

„New vision for primary health care and sustainable development“

SNOClass: three coordinated Belgian terminology projects to map SNOMED CT to classifications: Health Interventions (ICHI); Functioning (ICF) and Primary care (ICPC-3)

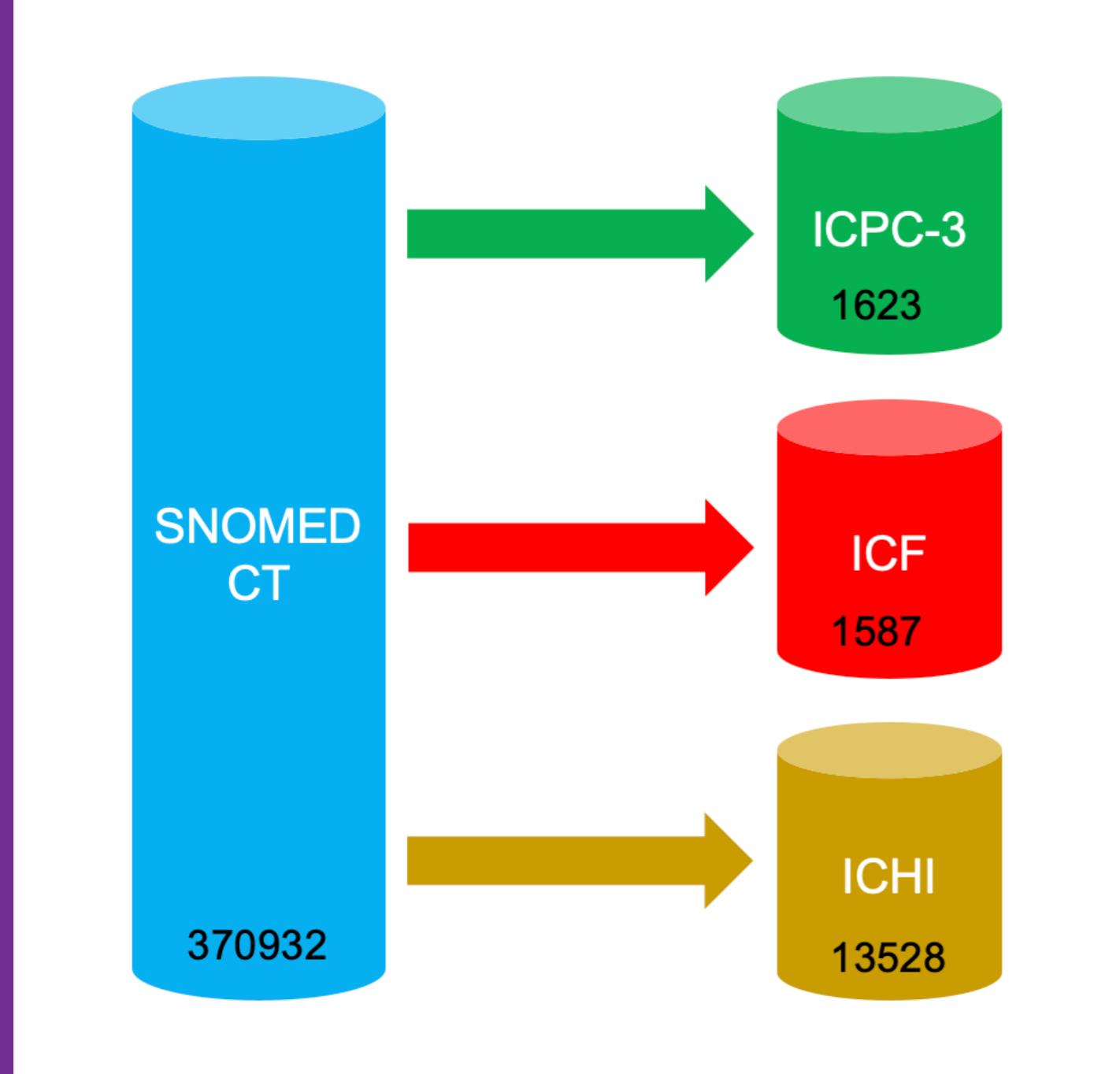
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SNOClass terminological resources (with size)

In January 2025, 3 coordinated health terminology projects started, initiated by the Belgian Health Terminology Center and spanning over 12 months. The goal: to establish a methodology to map SNOMED CT to ICPC-3, ICHI, and ICF, covering General Practice, Health Interventions and Occupational Therapy clinical domains.

