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Portugal eHealth summit

REPÚBLICA PORTUGUESA SAÚDE

SNS SERVIÇO NACIONAL DE SAÚDE

SPMS EPE Serviços Partilhados do Ministério da Saúde

24th ISfTeH International Conference

ISfTeH International Society for Telemedicine & eHealth

SNOMED International

Introduction to SNOMED CT

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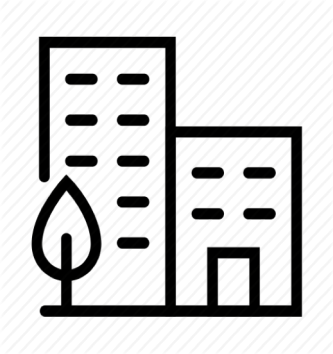
SNOMED International

SNOMED CT

The global language of healthcare

About SNOMED International

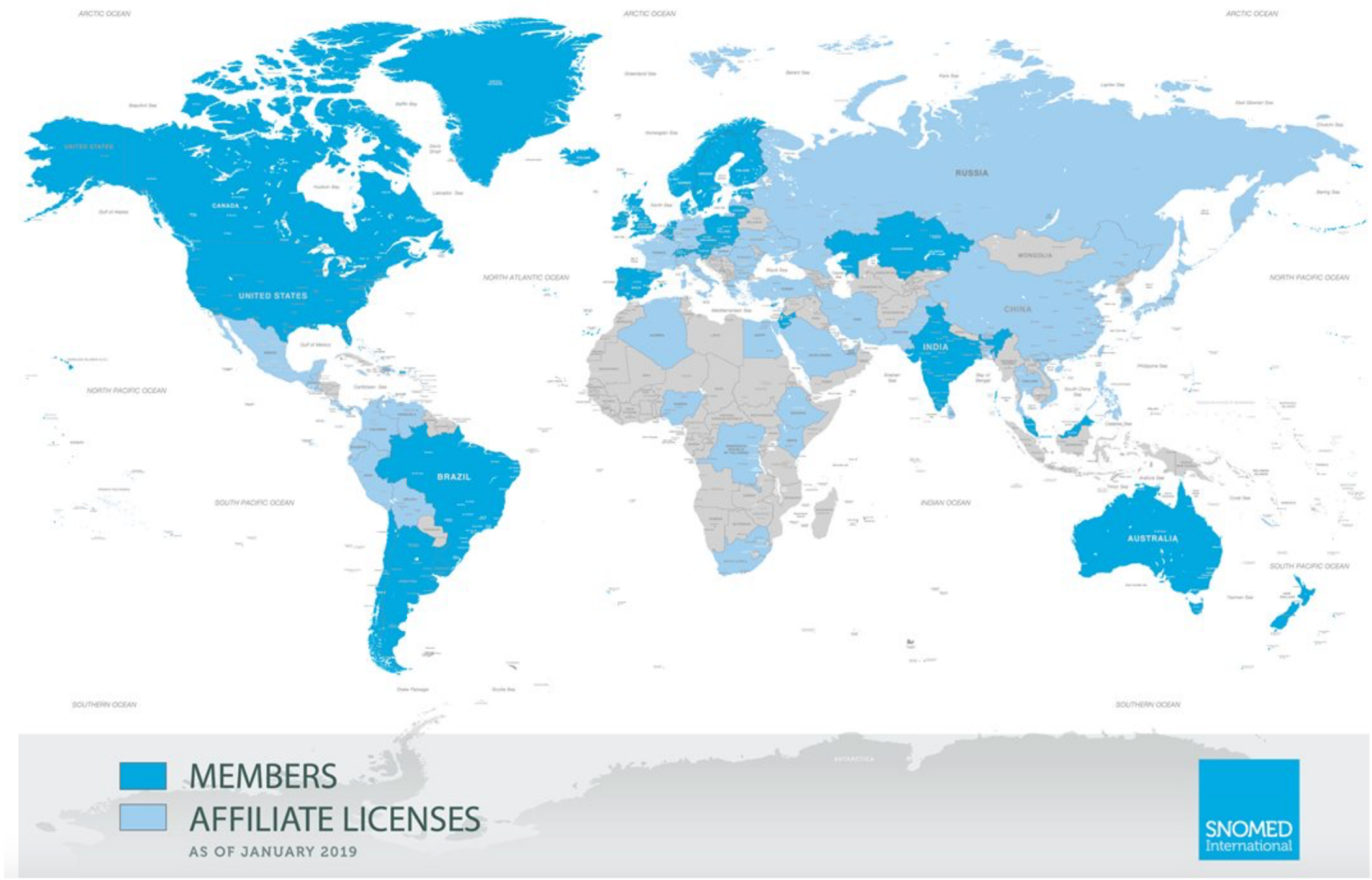
Owned and governed by 38 Member countries,
SNOMED International is a not-for-profit organization charged with setting global standards for health terminology



