SNOMED International

SNOMED CT

The case for investment

September 2021

ABOUT

SNOMED INTERNATIONAL & SNOMED CT

SNOMED International

SNOMED CT

The global language of healthcare

FULL REPORT


Our 41 Members represent 30% of the world's population
Member
SNOMED CT is officially used in 70+ countries worldwide through Membership in SNOMED International and Affiliate Licenses.
AMERICAS
Argentina
Canada
Chile
United States
Uruguay
ASIA PACIFIC
Australia
Brunei
Hong Kong China
India
Kazakhstan
Malaysia
New Zealand
Republic of Armenia
Republic of Korea
Singapore
EUROPE, MIDDLE EAST & AFRICA
Austria
Belgium
Cyprus
Czech Republic
Denmark
Estonia
Finland
Germany
Iceland
Ireland
Israel
Jordan
Lithuania
Luxembourg
Malta
Netherlands
Norway
Portugal
Republic of Slovenia
Saudi Arabia
Slovak Republic
Spain
Sweden
Switzerland
United Kingdom
United Arab Emirates

SNOMED International

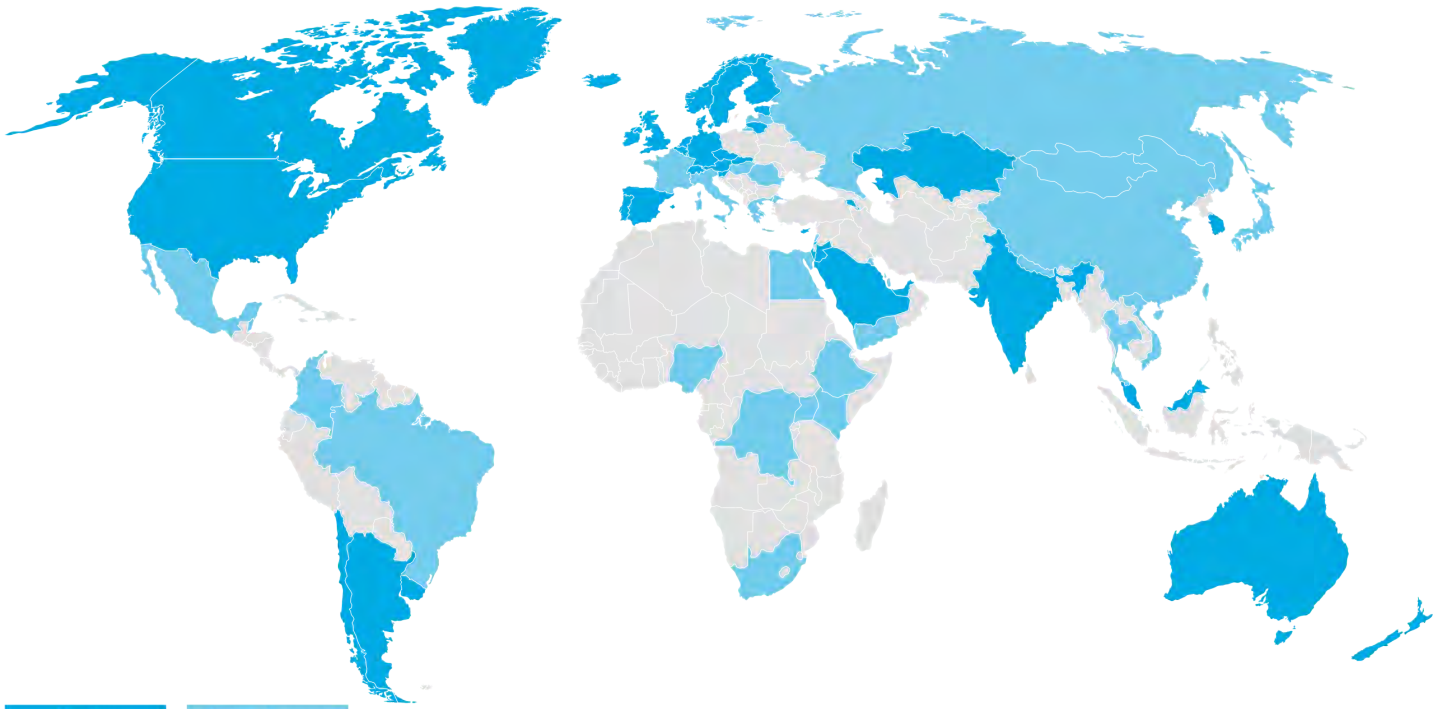
About

SNOMED International[1] is a not-for-profit organization that owns and maintains SNOMED CT, the world's most comprehensive clinical terminology. SNOMED International plays an essential role in improving the health of humankind by determining standards for a codified language that represents groups of clinical terms. SNOMED CT enables healthcare information to be exchanged globally for the benefit of patients/citizens, care providers and other stakeholders.

With SNOMED CT, users can record patient data more accurately, exchange patient data both within the health care team and with patients, both locally and across borders, to improve patient outcomes. Further, stakeholders can use SNOMED CT in health data and analytics platforms for clinical analytics, population analytics, management analytics, clinical research, applied research, and other research activities to improve health care.

SNOMED International strives to determine the best global standards for health terminologies and to engage with the global healthcare community to improve SNOMED CT to better serve the clinical information needs of a diverse range of health care stakeholders.

1. SNOMED International is the trading name of the International Health Terminology Standards Development Organization (IHTSDO)



National Members are the key to the continued evolution and use of SNOMED CT.

SNOMED International has witnessed the growth in its Member base from 28 Members at the start of 2015 to 41 Members, as of July 2021.

