SNOMED International

Delivering SNOMED CT

Why SNOMED CT?

SNOMED CT in Ireland

January 31st, 2023

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SNOMED International

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Outline

- Background
- Why SNOMED CT?
- SNOMED CT features in a nutshell
- How to learn more about SNOMED CT

(Tuesday)
January 31

SNOMED International

SNOMED CT

The world's most comprehensive multilingual clinical terminology

The global language of healthcare

A Brief History

2002
First release of SNOMED CT
(merge of SNOMED and Read Codes)

2007
Acquired by IHTSDO
for the public good in 2007

2017
IHTSDO adopted the trading name **SNOMED International**

Who is involved now?

Argentina	Denmark	Jordan	Saudi Arabia	United Arab Emirates
Armenia	El Salvador	Kazakhstan	Singapore	United Kingdom
Australia	Estonia	Lithuania	Slovakia	United States
Austria	Finland	Luxembourg	Slovenia	Uruguay
Belgium	Germany	Malaysia	Republic of Indonesia	
Brunei	Hong Kong, China	Malta	Republic of Korea	
Canada	Iceland	Netherlands	Spain	
Chile	India	New Zealand	Sweden	
Cyprus	Ireland	Norway	Switzerland	
Czech Republic	Israel	Portugal	Thailand	

SNOMED International

44 Members

SNOMED International: Delivering SNOMED CT

Vision

SNOMED International

By 2025, Clinical Terminologies will be used globally, which will result in better health and improved patient outcomes, supported by one language of health

Delivering SNOMED CT

Vision

SNOMED International

By 2025, Clinical Terminologies will be used globally, which will result in **better health and improved patient outcomes**, supported by one language of health

Delivering SNOMED CT

High quality clinical data

SNOMED CT

The global language of healthcare

Key Clinical Data Quality Measures

Accuracy:

How well does information reflect reality?

Consistency:

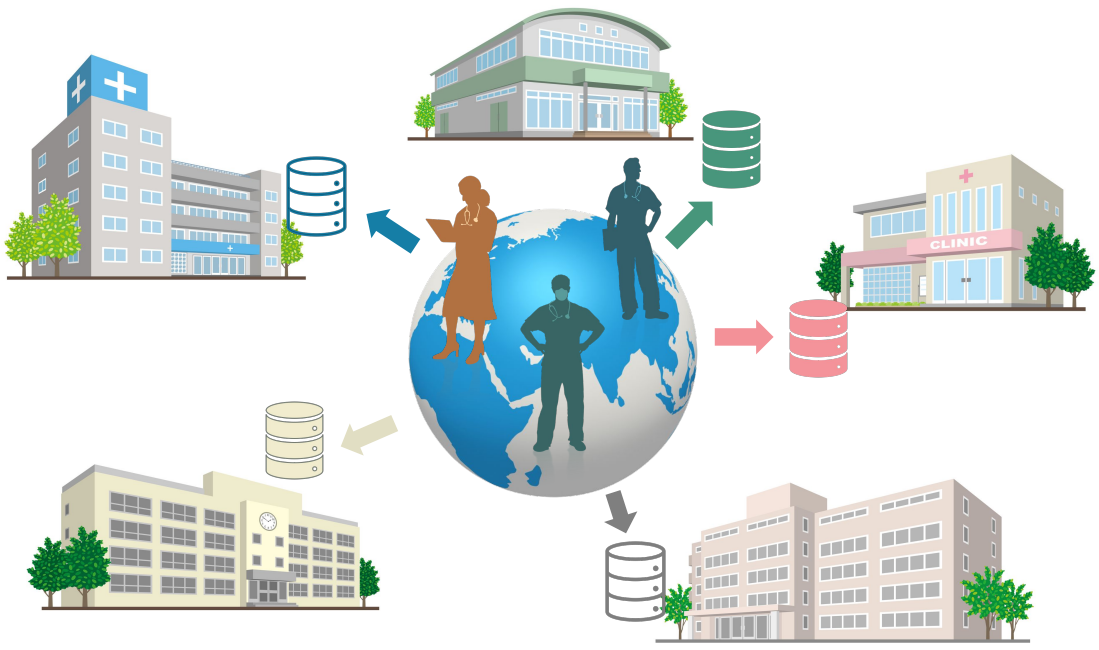
Is the same information always represented in the same way?

Completeness:

Does the information provide a complete picture of the situation?

Timeliness:

Is information available when you need it?