Headquarters
in London

Virtual organization
& global workforce

Membership dues
based
on National wealth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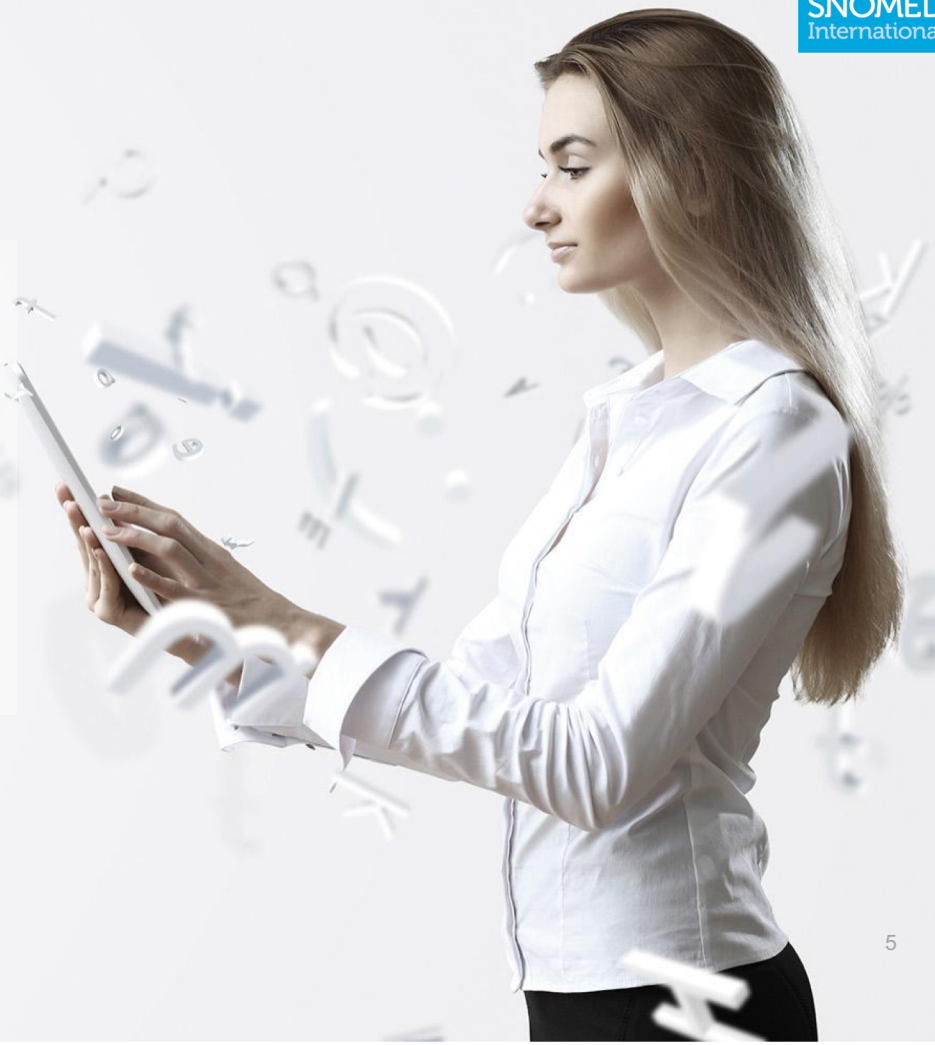
SOUTHERN OCEAN
SOUTHERN OCEAN
MEMBERS
AFFILIATE LICENSES
AS OF JANUARY 2019
SNOMED International

Vision

- By 2020 clinical terminologies will be used globally, which will result in better health, supported by one language of health.



Mission

- SNOMED International produces and enhances vocabulary that enables the clear exchange of health information for all.

Our Members

- SNOMED International is a Member-owned organization.
- Our dedicated Customer & Stakeholder Relationship Management team includes regional representatives, clinical and vendor engagement programs and collaboration support for our Members.
- Members are an agency of a national government, or a corporation or regional government agency endorsed by a national government authority.

What is SNOMED CT ?

“The world’s most comprehensive multilingual clinical language”

- A resource with comprehensive, scientifically validated clinical content
- Enables consistent representation of clinical content for processing in electronic health records
- Maps to international standards (ICD-10, OPCS-4, GMDN, ICPC-2, LOINC, etc.)
- Used in more than fifty countries

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

How is SNOMED CT Created?