Incremental to the Member base are affiliate licensees, which expands the use of SNOMED CT into more than eighty countries globally.

SNOMED International

SNOMED International sustainably produces a global clinical vocabulary and other services that enables the clear exchange and analysis of health information for all.

OUR MISSION

OUR VISION

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

SNOMED International

Strategic Directions for 2020 to 2025

Products and Services Goals

01 SNOMED CT Evolution

02 Terminology Integrator

03 SNOMED CT Value Proposition

Adoption Goals

01 SNOMED Adoption & Consumption

02 SNOMED Implementation Support

Innovation Goals

01 Emerging Technologies

SNOMED International

2020-2025 Strategy Summarized

SNOMED International recently released its Corporate Strategy for 2020 to 2025. It focuses on achieving 3 Goals:

Products and Services Goals

- SNOMED CT Evolution - Evolve SNOMED CT to best serve improvements in patient outcomes and meet the needs of the integrated health and social care systems in a sustainable fashion.
- Terminology Integrator - SNOMED CT will continue to be a hub that supports, facilitates and integrates terminology standards and classifications to help enhance and streamline the health and care ecosystem.
- SNOMED CT Value Proposition - Extend the SNOMED CT value proposition to highlight improvements in patient outcomes and determine and validate all stakeholder benefits including integrating remuneration, research, public health information flows and semantic interoperability into the value proposition of SNOMED CT.

Adoption Goals

- SNOMED CT Adoption and Use - Increase adoption and use of SNOMED CT for members, suppliers, researchers and other SNOMED CT users by ensuring it is pragmatic, effective and verifiable.
- SNOMED CT Implementation Support - Provide sustainable and approachable products and services to support the implementation of SNOMED CT.

Innovation Goals

- Emerging Technologies - Leverage emerging technologies (e.g. Data Science, Analytics, AI, Genomics, Precision Medicine) to deliver value for stakeholders and drive efficiencies both at the point of care, across the organization and the evolution of the product.

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SNOMED CT

What is it?

