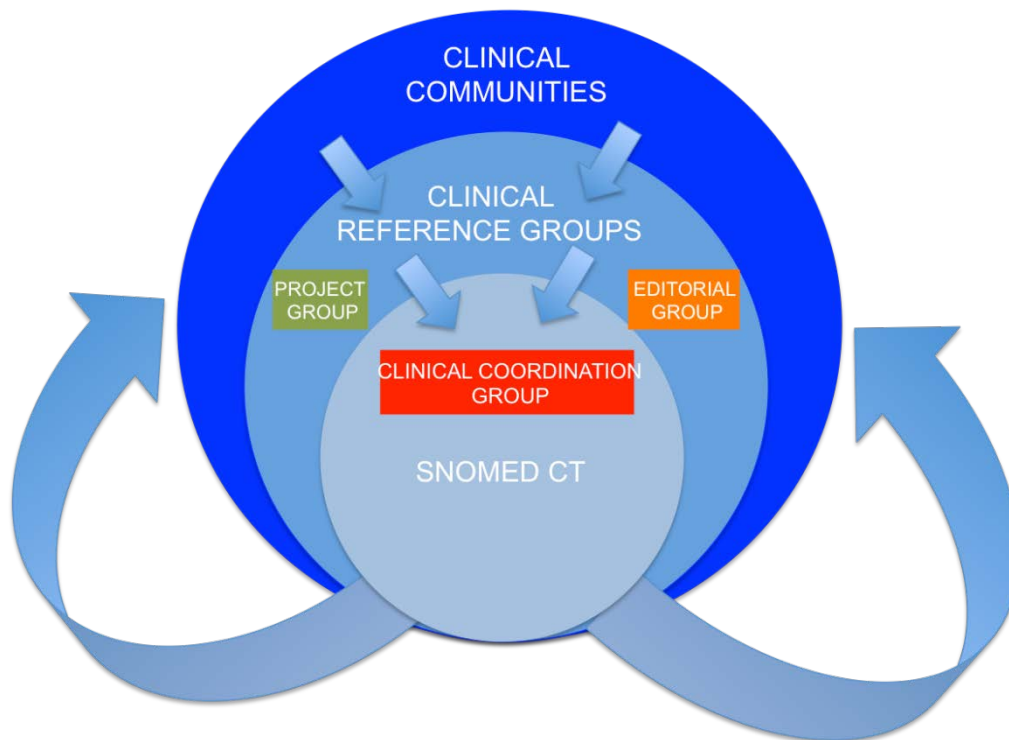
Clinical Reference Groups (CRG's)

- Facilitate discussion between clinicians focused on specific clinical specialties or topic areas

- Dedicated Confluence sites

- The aim is to provide a platform for clinicians to discuss with colleagues any questions, issues and experience relating to SNOMED CT and its implementation.

- Open and transparent

- Open to all, input not limited to just clinicians from the clinical specialty

- Linked to the CRG's are project groups focused on delivering agreed work items and editorial groups (providing clinical validation for derivative products)

Get involved!

- CRG's provide an opportunity for clinicians and others with a interest in a particular domain to influence the content and use of SNOMED CT

- Interesting professional debates and discussions in meetings

- A community of enthusiasts

- CRG's welcome input from all clinicians – not just experts and academics

Working with other standards and organizations – Collaboration
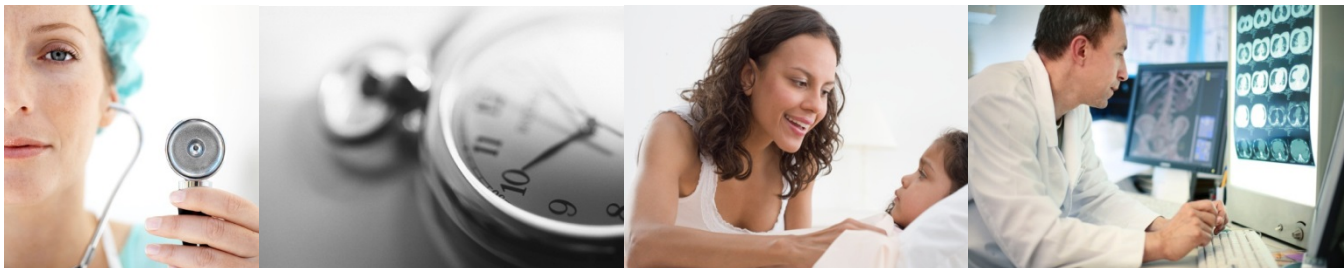
Benefits to working with other standards bodies and organisations