- Four basic principles guide the development of clinical content and technical design:

  Inclusive *involvement of diverse clinical groups and medical informatics experts.*

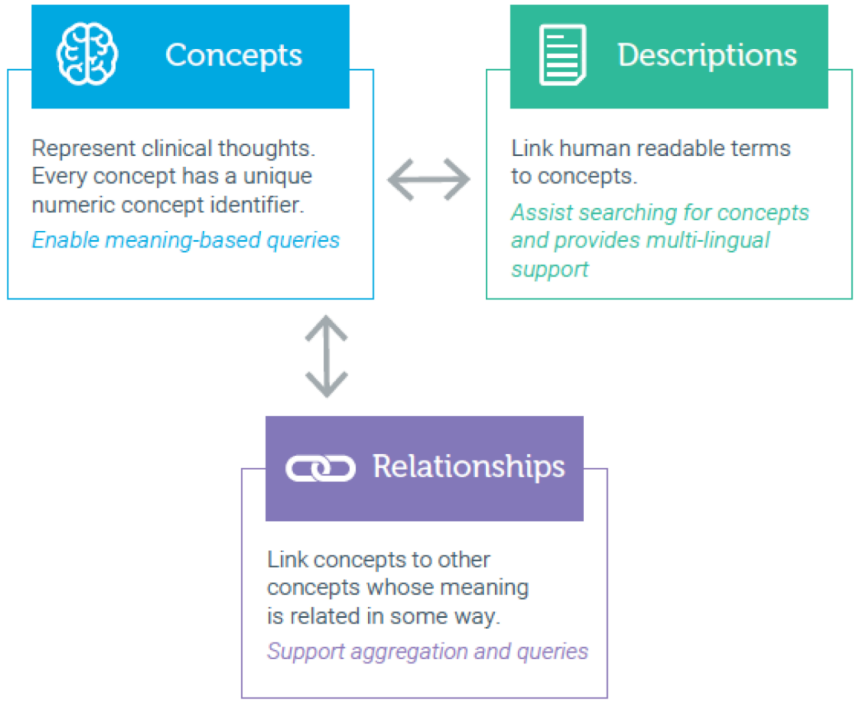
  Quality *focused content development with adherence to strict editorial rules.*

  Quality improvement process *open to public scrutiny & input.*

  Minimal barriers *to adoption and use.*

How Does SNOMED CT Work?

- SNOMED CT contains concepts with unique meanings and formal logic based definitions.
- It is organized into hierarchies and represented using 3 types of components.



To benefit from a terminology, it must be implemented and used as part of an application. The design of the software application in which it is used, and the objectives and motivation of its users are key factors in determining success.

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

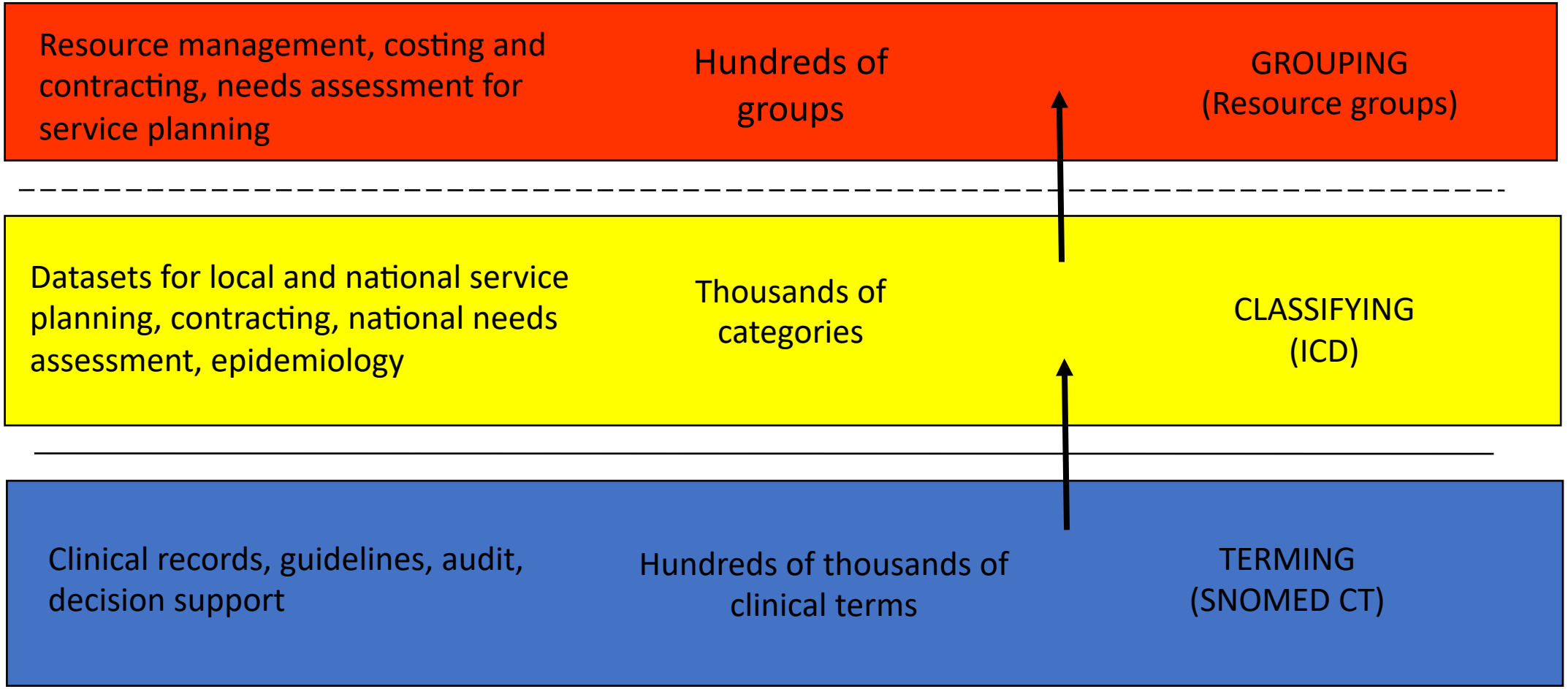
What kind of things can be coded?