- It is the most comprehensive, multilingual, clinical healthcare terminology in the world.
- It is a resource with scientifically validated clinical content that is released globally, twice per year.
- It enables the consistent representation of clinical content in clinical information systems, health data and analytics platforms, and interoperability solutions.
- It is mapped to other international standards.
- It is adaptable to each country's requirements.
- It is in use in more than eighty countries.

SNOMED CT

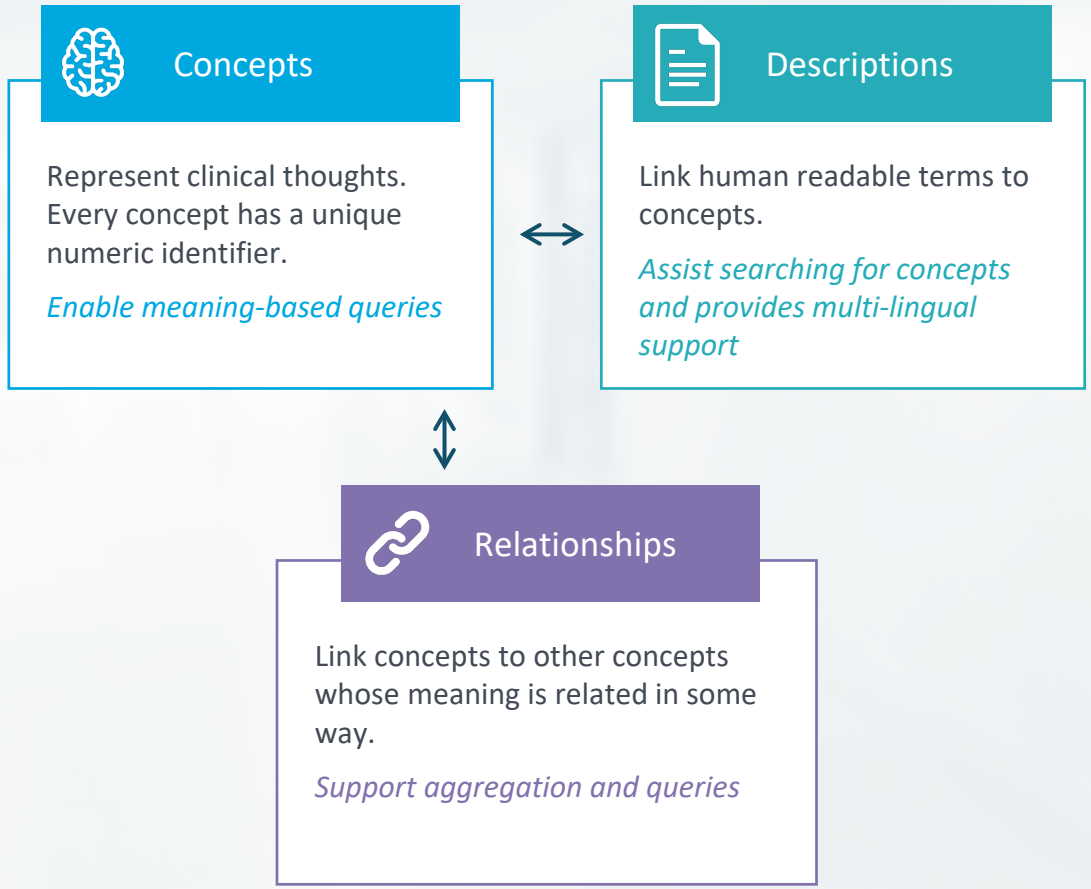
What is it?

SNOMED CT content is represented by three components:

1. **Concepts** – there are over 350,000 clinical concepts (e.g. clinical findings, diagnostic procedures, and pharmaceutical products). The concepts are organized into hierarchies and linked through relationships into poly-hierarchies.

2. **Descriptions** – is the unique name given to the concept plus any synonyms used to describe the concept (e.g. myocardial infarction (disorder) is the unique name and synonyms include cardiac infarction, heart attack and so on).