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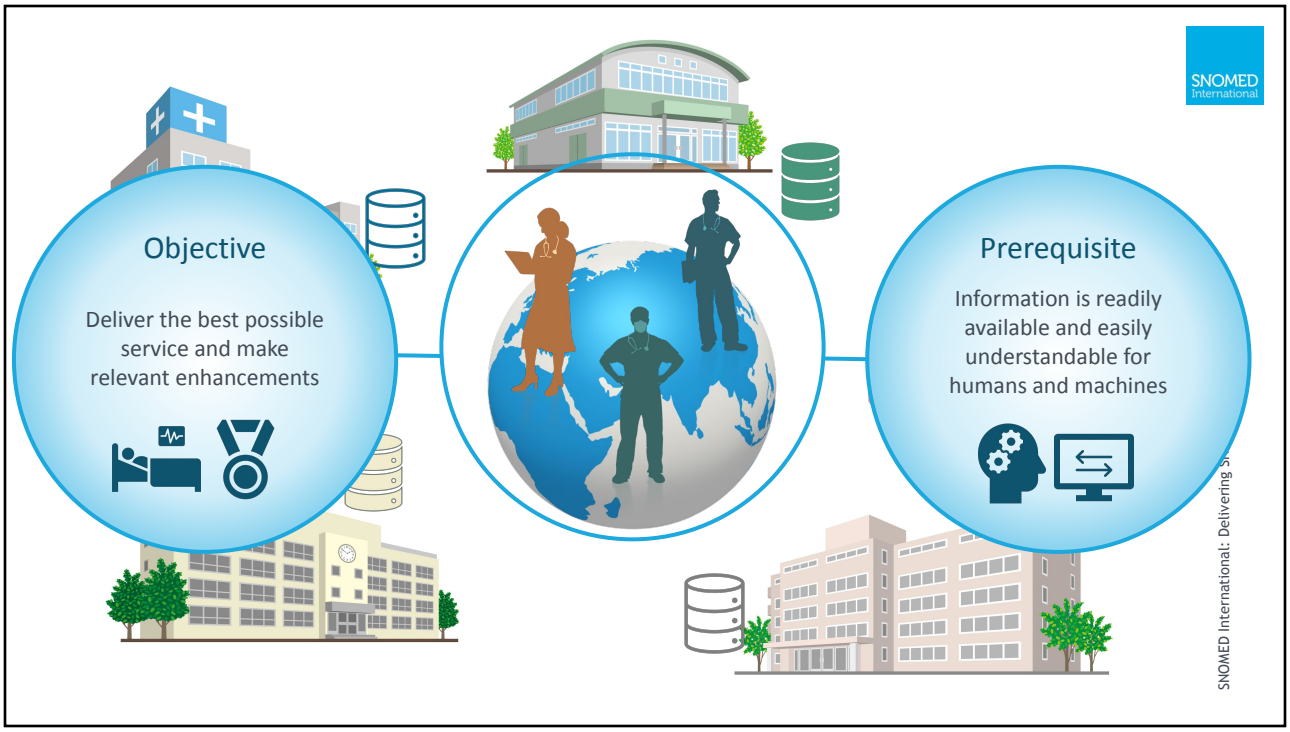
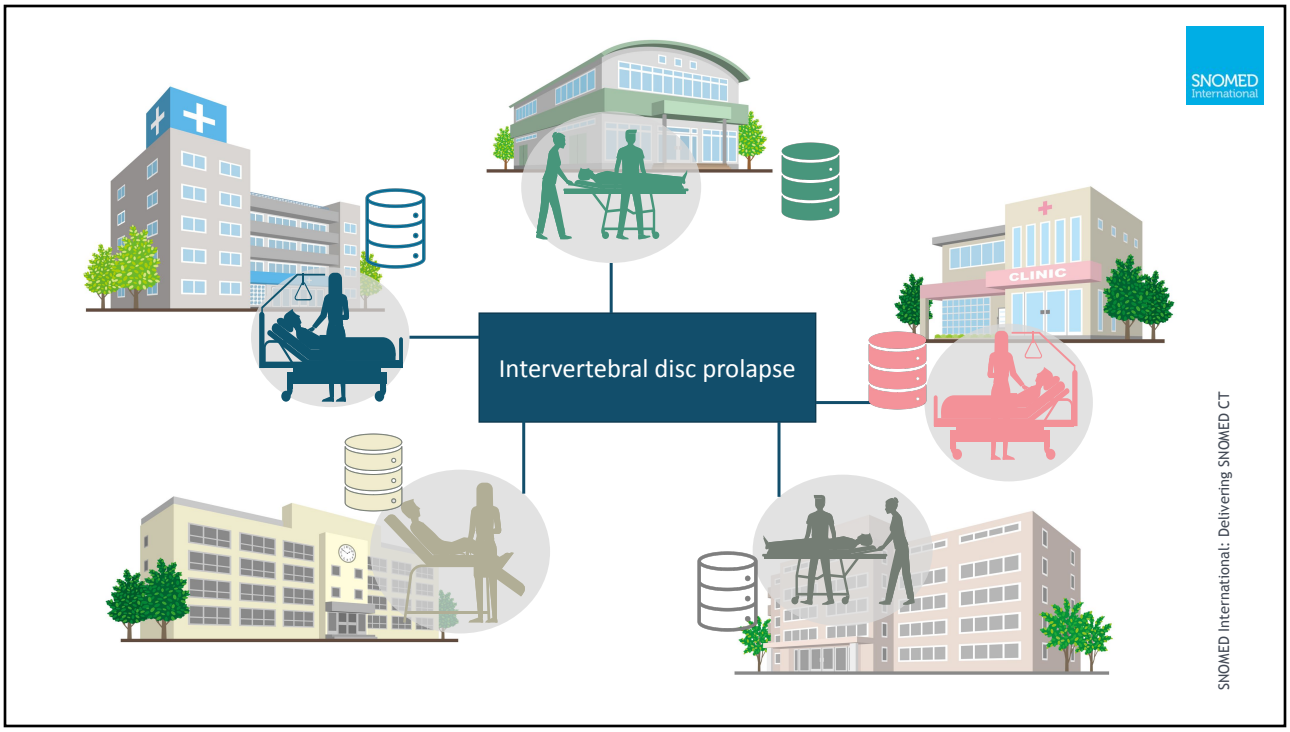
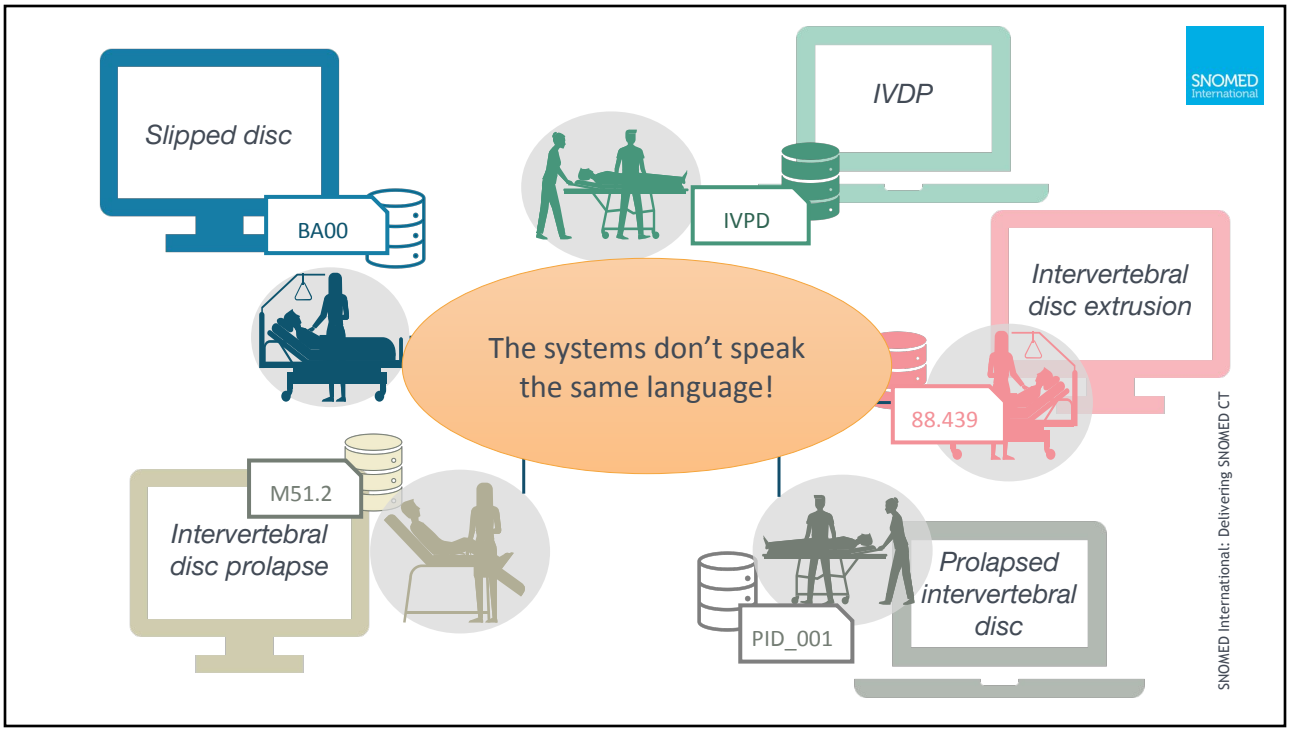
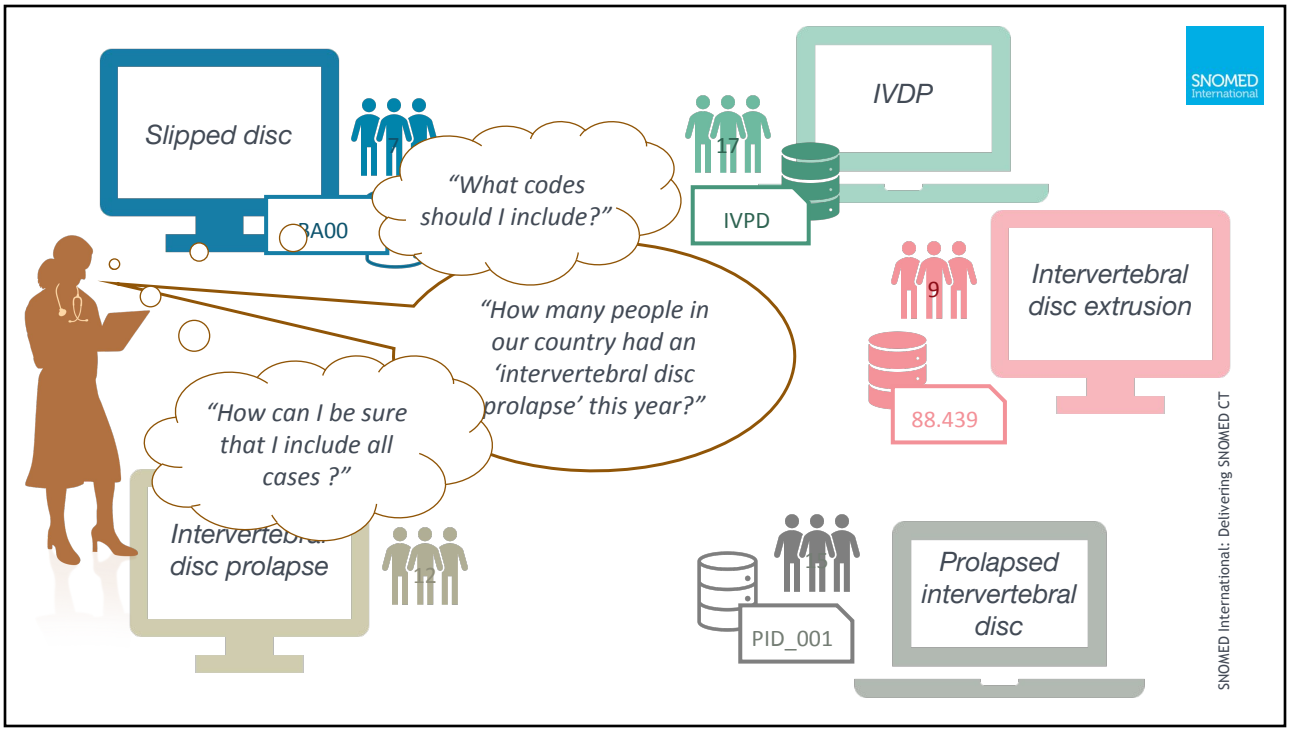
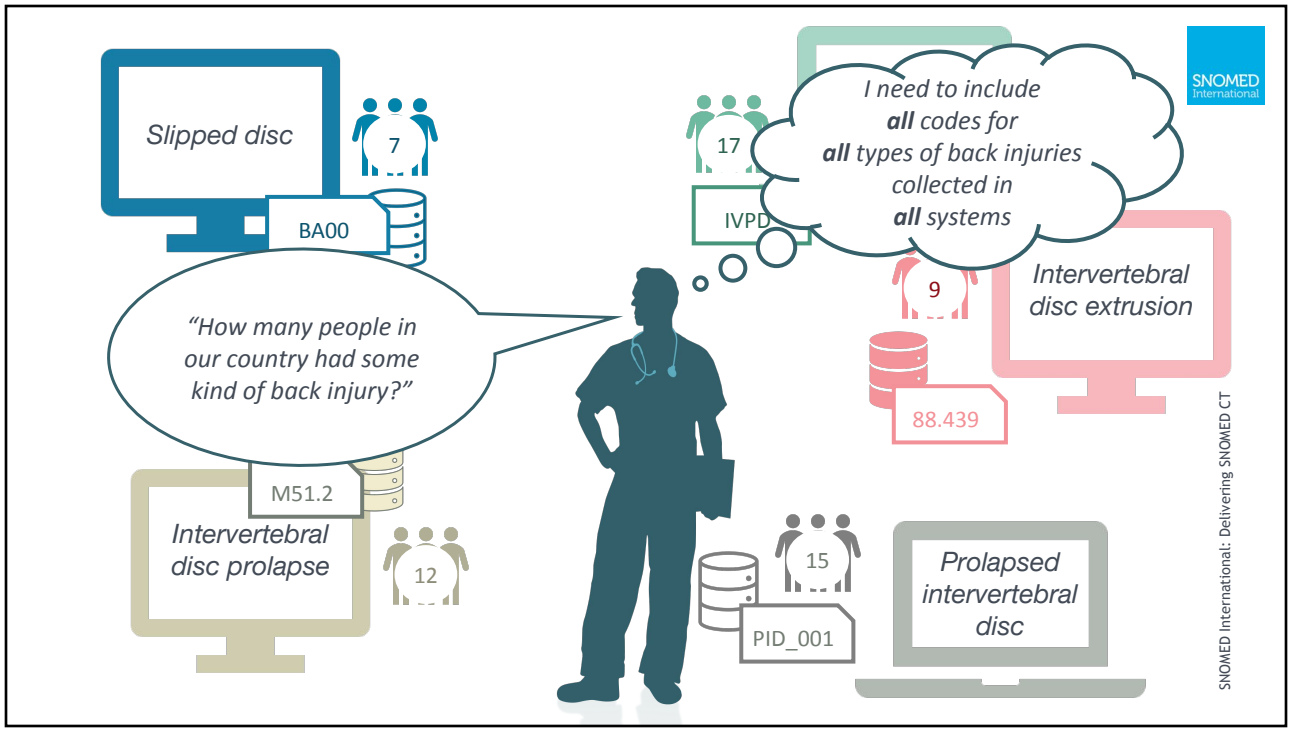

SNOMED International
Objective
Deliver the best possible service and make relevant enhancements
Prerequisite
Information is readily available and easily understandable for humans and machines
SNOMED International: Delivering SN


SNOMED International
Intervertebral disc prolapse
CLINIC
SNOMED International: Delivering SNOMED CT


Slipped disc
BA00
IVDP
IVPD
Intervertebral disc extrusion
88.439
The systems don't speak the same language!
M51.2
Intervertebral disc prolapse
PID_001
Prolapsed intervertebral disc
SNOMED International
SNOMED International: Delivering SNOMED CT


Slipped disc
BA00
IVDP
IVPD
"What codes should I include?"
"How many people in our country had an 'intervertebral disc prolapse' this year?"
"How can I be sure that I include all cases ?"
Intervertebral disc prolapse
Intervertebral disc extrusion
88.439
PID_001
Prolapsed intervertebral disc
SNOMED International
SNOMED International: Delivering SNOMED CT