- 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 Top Hierarchies

- **Clinical finding** — disorders, symptoms/signs
- **Procedure** — surgical procedures, exams, lab tests, nursing care, management procedures
- **Body structure** — systems, tissues, organs
- **Observable** — height, weight, blood pressure
- **Pharmaceutical/biological products** — antibiotics, vitamins, hormones, anaesthetics
- **Specimen** — blood, urine, biopsy specimen
- **Organism** — bacteria, virus, animal, plant
- **Substance** — biological／chemical substance, plasma, protein
- **Environment or geographical location** — countries, languages, hospital, department, clinics, community environment

Clinical terminology principles- terms, classifications and groups

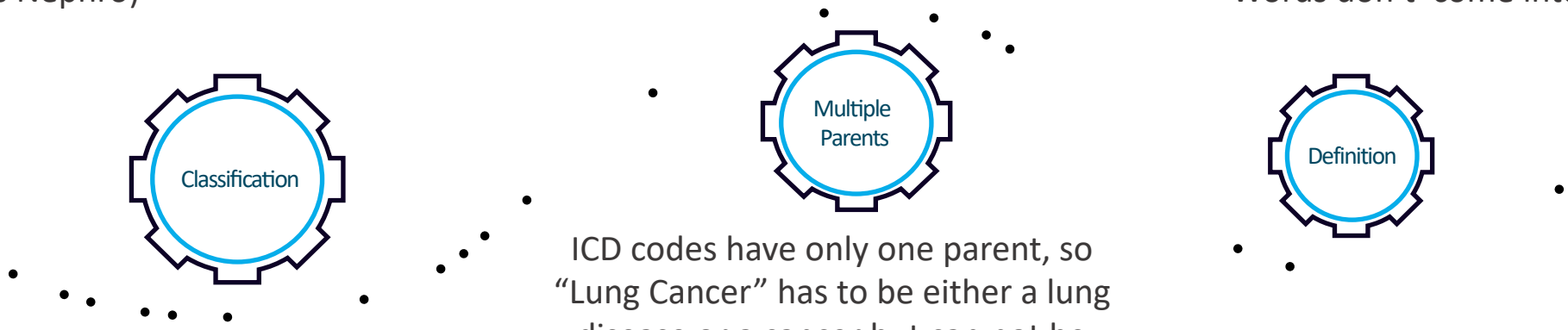


SNOMED CT and classifications

The main reason for SNOMED use in clinical care, 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.



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.

SNOMED CT and its benefits

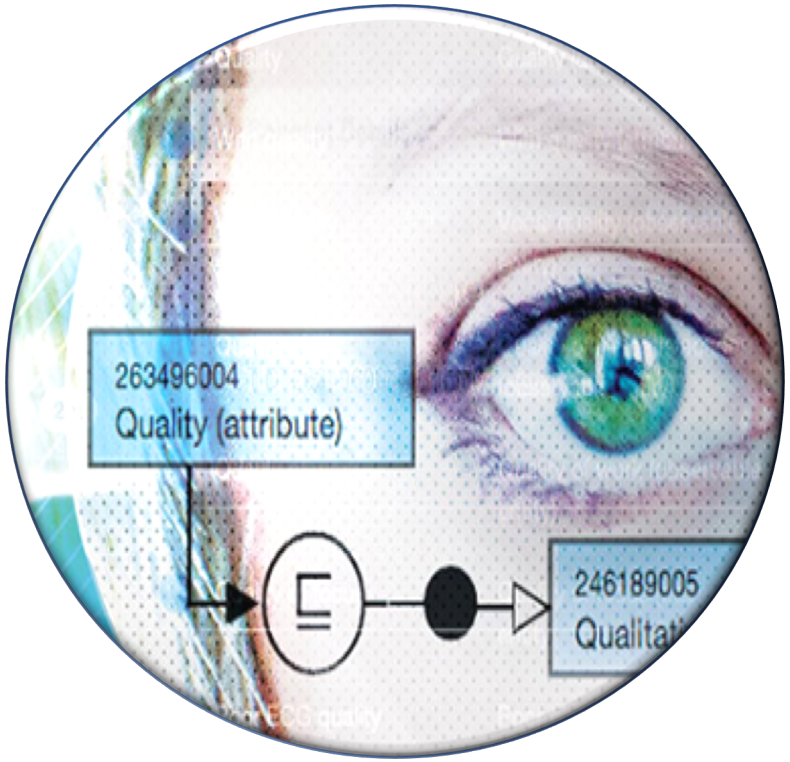
- ***Enables*** the global exchange of medical information through a codified language that represents groups of clinical terms
- ***Represents*** clinically relevant information consistently, reliably and comprehensively as an integral part of producing electronic health information.
- ***Provides*** a standardized way to represent clinical phrases captured by the clinician and enables machine processable semantics automatic interpretation of those phrases.

