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Jane Millar, Collaboration Lead

SNOMED CT

The global language of healthcare
About 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.
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

- Owned and governed by 39 Member countries
- Not for profit organization
- Charged with setting global standards for healthcare terminology
- Registered UK entity
- Membership dues based on national wealth
- Members are an agency of a national government, or a corporation or regional government agency endorsed by a national government authority
- Virtual organization and global work force
Governance Structure
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, GMDN, LOINC, Orphanet (2020), etc.)
• Used in more than eighty countries
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
SNOMED CT Use Case examples

• Electronic health records
  • Hospital, Emergency care, Outpatient, Primary Care, Patient held records
  • Computerized Physician Order Entry

• Specialties
  • Rheumatology, Pathology, Oncology, Ophthalmology, Optometry, Surgery, etc. . . .
  • Medicine, Nursing, Allied Health Professionals

• Clinical research

• Public health

• Electronic prescriptions

• Cross border/between care providers summaries

• And many more …
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 to 18 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
Descriptive 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, providing clear meaning
  - Synonyms - may not be unique and the same term string may be associated with multiple concepts
    - Immunosuppressive therapy (procedure) – FSN
      Immunosuppression - Description ID = 507152014
    - Immunosuppression (finding) – FSN
      Immunosuppression - Description ID = 63394015
Use of clinical language (example)

- Fundus (synonym) is -
  - Fundus of gallbladder – 14347000
  - Fundus uteri – 27485007
  - Fundus of eye – 65784005
  - Gastric fundus – 414003

- All have a synonym of “fundus” in clinical practice, and within SNOMED CT
- It is essential that when clinical information is shared, there is no room for ambiguity
- By focusing on meaning, SNOMED CT ensures that the correct clinical term is shared
SNOMED CT 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, anesthetics
- **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
Mapping

- 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 use 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 (Oncology)
  • SNOMED CT to GMDN (Global Medical Device Nomenclature)

• Maps under development:
  • SNOMED CT and MedDRA – map each way
  • SNOMED CT to Orphanet (Rare diseases)
Distribution of SNOMED CT and derivatives

• SNOMED CT International Release – January 31 & July 31
  • Capability to produce more often

• SNOMED CT Spanish translation – April and October

• Derivatives – Maps
  • SNOMED CT to ICD-10 – with international releases
  • SNOMED CT to GMDN – within month of each international release

• Derivatives – Reference sets/Freesets
  • Annually – within 2 months of SNOMED CT release

• Global Patient Set (GPS)
  • Annually, 1st release 1 September 2019
  • ID, Preferred term, FSN, status
  • SNOMED CT Free set comprising – DICOM, IHE (profile content), HL7 IPS, ERA-EDTA CoD, Nursing Actions and Nursing Health Issues, GP/FP Reasons for Encounter/Health Issues, General Dentistry Diagnoses, Odontogram
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 and ensure the content meets clinical needs.
Licensing

Key principle: Everyone needs a license to use SNOMED CT, enabling access to releases, usage, sharing, analytics etc. and for recall if needed

- Member country – from the National Release Centre (NRC)
- Non-member country (fees may apply)
  - Affiliate license from SNOMED International
  - Research license for specific period and project
- Collaboration partners – through SNOMED International
- Commercial and vendors (fees may apply)
  - Through NRCs if national requirements
  - From SNOMED International for global requirements
Contact Us

• Collaboration Lead
  Jane Millar – jmi@snomed.org

• Mapping Terminologist
  Donna Morgan – dmo@snomed.org

• Help Desk
  info@snomed.org