Slipped disc
7
BA00
"How many people in our country had some kind of back injury?"
M51.2
Intervertebral disc prolapse
12
17
IVPD
I need to include **all** codes for **all** types of back injuries collected in **all** systems
9
88.439
Intervertebral disc extrusion
15
PID_001
Prolapsed intervertebral disc
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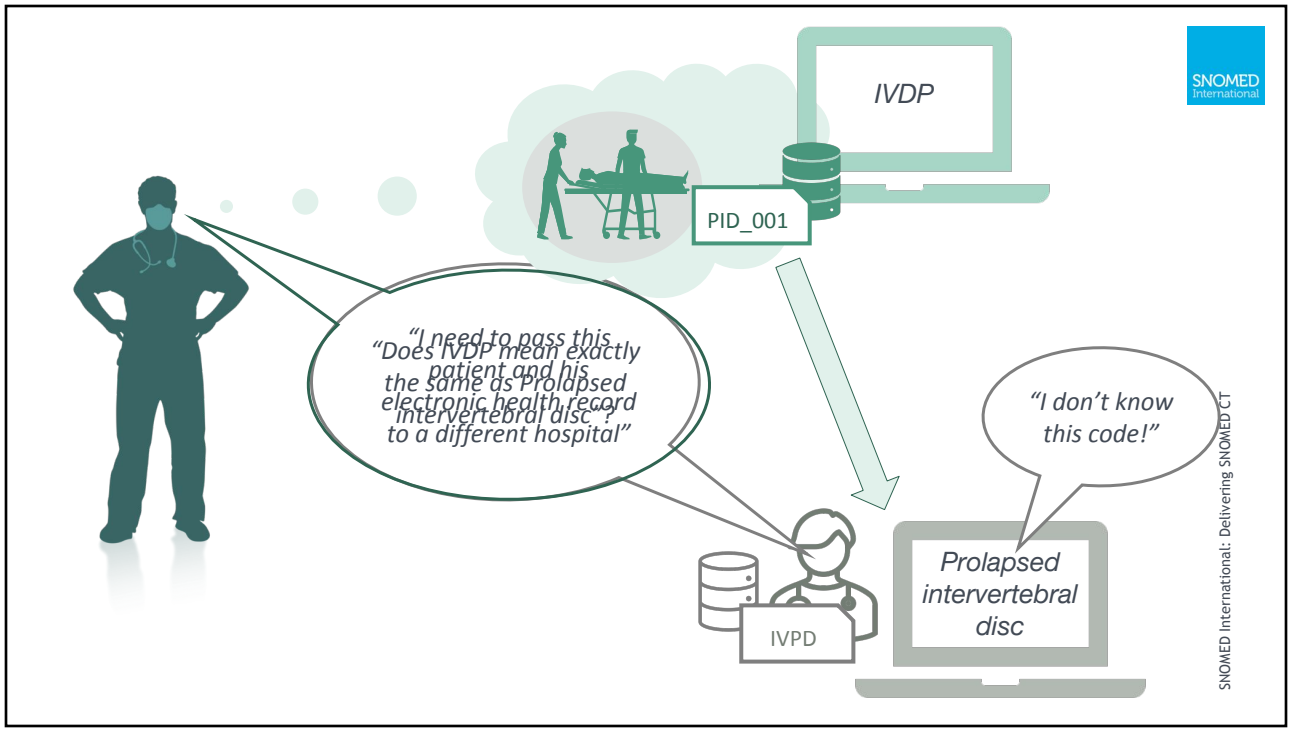
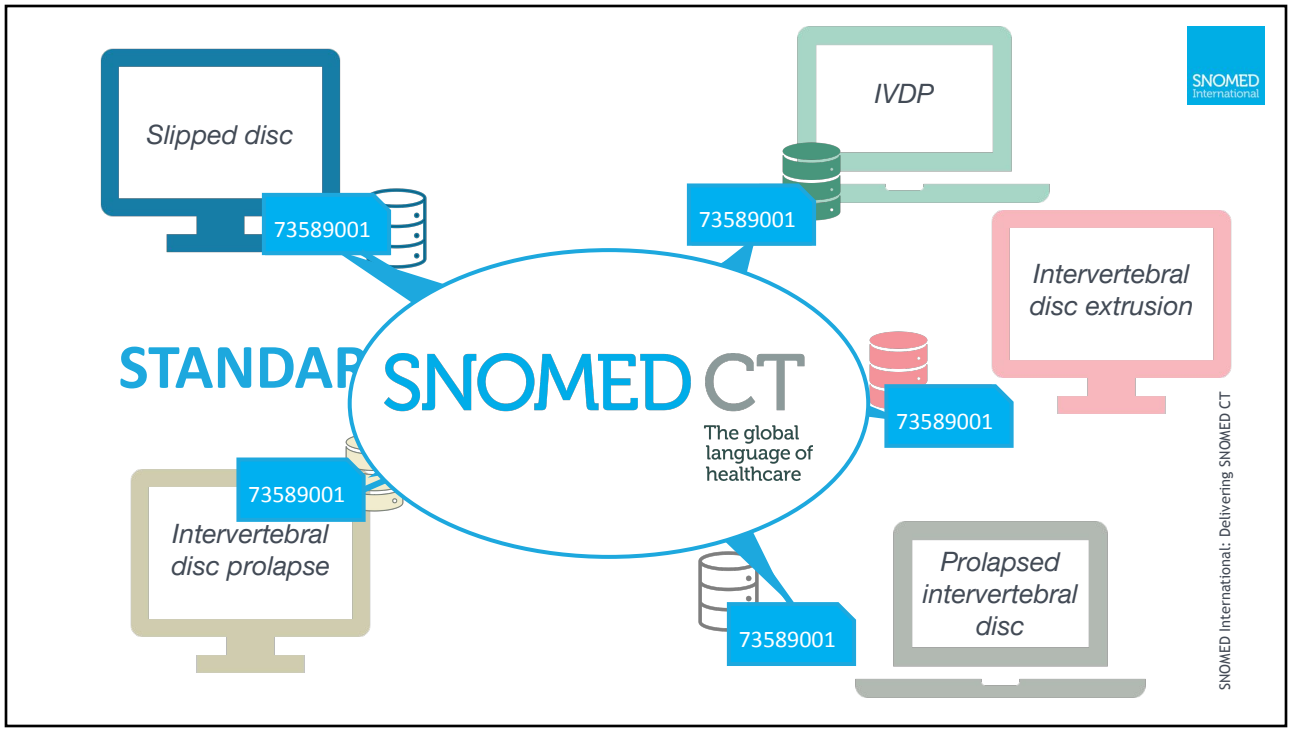
SNOMED International: Delivering SNOMED CT


IVDP
PID_001
"Does IVDP mean exactly the same as Prolapsed intervertebral disc"?
"I need to pass this patient and his electronic health record to a different hospital"
"I don't know this code!"
IVPD
Prolapsed intervertebral disc
SNOMED International
SNOMED International: Delivering SNOMED CT


Slipped disc
73589001
IVDP
73589001
Intervertebral disc extrusion
73589001
STANDAR
SNOMED CT
The global language of healthcare
73589001
Intervertebral disc prolapse
73589001
Prolapsed intervertebral disc
SNOMED International
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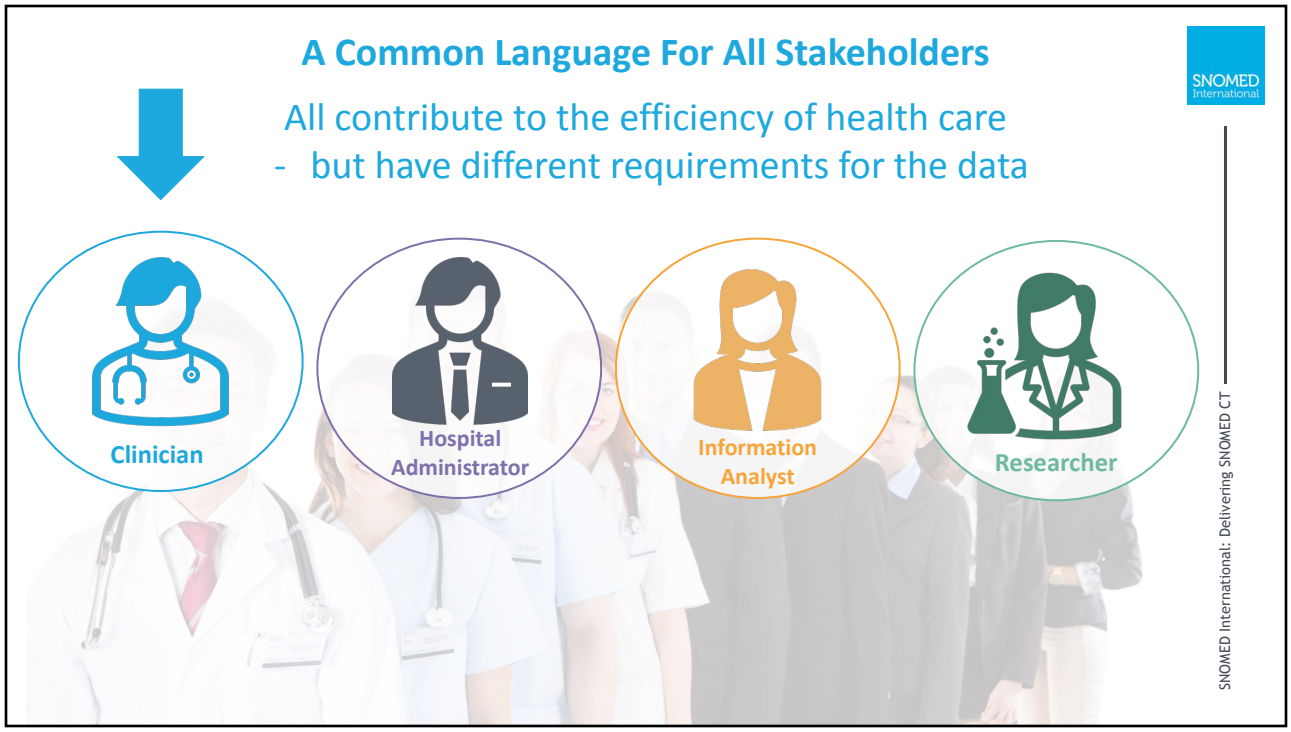
A Common Language For All Stakeholders
All contribute to the efficiency of health care
- but have different requirements for the data
Clinician
Hospital Administrator
Information Analyst
Researcher
SNOMED International
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SNOMED CT for Clinicians

We want to record clinical details using a **clinically-focused** language

We want to be able to use data to support **clinical research** and **decision making**

Clinician

We want clinical documentation to be **fast**, **easy** and **accurate**

We want the **right data** to be available at the **right time** and the **right place**

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Clinicians involved throughout the patient journey can use a single terminology to record data about the patient