3. **Relationships** – is an association between two concepts (i.e. knowledge representation) that is defined in a manner that a computer can process it.

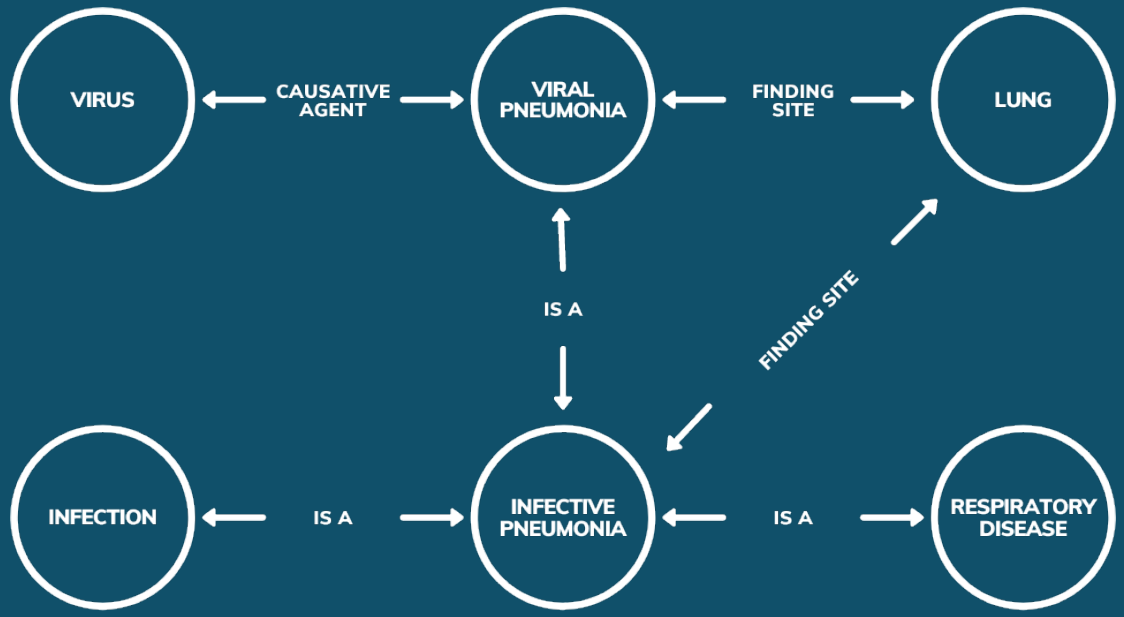


SNOMED CT

What is it?

SNOMED CT consists of coded concepts that are linked and logically related (e.g. ‘is a’ statements, and attribute relationships like ‘finding site’ and ‘causative agent’). This feature allows the meaning of information recorded in clinical information systems, health data & analytics platforms and interoperability solutions to be processed by a computer (e.g. you can query the patient population for the number of cases of viral pneumonia with finding site lung plus causative agent virus).