SNOMED CT and its benefits

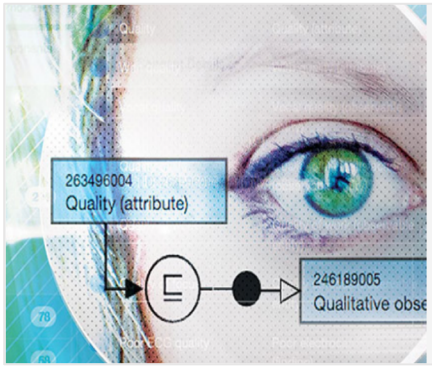
- It has rigorously evolved to meet the diverse, varying needs of clinicians and other ***stakeholders*** across different disciplines, sectors and geographies.
- The availability of ***precise, exchangeable medical data*** results in better health records, clinical decisions and data analysis helping clinicians save time, money and lives and improving patients' care and overall experience.

Our Focus on Quality

- *Maintaining the quality of SNOMED CT is of core importance and rigorously undertaken by the organization on an ongoing basis.*



Our Focus on Quality



Quality through expert personnel

SNOMED International employs experienced authors, who have clinical backgrounds in a broad range of clinical domains.

To add diversity of experience to the authoring team, SNOMED International contracts external consultant terminologists. SNOMED International currently has a Head of Terminology, nine authors and four terminology mappers, who in addition to mapping, undertake some authoring duties.