Emergency room	Laboratory	Medical care	Surgery	Rehabilitation
116290004 |Acute abdominal pain|	871560001 |SARS-CoV-2 RNA PCR|	74400008 |Appendicitis|	17041004 |Appendectomy|	225782006 |Pain control|

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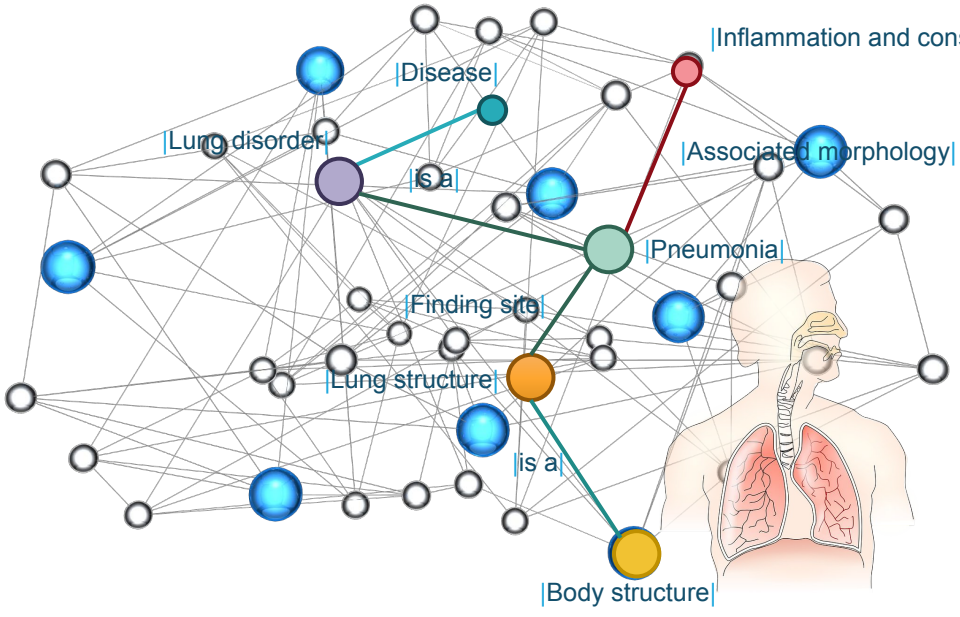
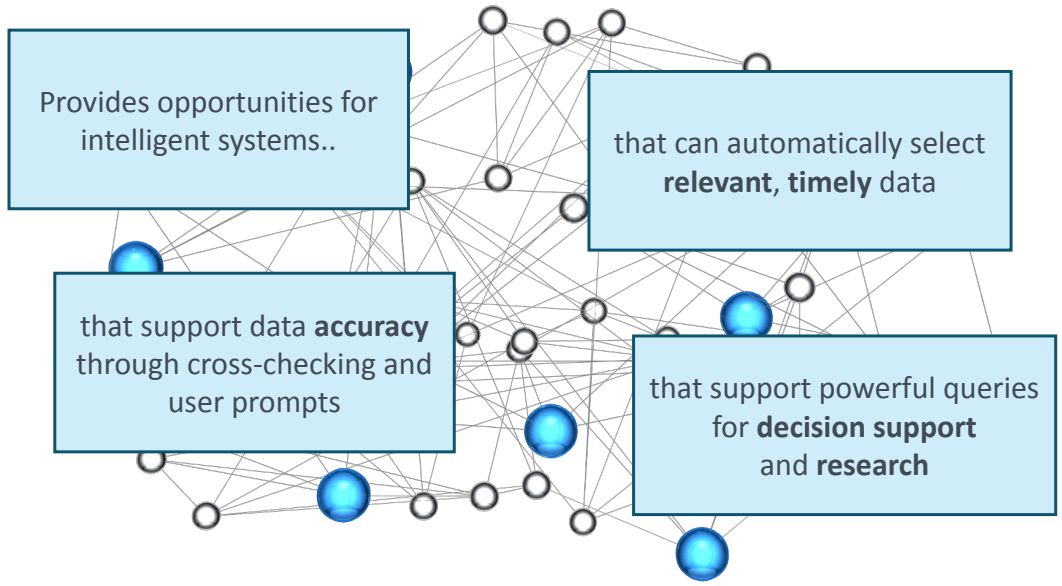
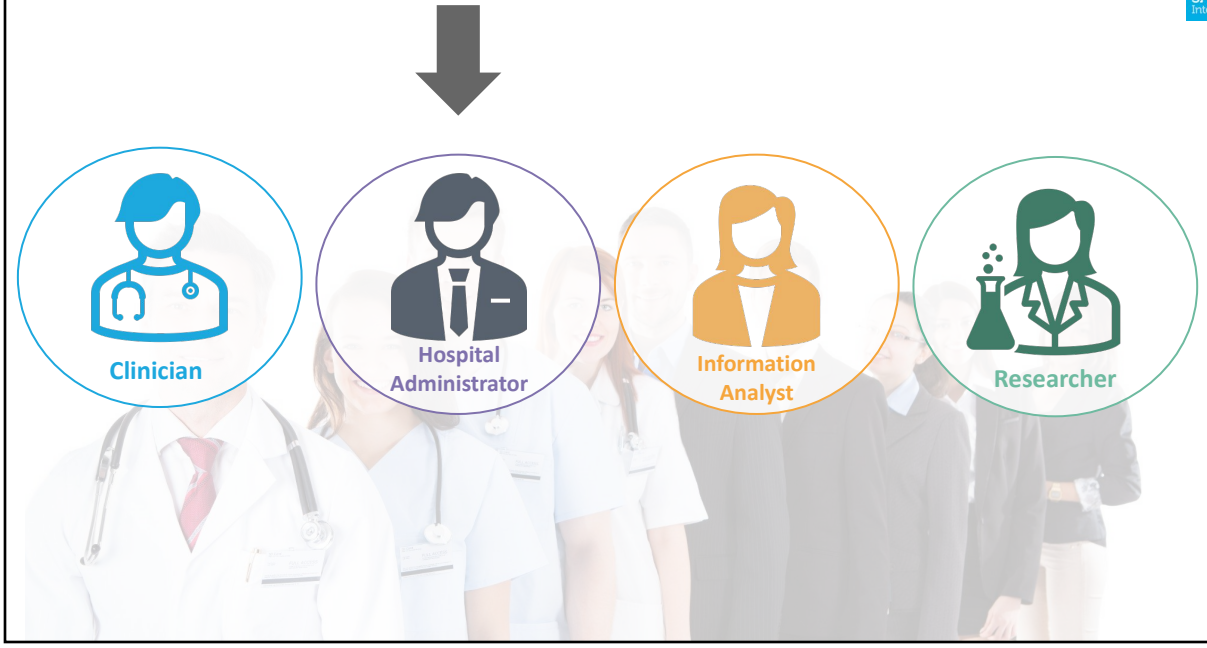
… A Semantic Network of Clinical Meanings



… A Semantic Network of Clinical Meanings





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SNOMED CT for Hospital Administrators

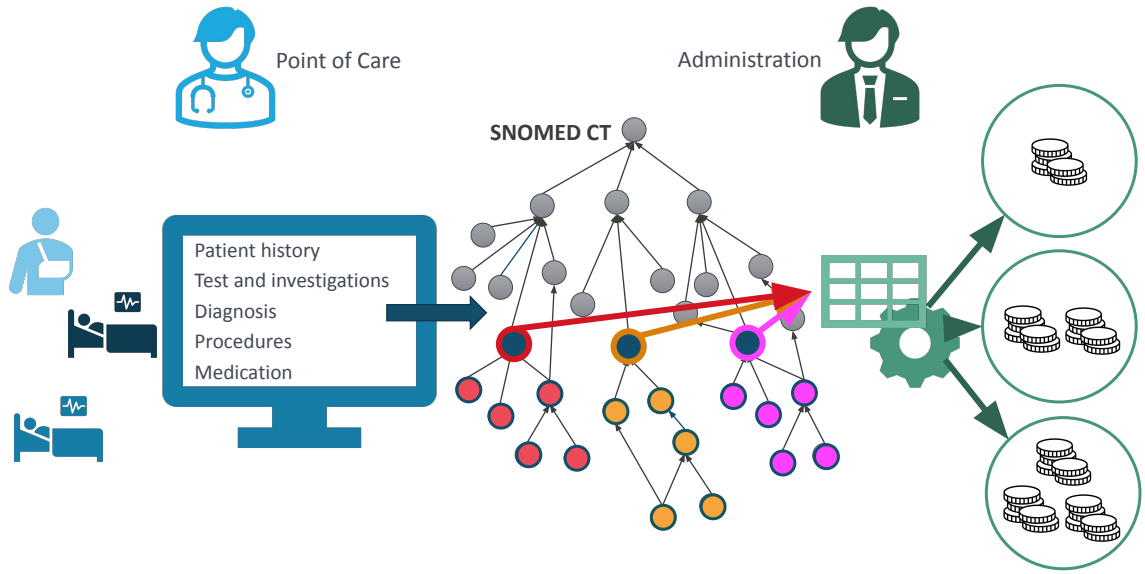
We need to ensure that all **services** are **delivered**, **recorded** and **reimbursed**