The SNOMED CT Viral Pneumonia Example

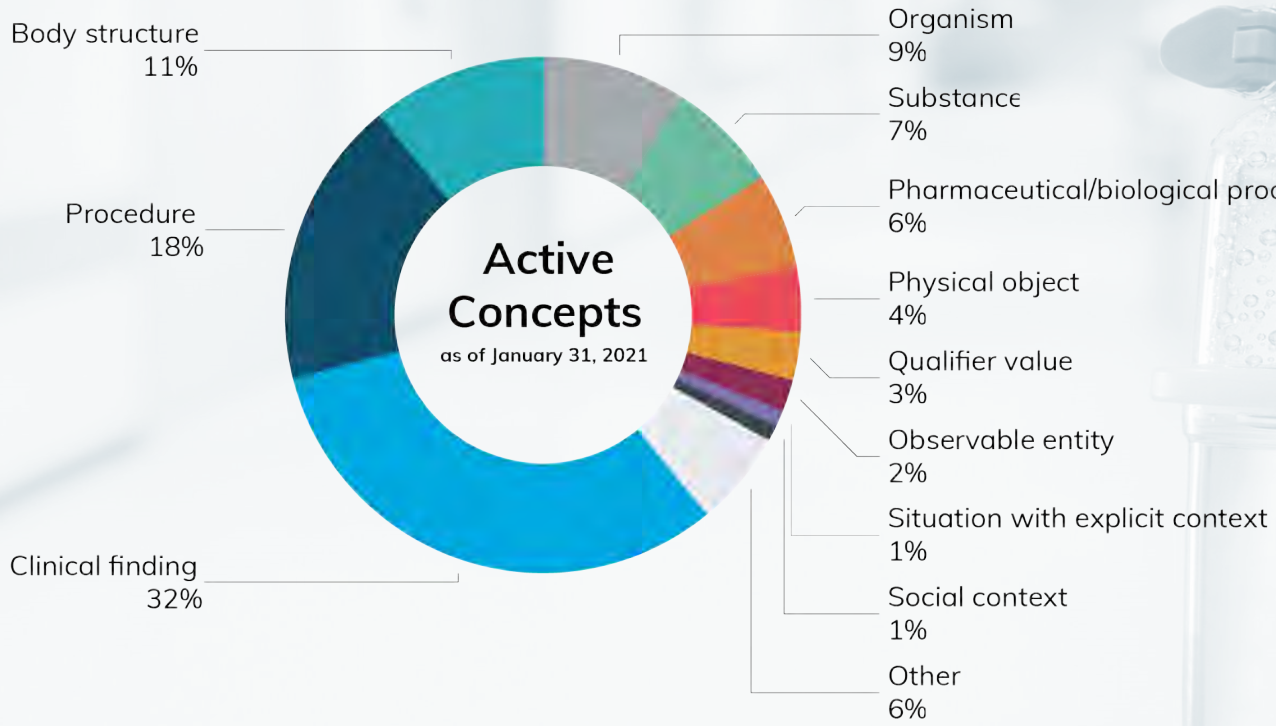


Viral pneumonia is linked through a set of ‘is a’ relationships, that represent a poly-hierarchy of sub-types. Viral pneumonia ‘is a’ infective pneumonia. Infective pneumonia ‘is a’ infection, and similarly infective pneumonia ‘is a’ respiratory disease. SNOMED CT also links concepts to the applicable part of the body, or a finding site. For example, the viral pneumonia finding site is the lung. Finally SNOMED CT links concepts to a causative agent. For example, the viral pneumonia causative agent is a virus.

SNOMED CT

What is it?

SNOMED CT concepts include: clinical findings (e.g. diagnoses, signs and symptoms); surgical, therapeutic and diagnostic procedures; observables (e.g. heart rate); body structures; organisms; substances; pharmaceutical products; physical objects; physical forces; social context; specimens and other types of information needed to be recorded in a clinical information system and is subsequently used by health data & analytics platforms and interoperability solutions.



SNOMED CT

But… What is It Really

The SNOMED CT concepts are organized into hierarchies. There are 19 SNOMED CT parent concepts, so 19 SNOMED CT hierarchies.

'IS A' statements connect concepts **within** a hierarchy. Using our example, viral pneumonia is a infective pneumonia in the clinical finding concept hierarchy.

Attribute relationships (e.g. finding site, causative agent) connect concepts **among** the nineteen different concept hierarchies. For example, the finding site for infective pneumonia (i.e. in the clinical finding concept hierarchy) is the lung (i.e. in the body structure concept hierarchy). So in this case, the finding site relationship links the two concept hierarchies.

But… for most people, this is still quite difficult to understand.

The Genealogy Analogy

Tracing our ancestors back through time through the use of Family Trees provides an excellent way to understand how concepts, hierarchies and relationships work. Using a Genealogy Analogy, see Appendix 1 here for a more detailed description of the benefits derived from using concepts and relationships in a family tree.