Quality through collaboration

Quality through automation

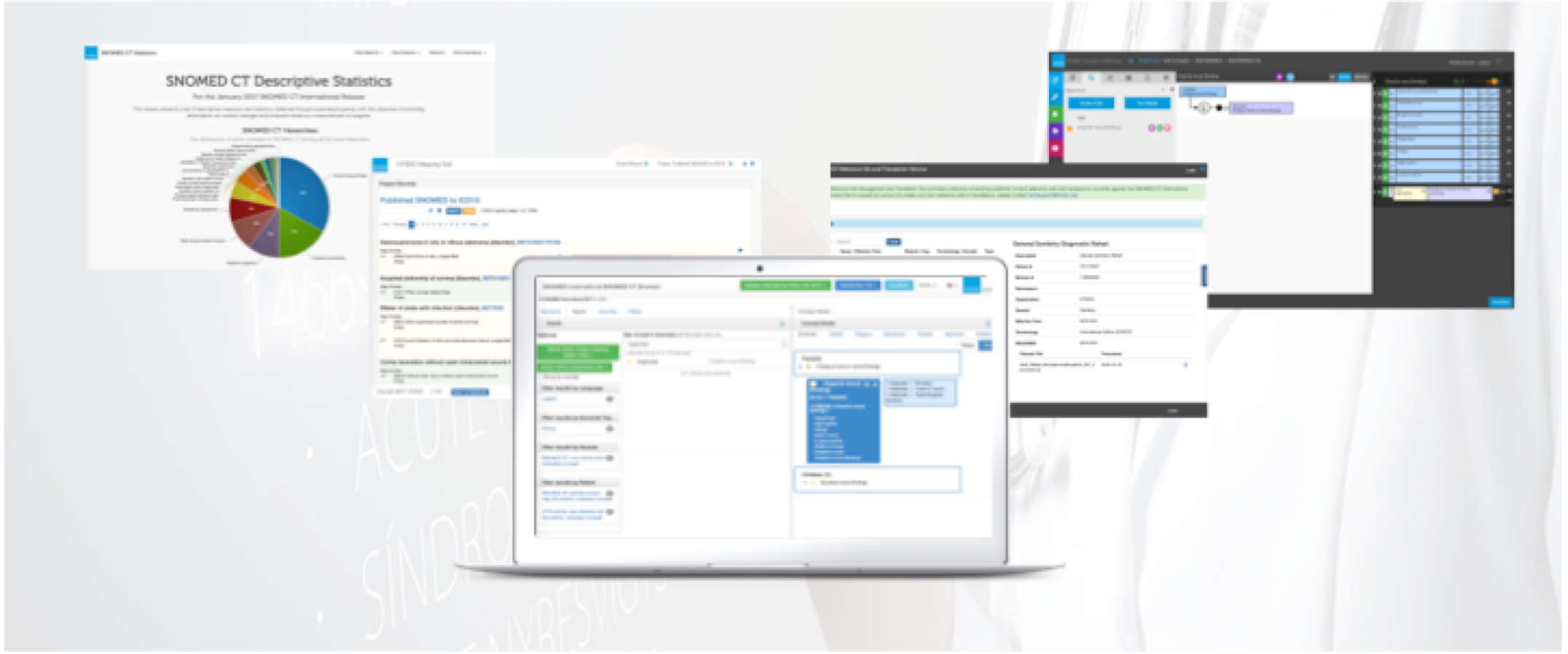
Quality through guidance and training

Quality through process

Content development projects are managed from requests through publication using the content development process.

This process has been developed based on the Open Unified Process used in software development, and is applied to all content projects irrespective of size. The process standardizes methods for reviewing content changes, to ensure that problems are understood, solutions meet stated goals and are tested, and that content changes are correctly applied.