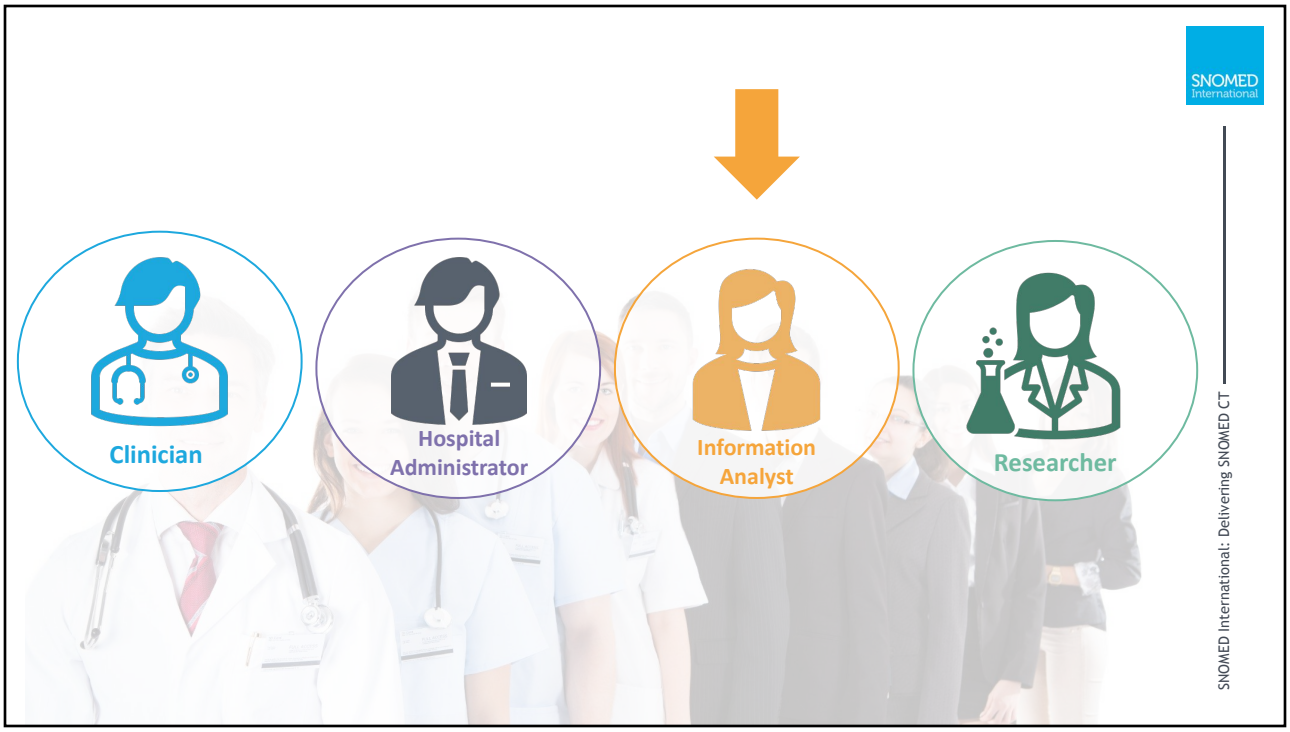
Hospital Administrator

We believe that **data** collected at the **point of care** should be the basis for **secondary purposes**

We want to **minimize** data **redundancy** that occurs when data is collected concurrently for **multiple purposes**

SNOMED CT for Hospital Administrators





SNOMED CT for Information Analysts

We need a **standardized** way to **collate data** about diseases and mortality in our country

Information Analyst

We provide the **statistical information** about the **frequency** of certain **diseases** and the causes of **death** in our country

We perform **analysis** to provide **insights** on **population health**

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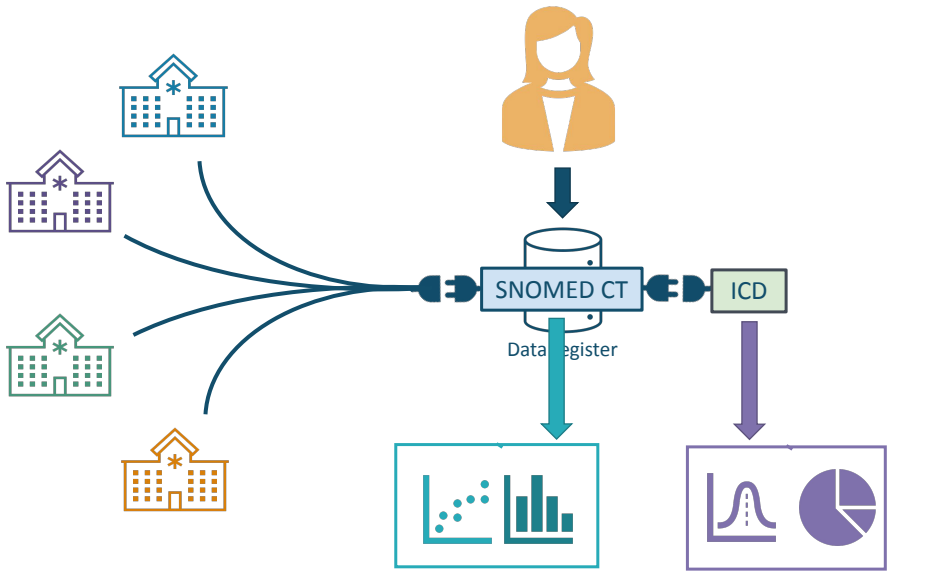
SNOMED CT for Information Analysts



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SNOMED CT for Researchers

I need an effective way to **identify** relevant **clinical trial candidates**

Researcher

I need to selectively **query** data to be able to **identify** potential **important patterns** in data

I need to **collate** and **analyze** data collected at various sites

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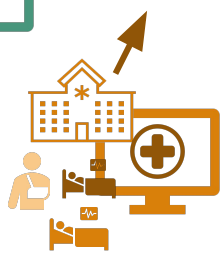
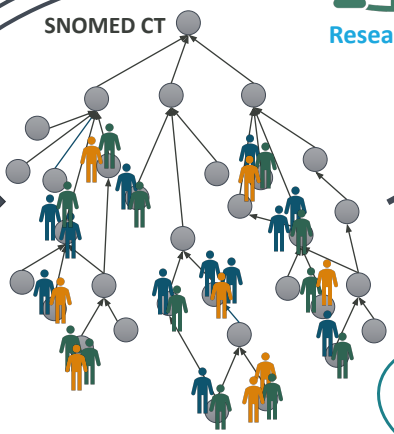
SNOMED CT for Researchers

Point of Care



SNOMED CT enabled research data

SNOMED CT



Researcher

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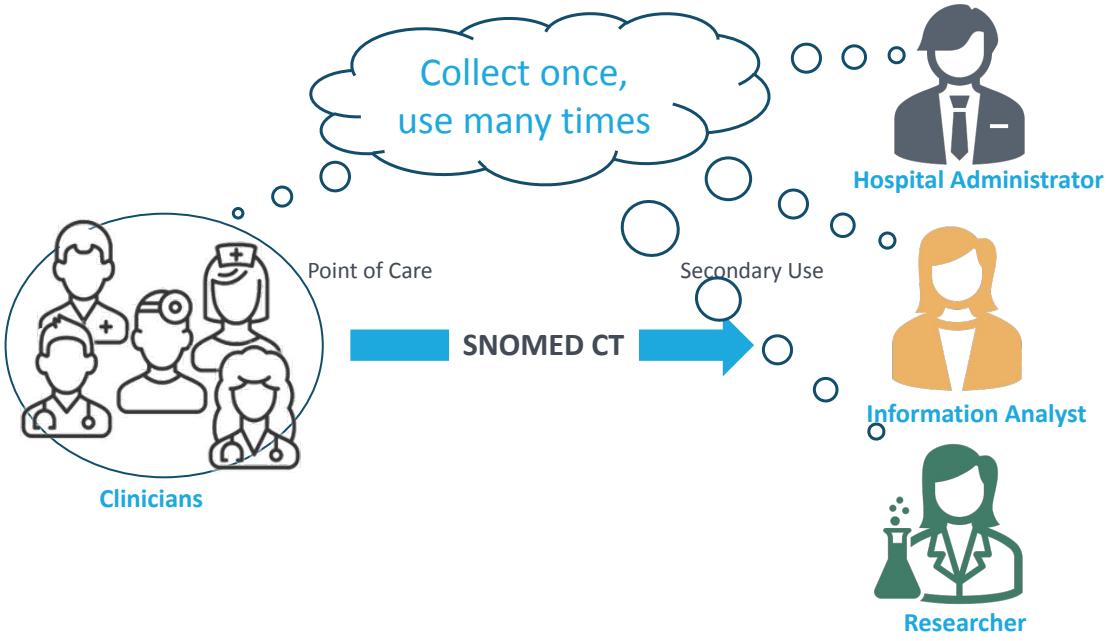
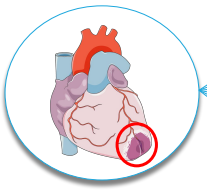

Collect once,
use many times
Point of Care
Secondary Use
SNOMED CT
Clinicians
Hospital Administrator
Information Analyst
Researcher

Making clinical data interoperable, **meaningful**, and actionable
SNOMED CT
The global language of healthcare

Clinical **terms** are meaningful to **clinicians** with medical knowledge…

I understand what is meant by a "*myocardial infarction*"

- I know: it is a type of ischemic heart disease,
- it is a necrosis of the heart,
- it involves tissue death (infarct),
- it is located in the myocardium structure



- Myocardial infarct
- Heart attack
- Myocardial infarction
- MI - myocardial infarction
- Infarction of heart
- Cardiac infarction

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… But **terms** on their own are **not meaningful** to **machines**

I understand what is meant by a "*myocardial infarction*"

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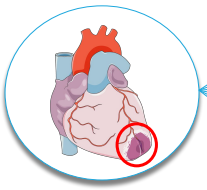

- Myocardial infarct
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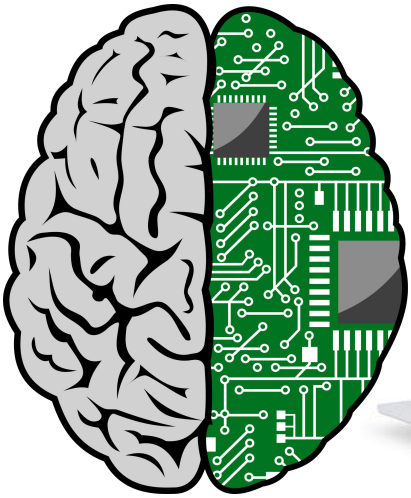
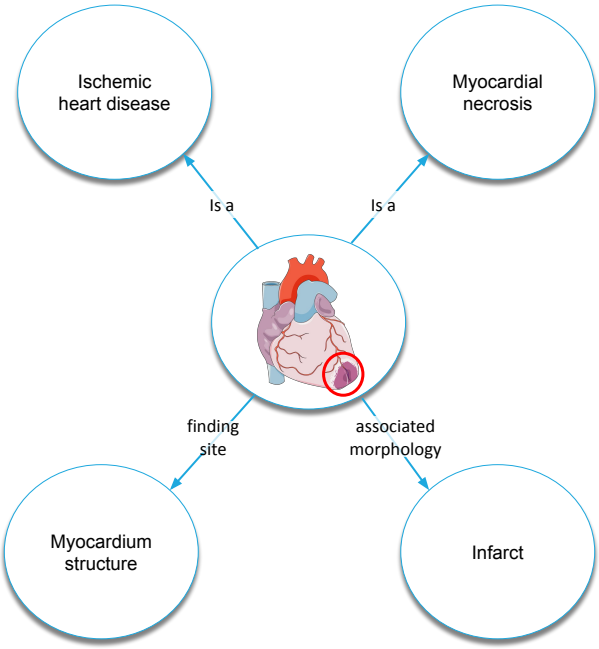
However SNOMED CT *also* represents **clinical meanings** in a way that is **processable** by **computers**