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SNOMED CT

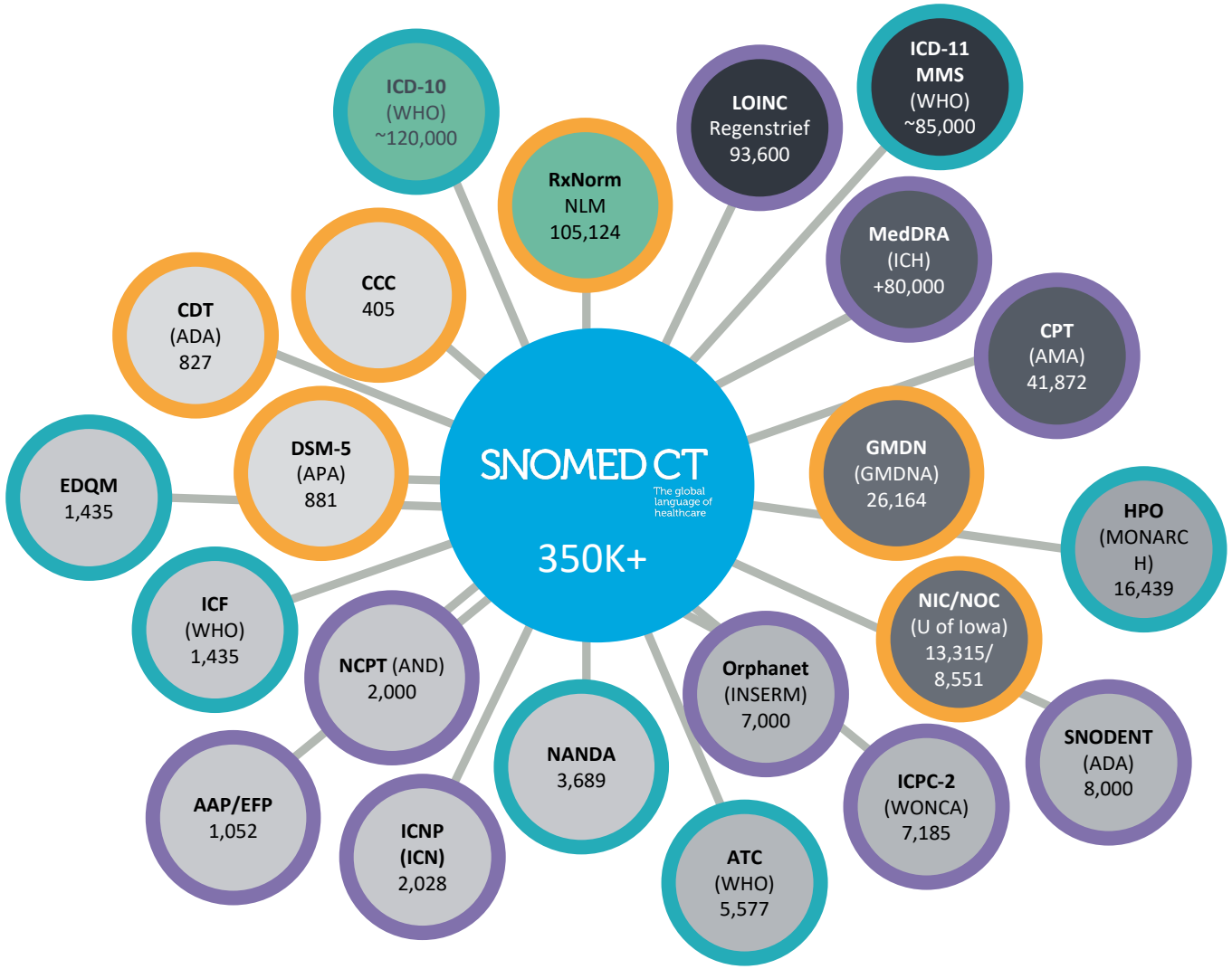
It Is…. A Core Reference Clinical Terminology