SNOMED International Software



SNOMED International Software

Browsing

- SNOMED CT Browser - **http://browser.ihtsdotools.org**

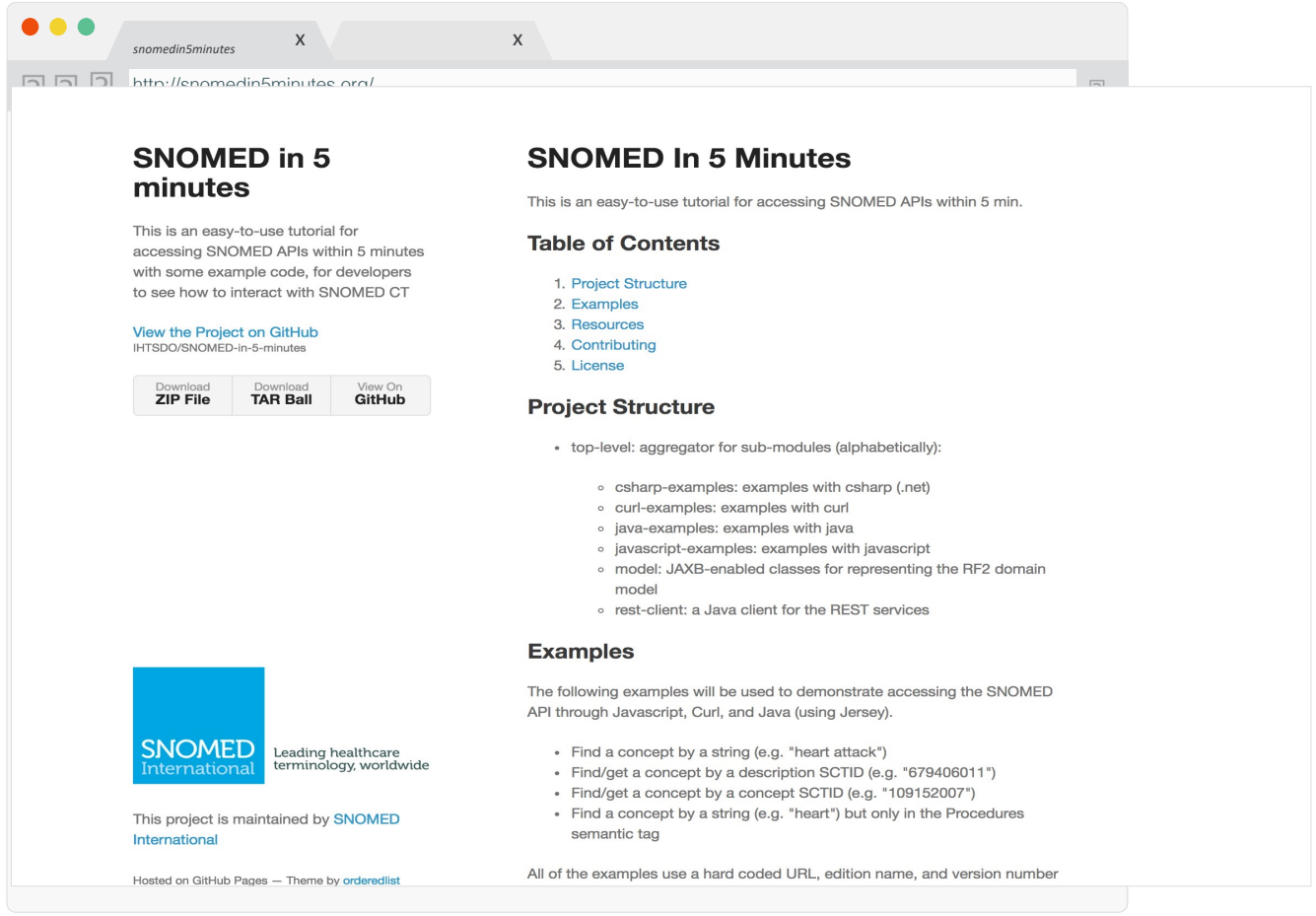
Authoring

- Content Request Service - **https://request.ihtsdotools.org**
- Authoring platform – (International & Managed Service)
- Reference Set Management Tool - **https://refset.ihtsdotools.org**
- Mapping tool - **https://mapping.ihtsdotools.org**

Releasing

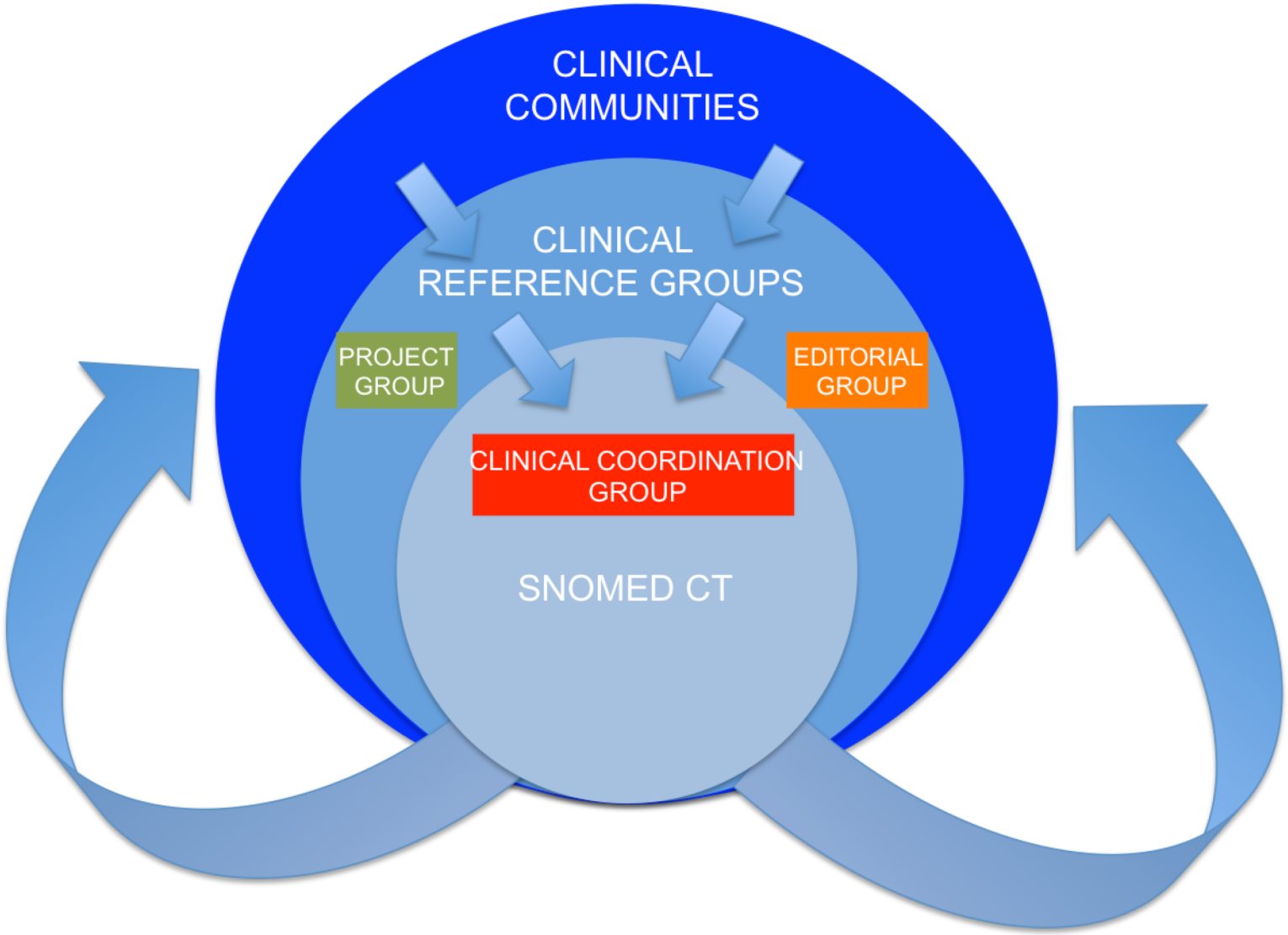
- Release Validation Framework– **https://github.com/IHTSDO/release-validation-framework**
- SNOMED CT Quality Analysis - **http://qa.snomed.org**