Machine processable meanings are expressed using semantic relationships



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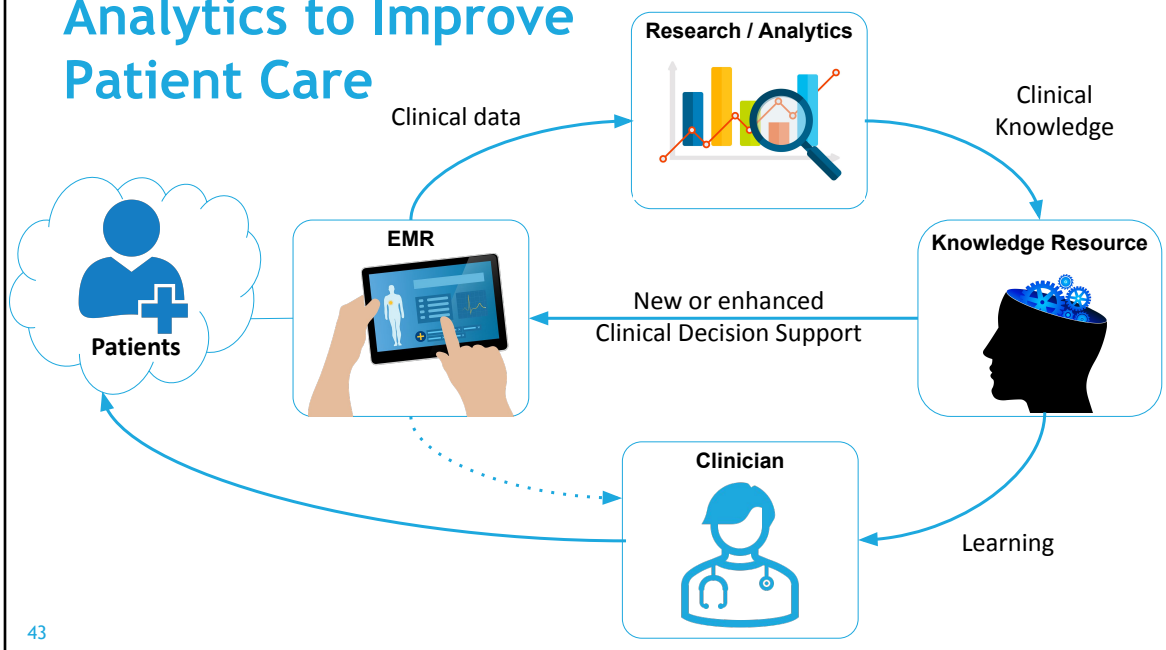
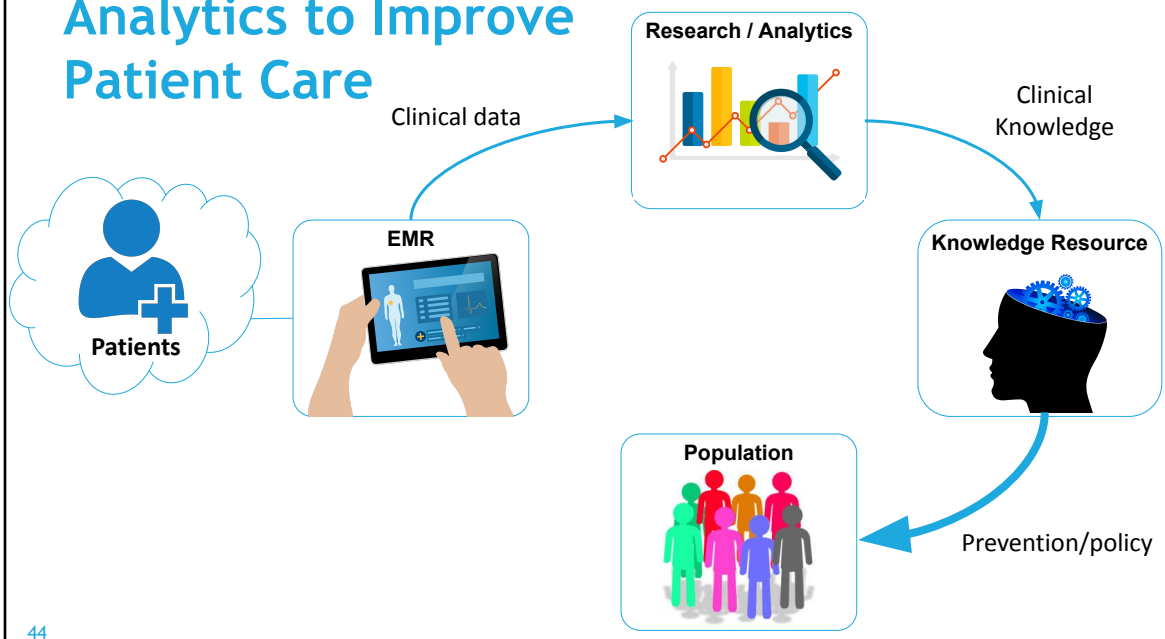
Analytics to Improve Patient Care



Analytics to Improve Patient Care



SNOMED CT is far more **powerful** in supporting **research** and **analytics** compared to conventional classifications

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SNOMED CT Features

in a Nutshell

January 31st, 2023

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SNOMED CT Features

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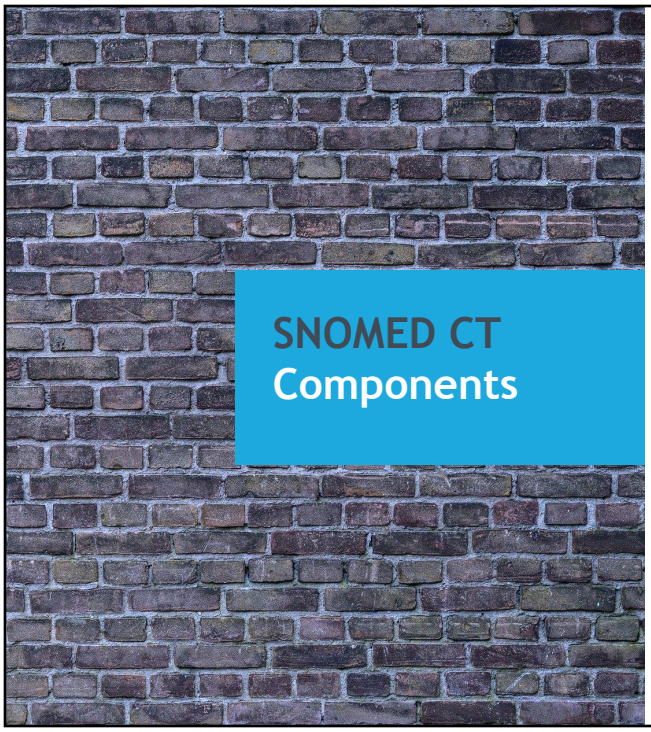
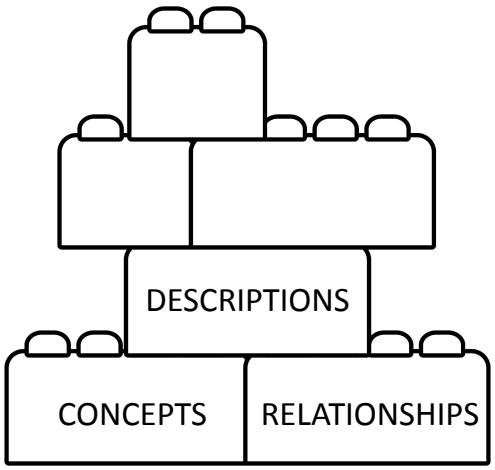
SNOMED CT Key Features

- Core components
  - Concepts
  - Descriptions
  - Relationships
- Hierarchies
- Logical model
- Computable Languages
- Maps
- Versioning and quality assurance

SNOMED CT
The global language of healthcare

snomed.org/browser





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SNOMED CT Key Features

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  - **Concepts**
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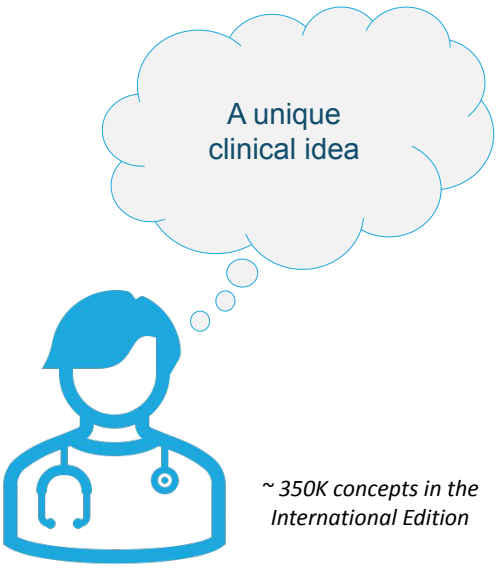
- Computable Languages
- Customizability
- Versioning and quality assurance



~ 350K concepts in the International Edition

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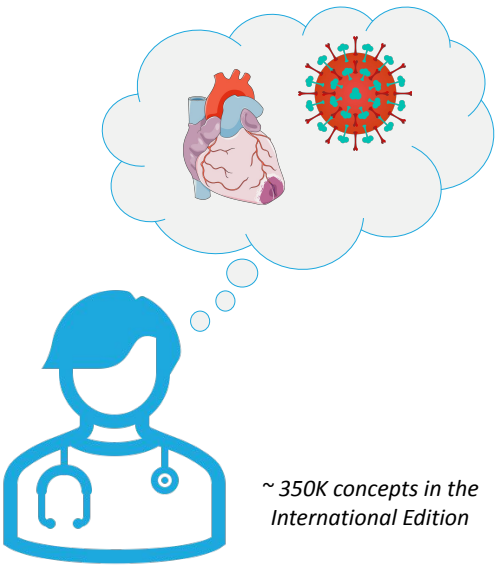

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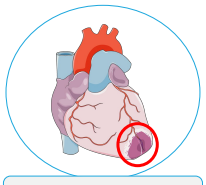

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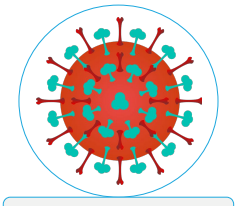

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SNOMED CT Key Features

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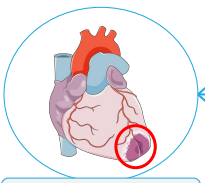

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Myocardial infarction

Cardiac infarction

Heart attack

SNOMED CT Key Features

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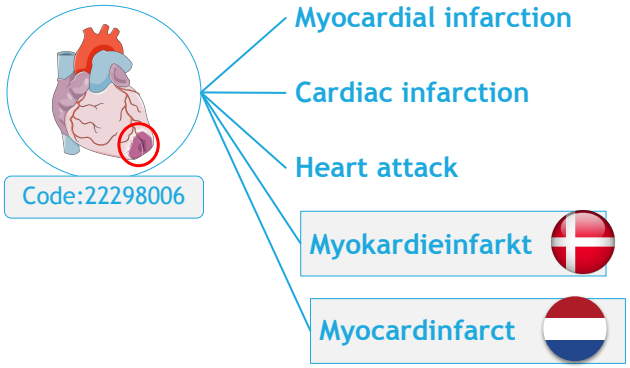