- Several names are given to systems of standardized terms or concepts, such as SNOMED CT. It can be referred to as a terminology, a vocabulary, or a lexicon. These names are all synonymous.
- The semantic network features of SNOMED CT are the same as what exists in ontologies. While there is some debate about whether SNOMED CT is in fact a pure ontology, it is certainly a terminology built on an ontological foundation (i.e. it looks and acts like an ontology).
- Ideally, controlled terminologies (vocabularies) should have twelve features, as outlined in the seminal article by Cimino2. SNOMED CT does in fact adhere to all the twelve features, some of which allow it to be differentiated from other classification systems (e.g. ICD-10 has only four of the twelve features present). So, as a terminology, SNOMED CT is fit-for-purpose.
- The Assess CT Study3 defined four types of terminologies: reference terminologies, core reference terminologies, aggregation terminologies and user interface terminologies (see Glossary of Terms). They concluded that SNOMED CT is a reference terminology. However, given its a primordial role in the clinical terminology ecosystem (e.g. broad concept coverage and its integration to other terminologies) Assess CT also designated SNOMED CT as a **core reference terminology** (see overleaf).

2. Cimino J., "*Desiderata for Controlled Medical Vocabularies in the Twenty-First Century*" Methods Inf Med. 1998 November; 37(4-5): 394–403.
3. Assess CT "Assessing SNOMED CT for Large Scale eHealth Deployments in the EU" Assess CT Recommendations, December 2016. See https://assess-ct.eu/index.php?id=start0

SNOMED CT

Is a Core Reference Clinical Terminology



LEGEND

- SNOMED CT Collaboration Partner
- Agreement in progress
- No agreement in place

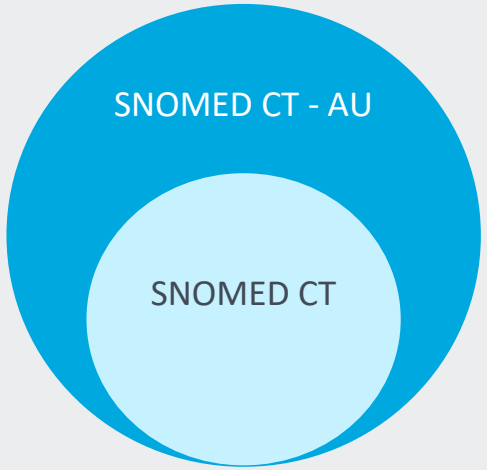
Terminology Standards content volume

# terminologies	# content
3	>1,000
4	1,001 - 5,000
4	5,001 - 10,000
1	10,001 - 20,000
2	20,001 - 40,000
2	40,001 - 60,000
1	60,001 - 80,000
1	80,001 - 100,000
1	100,001 - 200,000
2	200,000+
1	300,000+

Note: This diagram is intended to be reflective of SNOMED CT as a core reference terminology. It does not include all the national extensions of SNOMED CT (e.g. Australian Medicines Terminology with 100,000 concepts) that further expand the SNOMED CT hub-and-spoke model.