- Enable users of SNOMED CT to use other standards jointly and interoperability for data capture, analysis, sharing etc

- Contribute in a coordinated way to global developments that address the needs of healthcare professionals, EHR vendors and users, and other stakeholders

- Influence development of standards globally that contribute, along with SNOMED International products, to interoperability of electronic healthcare systems

- Influence future direction of standards and identify gaps where SNOMED International may be able to contribute existing and new products

- Leverage expertise from other organizations

- Strengthen the position of SNOMED CT and related products in the marketplace

- Limit duplication of effort and avoid redundancies.

- Promote implementation and adoption

Partnership approach

Key focus of partnership arrangements, based on requirements of SNOMED International and its stakeholder groups:

- Collaboration Agreements with agreed activity and deliverables to meet requirements of product and service strategies, as part of SNOMED International work plan
- SNOMED CT Licensing Agreements – SNOMED CT sets: for specific sets of SNOMED CT for use against specific Use Cases – defining maintenance and updating processes - built in to SNOMED International work plan
- SNOMED CT Licensing Agreements – projects: for particular projects, defining conditions, timelines and contribution to continuous updating and improvement of SNOMED CT
- Licensing Statements: with international bodies to protect SNOMED International IP and licensing for unspecified usage of SNOMED CT in products and also to use other organisations products in SNOMED CT e.g. CDISC
- SNOMED CT Development licenses – to enable the development of defined products using an agreed set of SNOMED CT for specific use cases e.g. HL7 Affiliates in non-SNOMED international member countries

Key areas of collaborative working

- Standards Development Organizations, includes:

  - HL7 International – SNOMED and FHIR, SNOMED CT set for International Patient Summary, Licensed use of SNOMED CT in non-Member countries

  - IHE International – agreed global set of SNOMED CT for IHE profiles

  - DICOM - agreed global set of SNOMED CT for use in DICOM standards

  - ISO – participation and commenting on products that may impact on use of SNOMED CT

  - GSI – principles for linking SNOMED CT and GTINs

  - MedDRA – mapping

  - WHO – mappings (ICD-10, ICD-O, ICD-11)

  - GMDNA – Global Medical Device Nomenclature Association. Map and also content sharing

  - LOINC – to support consistent usage for those who use both SNOMED CT and LOINC

Key areas of collaborative working

- Professional Bodies, includes:

    - GA4GH – brings together different parties globally involved in taking forward the information requirements for Genomics

    - ICN – International Council of Nurses. Linking SNOMED CT and ICNP

    - WONCA – Body of General Practitioners globally. Linking SNOMED CT and ICPC, and also advice on SNOMED CT content

    - ADA – American Dental Association. Alignment between SNODENT and SNOMED CT. Maintenance of General Dentistry Diagnoses subset.

    ** For more information and questions including what is in pipeline, contact info@snomed.org

Finding out more about SNOMED CT
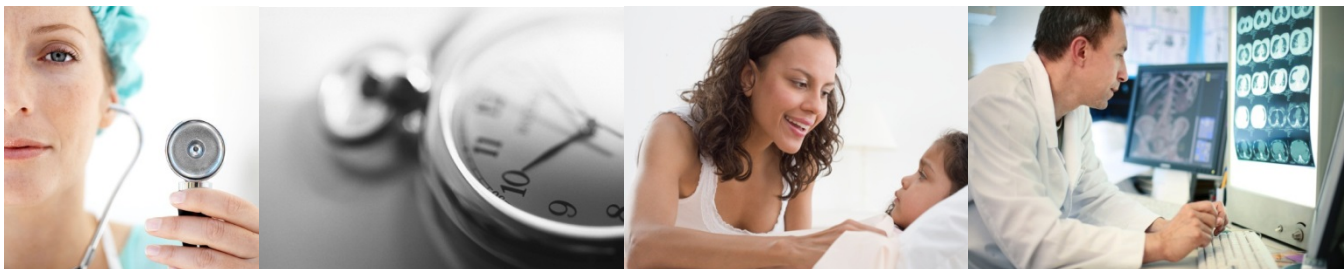
SNOMED CT Starter Guide