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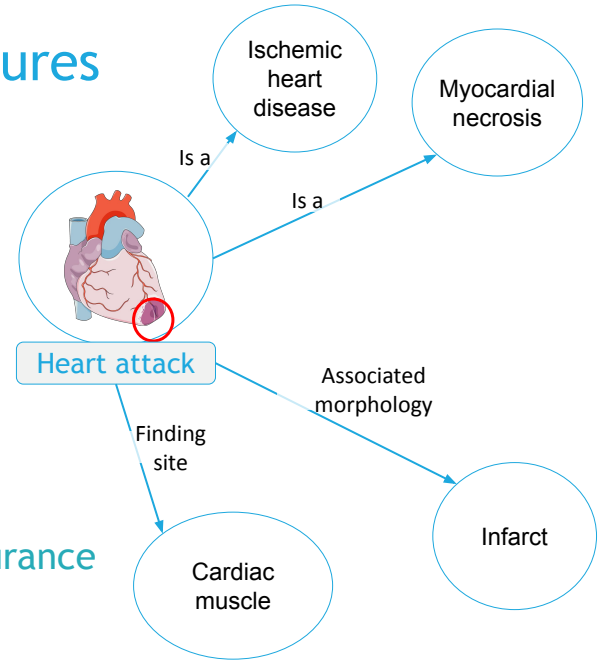

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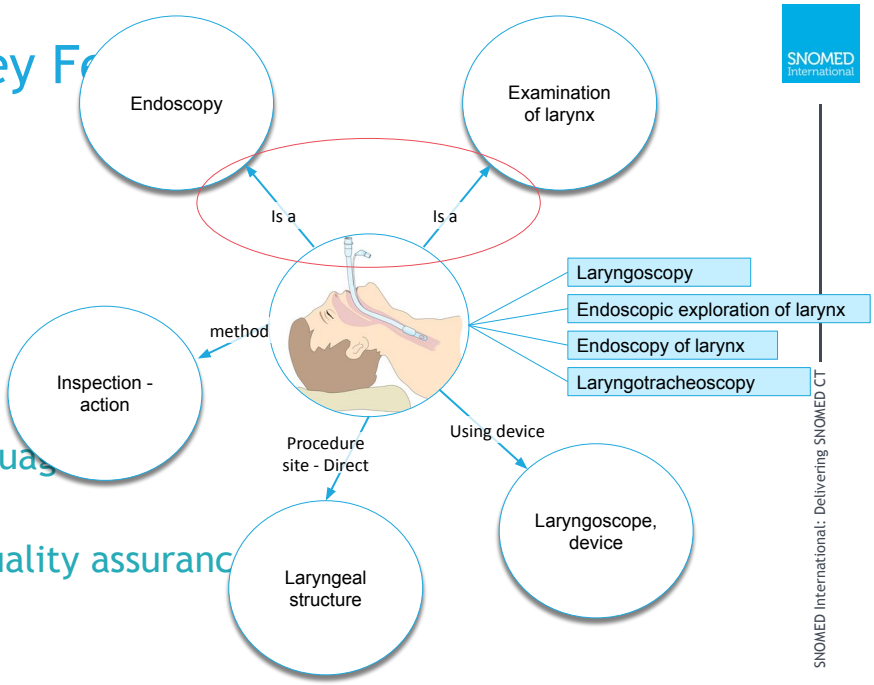

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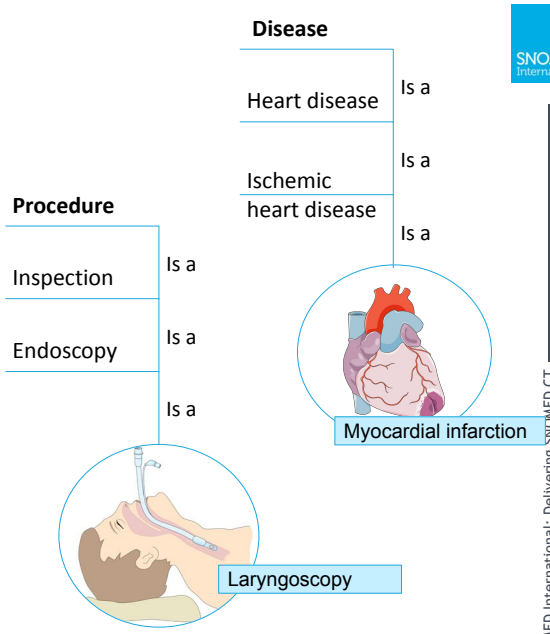

SNOMED CT Key Features

- Core components
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- **Hierarchies**
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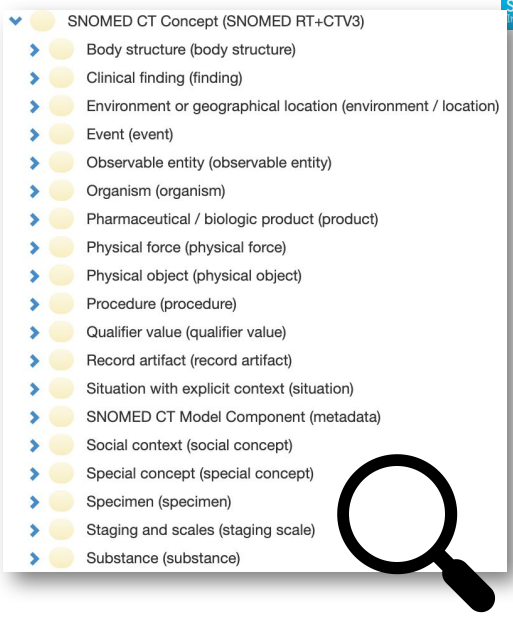
Broad scope

SNOMED CT Key Features

- Core components
  - Concepts
  - Descriptions
  - Relationships
- **Hierarchies**
- Logical model
- Computable Languages
- Customizability
- Versioning and quality assurance



SNOMED CT Key Features

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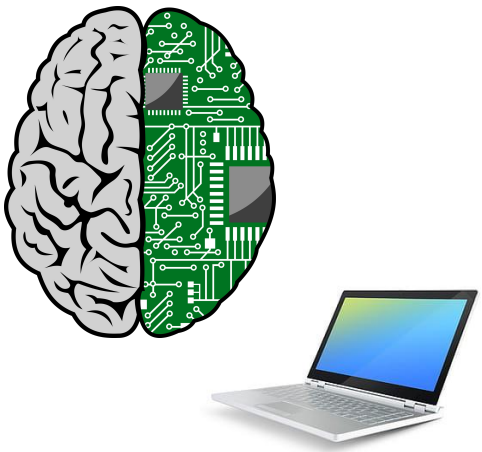
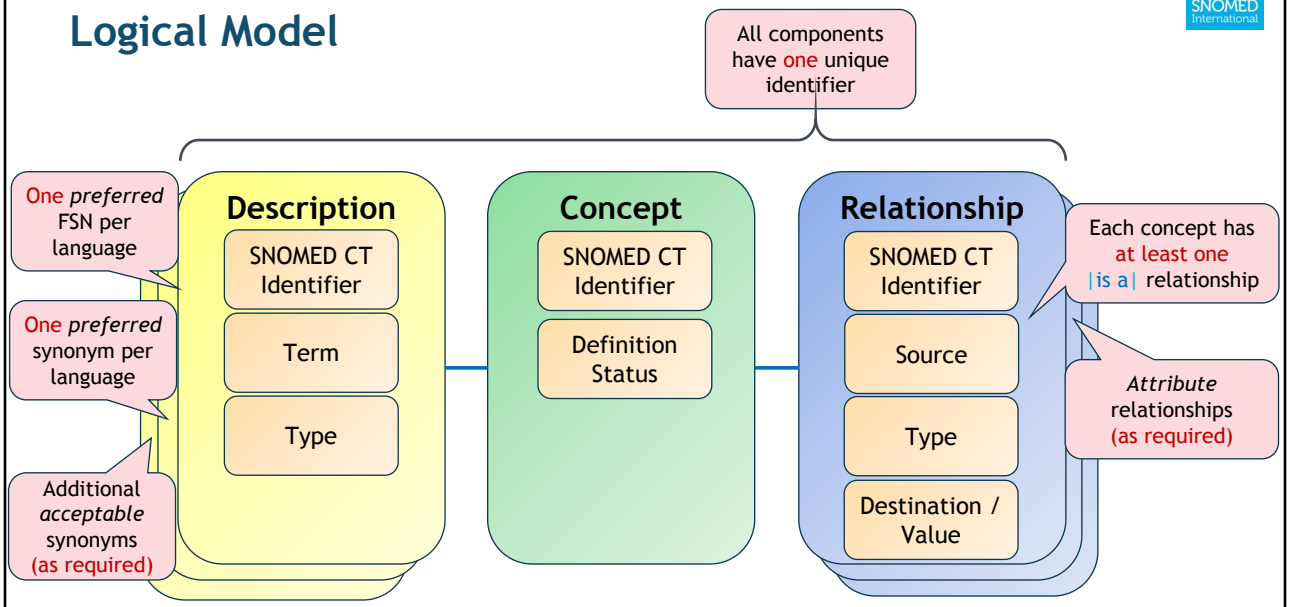
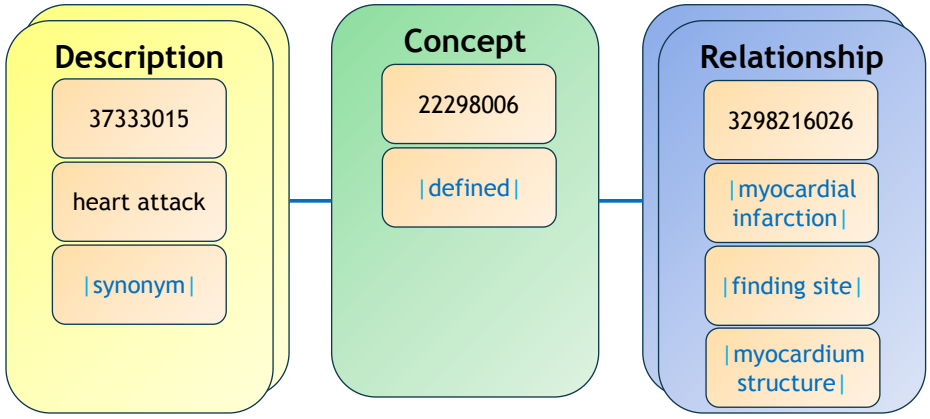