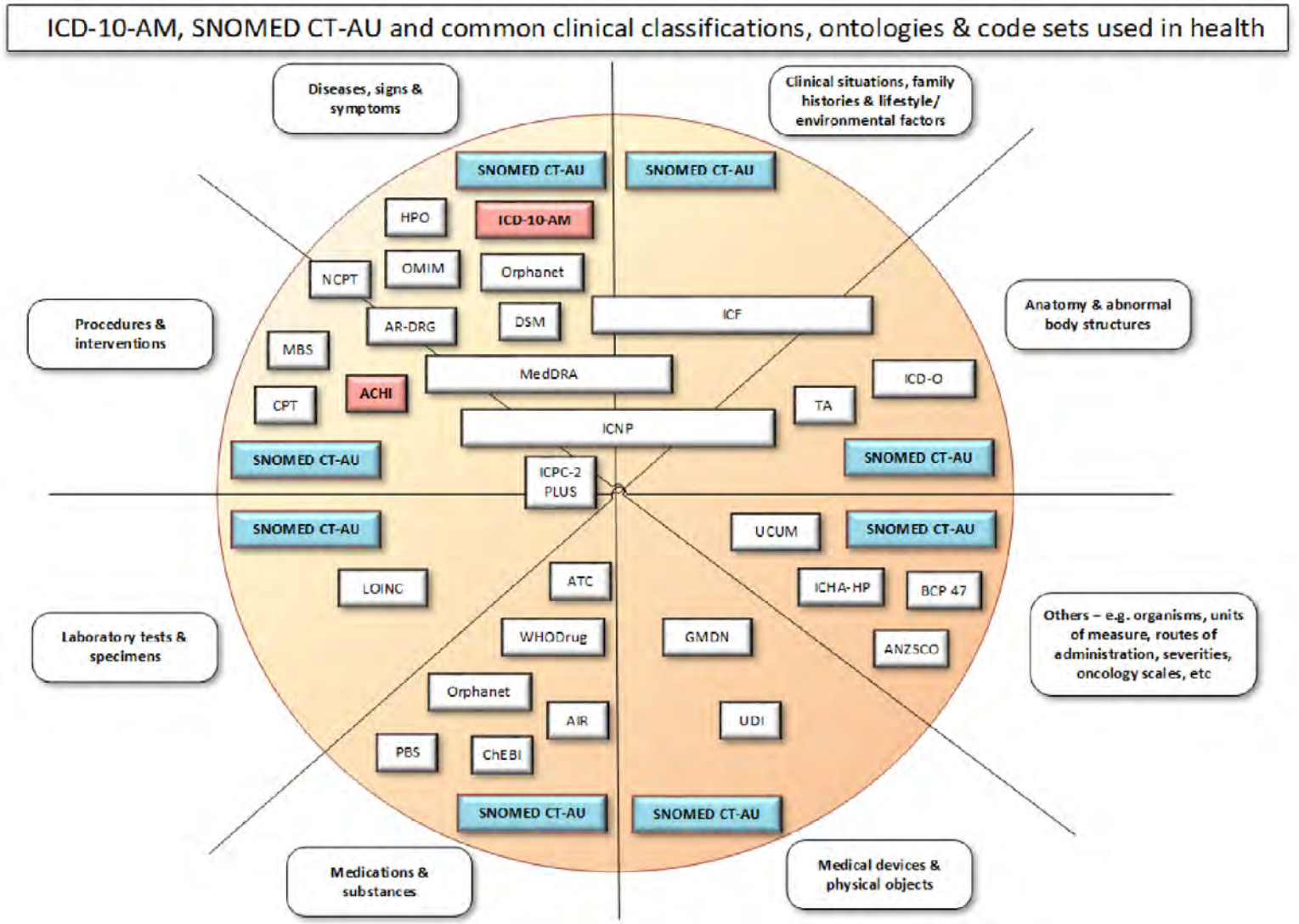
SNOMED CT

A Core Reference Clinical Terminology – the Australian Example



SNOMED CT-AU

- Australian edition of SNOMED CT
- Includes the Australian Medicines Terminology and >90 reference sets
- Used in all healthcare sectors/settings
- Used for clinician health record documentation
- Released on a monthly basis



4. Australian Digital Health Agency et al.,., "*Terminologies and classifications: SNOMED CT AU and ICD 10 AM use in Australia*" PowerPoint presentation, August 2020. See https://www.healthterminologies.gov.au/library/DH_3288_2020__TerminologyAndClassificationPresentation_v2.1.pdf

Experience the value of SNOMED CT

Read the full report and visit the value platform at:

snomed.org/value

SNOMED CT
The global language of healthcare