SNOMED

Leading healthcare
terminology, worldwide

SNOMED CT
Starter Guide

Latest web browsable version: http://snomed.org/sg
SNOMED CT document library: http://snomed.org/doc
Publication date: 2017-07-28

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Contents

https://confluence.ihtsdotools.org/display/DOCSTART/SNOMED+CT+Starter+Guide

SNOMED CT Starter Guide (German)

SNOMED
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Leading healthcare
terminology, worldwide

SNOMED CT Starter Guide

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neuesten Updates finden Sie in der Webversion dieses Dokuments.

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Confluence

- SNOMED International uses Confluence as the main repository for information, documents, groups and discussions

- Access to Confluence is mainly open, and you do not require an account to view content

- There are some pages/groups which require a Confluence account. Accounts can be obtained from an online form available at
https://confluence.ihtsdotools.org/display/ILS/Confluence%2bUser%2bAccounts
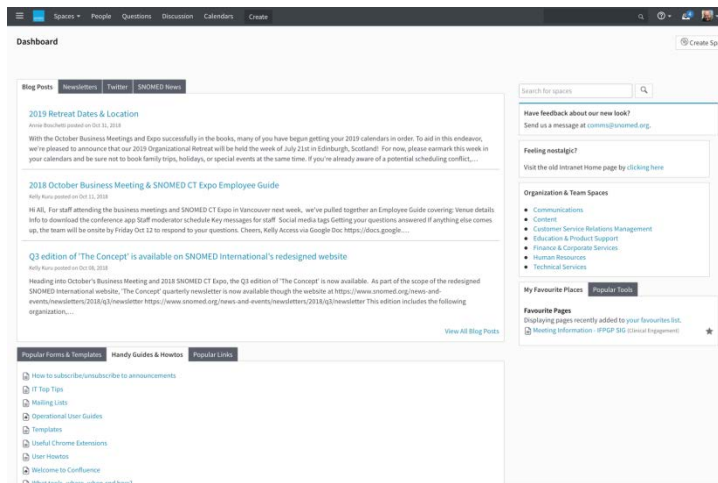
SNOMED Documentation

The SNOMED CT Document Library!

The library is a collection of SNOMED CT documents, including introductory material, practical guides, technical specifications and reference material. These documents are an important source of information for anyone engaged in the adoption, authoring, implementation, deployment, and use of SNOMED CT.

Pages / Library

SNOMED CT Document Library

✎ Edit   ☆ Save for later   👁 Watch   ↪ Share   ⋯

Created by David Markwell, last modified by Anne Randorff Højen on 2018-Aug-21

Welcome to the SNOMED CT Document Library!

This library is a collection of SNOMED CT documents, including introductory material, practical guides, technical specifications and reference material. These documents are an important source of information for anyone engaged in the adoption, authoring, implementation, deployment, and use of SNOMED CT.

Please select one of the categories below to see a list of documents available.

Overviews   **Guides**   **Specifications**   **SNOMED CT Expo**   **Glossary**

https://confluence.ihtsdotools.org/display/DOC/SNOMED+CT+Document+Library

E-learning server

https://elearning.ihtsdotools.org

Learning More

- SNOMED International: http://www.snomed.org
- SNOMED Browser: http://browser.ihtsdotools.org
- Document library: http://snomed.org/doc
- Starter guide: http://snomed.org/sg
- Elearning: http://snomed.org/elearning
  - SNOMED CT Foundation Course
  - SNOMED CT Implementation Course
  - SNOMED CT Content Development Theory Course
  - Showcase / Expo presentations

Thank you!

for further information.

info@snomed.org

www.snomed.org