Logical Model



Example
|Myocardial Infarction|



SNOMED CT Key Features

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Query the SNOMED CT knowledge graph:

Expression Constraint Language
"ECL"

- Sets of concepts
  - User interface constraints
  - Groups of patients

SNOMED CT Key Features

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SNOMED CT Extensions support the terminology to be tailored to national and local terminology needs

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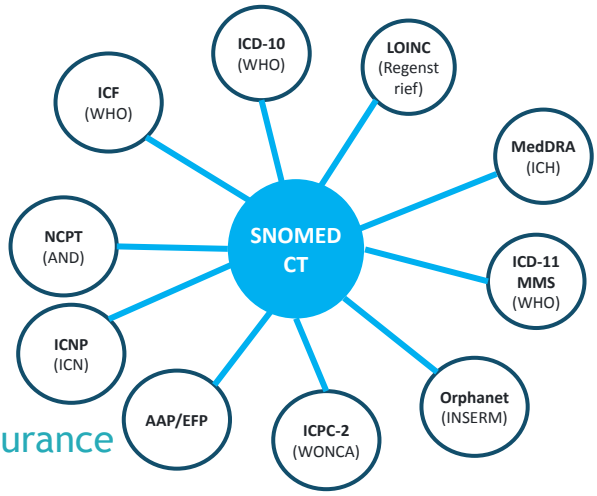

SNOMED CT Key Features

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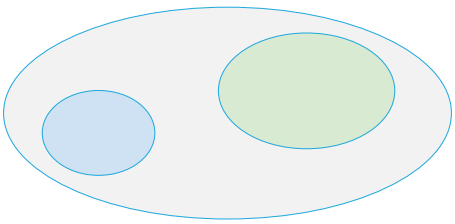
- Hierarchies
- Logical model
- Computable Languages
- **Customizability**
- Versioning and quality assurance

Subsets
to function as value sets



SNOMED CT Key Features

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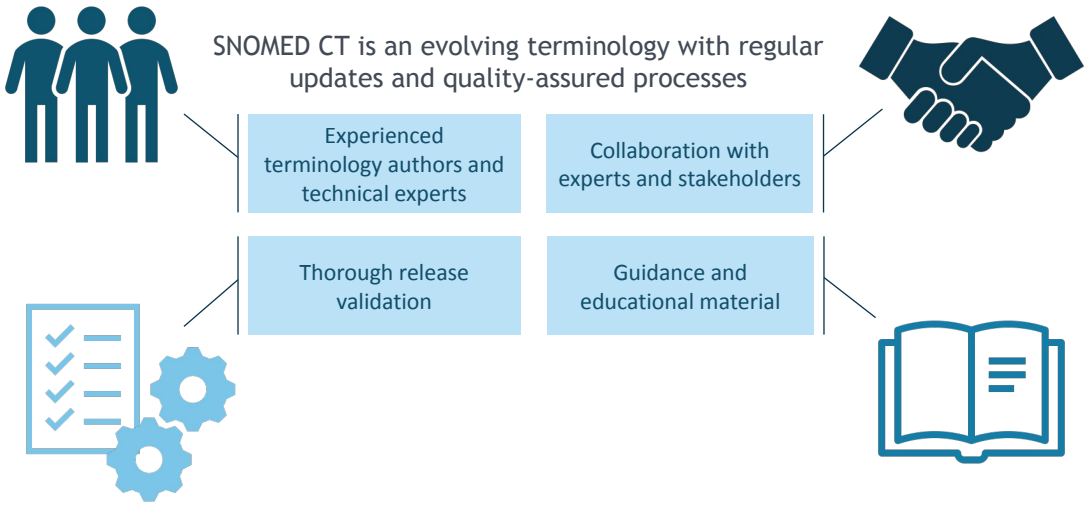
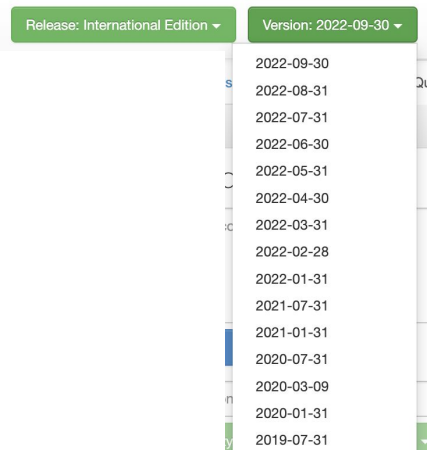
- Hierarchies
- Logical model
- Computable Languages
- Customizability
- **Versioning and quality assurance**



SNOMED International: Delivering SNOMED CT

SNOMED CT Key Features

- Core components
  - Concepts
  - Descriptions
  - Relationships
- Hierarchies
- Logical model
- Computable Languages
- Maps
- **Versioning and quality assurance**



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Delivering SNOMED CT

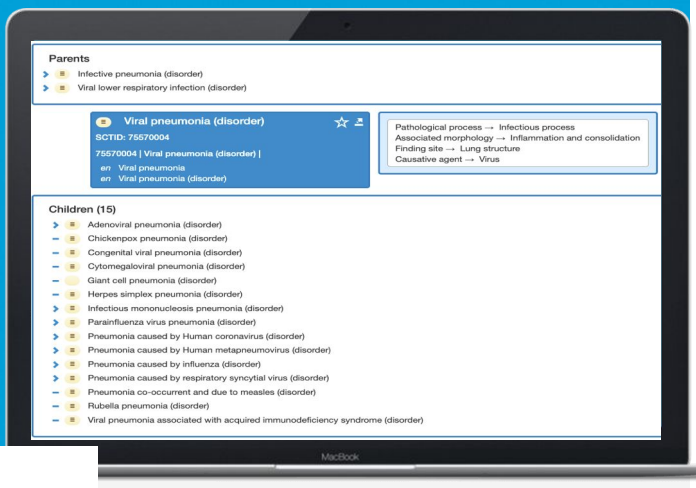
Exploring content in the SNOMED CT browser

snomed.org @snomedct linkedin.com/company/ihtsdo/

SNOMED International

SNOMED CT Browser

The SNOMED International SNOMED CT Browser provides ways to browse and search SNOMED CT



Available at:
https://snomed.org/browser

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How to Learn More

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SNOMED CT Courses

Courses

- Foundation
- Implementation
- Terminology Services
- Authoring Level 1
- Authoring Level 2

Certifications

- Terminology Services
- Authoring Level 1
- Authoring Level 2

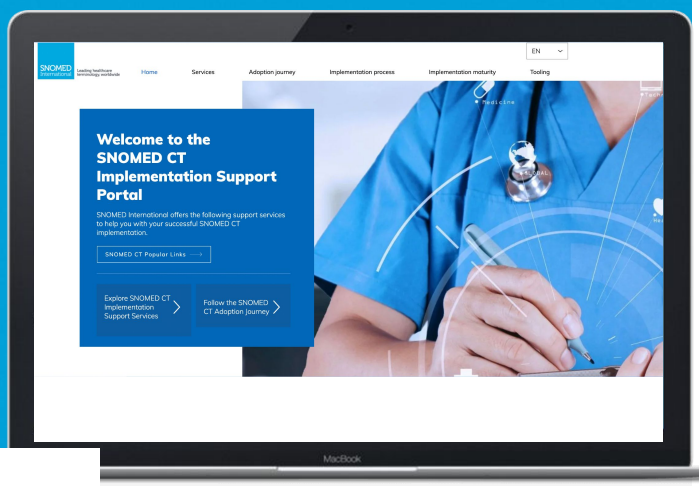
Learning pathways

- Developers
- Data analysts
- Clinicians
- Translation

Available at:
https://courses.ihtsdotools.org

Implementation Support Portal

A comprehensive guide to implementation resources and services



Available at:
http://snomed.org/support

SNOMED International

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SNOMED CT Document Library

An important source of information for anyone adopting, authoring, implementing, deploying or using SNOMED CT

- Overviews
- Guides
- Specifications
- SNOMED CT Expo
- Glossary

Available at:
http://snomed.org/doc

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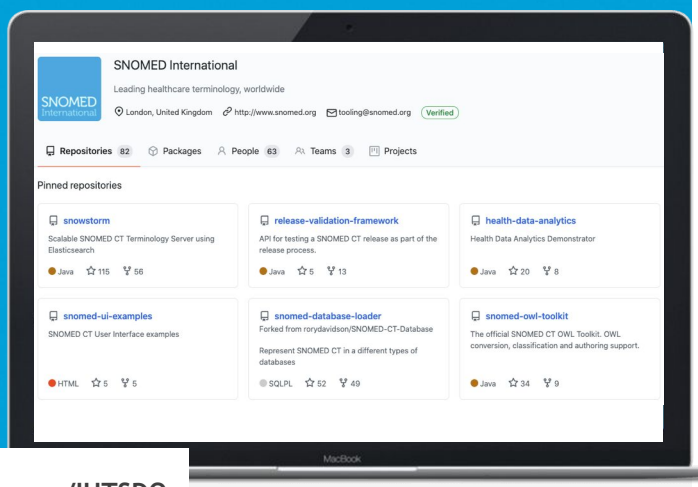
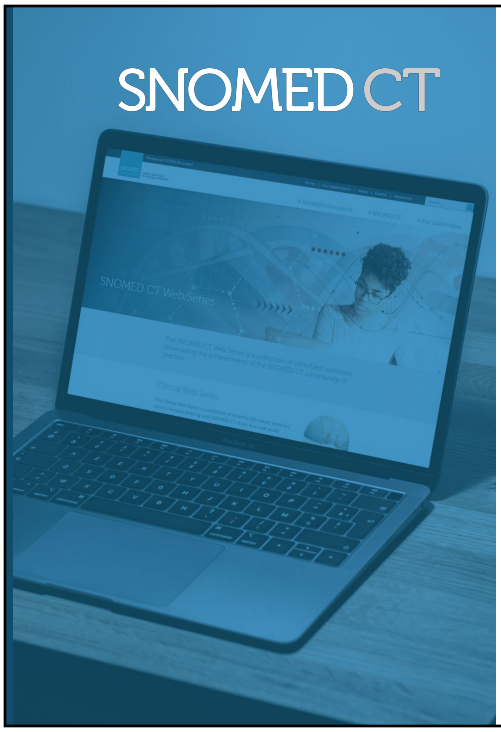
IHTSDO GitHub Repository

Contains open source code for a range of SNOMED CT software tools



Available at: **https://github.com/IHTSDO**



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