SNOMED CT Development Tools



- **SNOMED Boot**
- A Java framework for loading SNOMED CT https://github.com/IHTSDO/snomed-boot
- **SNOMED In 5 Minutes**
- Some short examples on how to code to use the SNOMED CT Browser REST interface http://snomedin5minutes.org/
- **SNOMED Browser API**
- An open REST API to be used for development or reference
- http://docs.snomedctsnapshotapi.apiary.io/

Clinical Engagement



Engaging our partners

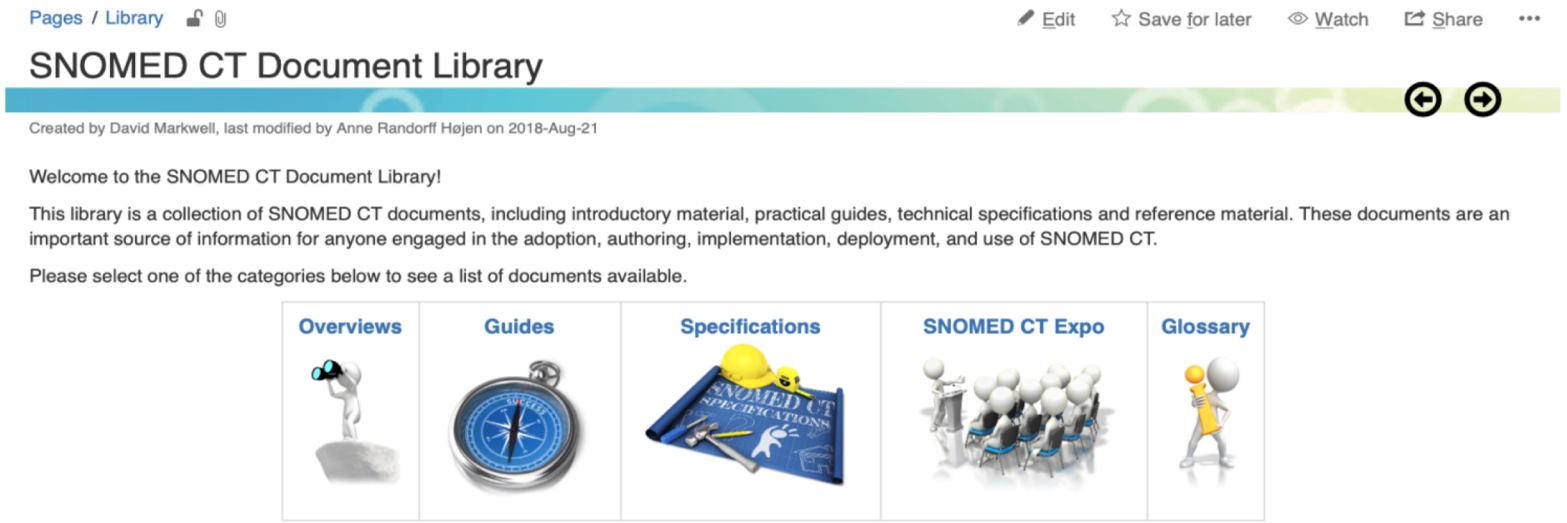
Vendor Program:

- ***Marketplace:*** a site where SNOMED CT vendors can exchange business information with potential purchasers
- ***Vendor Liaison Forum:*** To provide feedback and requirements
- ***Vendor Toolkit:*** toolkit for those looking to implement SNOMED CT into any software solution. The toolkit provides a single location to access key documents, tools and education information.

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.



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

Education resources

- Education approach is based on web-based courses, starting at a SNOMED CT foundational level. There are additional specialized courses based on implementation and authoring
- Useful links:
  - http://www.snomed.org/snomed-ct/learn-more
  - IHTSDO documentation
    - https://confluence.ihtsdotools.org/display/DOC
  - IHTSDO SNOMED CT Foundation course
    - http://www.snomed.org/snomed-ct/learn-more/snomed-ct-foundation-course-applications
  - E-Learning server
    - https://elearning.ihtsdotools.org

Our Collaborative Partnerships

- SNOMED International has an active program of collaboration with international standards development organizations and professional clinical bodies in order to facilitate the use of SNOMED CT with other international standards.

SNOMED International

SNOMED International

Leading healthcare terminology, worldwide

www.snomed.org I info@snomed.org

@Snomedct

SNOMED International is the trading name of the International Health Terminology Standards Development Organisation (IHTSDO)

THANKS

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