Project SNOClass uses different mapping strategies, depending on classifications specificities and available data

- Source terminology – **SCT** - is vastly larger than Target classifications - **ICPC-3, ICF, ICHI** → subsets selections per clinical domain
- Pre-existing mappings are used (**SCT** refsets, **ICD-9** procedures, **3BT**, **ICPC-3**)
- Mapping candidates are selected based on lexical exact and fuzzy match, concept model and business rules
- Domain expert coders validate mappings

Starting point

- Project **SNOClass** creates mappings from **SCT** as a source to 3 target classifications
- **SCT** is 30x larger than **ICHI**, and 300x larger than **ICF** and **ICPC-3**
- **Experts** are necessary to **validate** mappings

Methodologies

- Selecting SCT subsets targeting relevant concepts for each classification domains
 - Filtering on SCT hierarchyTags (e.g. for ICHI: “procedures” and “regime/therapy”)
 - Selecting pre-existing subsets (see figure)
- Automatically identifying mapping candidates:
 - Exact Match
 - Fuzzy Match
 - Business Rules
 - ICPC-3 Conversion table
 - To ICHI stem codes title and inclusion terms
- Comply with SSSOM* ontology mapping standards for sharing the results

4 terminological resources:

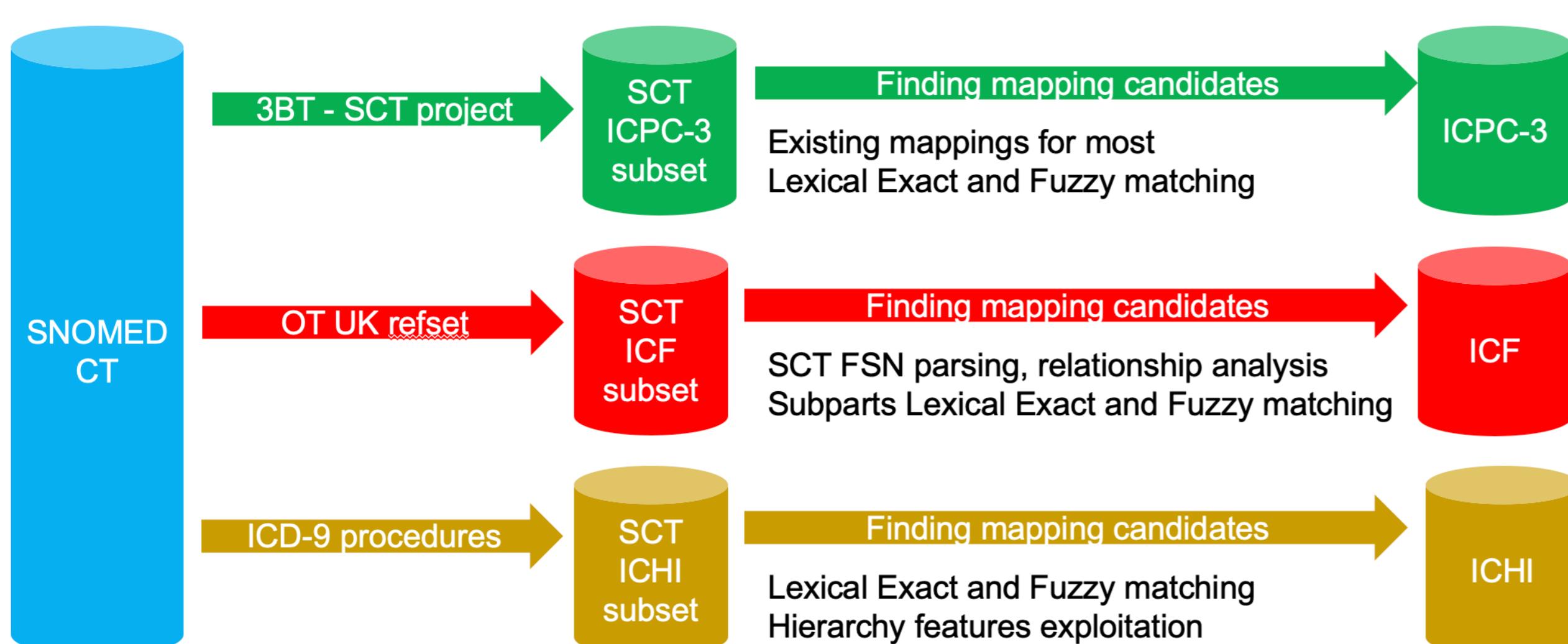
- SNOMED CT [**SCT**] >370.000 concepts
- WHO International Classification of Functioning, Disability and Health [**ICF**] >1.500 classes
- WHO International Classification of Health Interventions [**ICHI**] >13.000 stem codes
- WONCA International Classification of Primary Care, version 3 [**ICPC-3**] >1.600 classes

Results

- Creation of a search engine to identify mapping candidates
- ICPC-3: 4.160 SCT concepts -> 1.255 ICPC-3 candidates (70% ICPC-3)
- ICF: All SCT → 167 ICF exact match (10% ICF)
- ICHI: 5.298 mapping candidates from 2.528 SCT procedure concepts evaluated → 585 semantic exact match with stem class, 398 narrow to broad match

Future work

- SNOClass project is now in mapping validation phase, and a Low Back Pain use case.
- Consolidate mapping methodology, use terminological structures to navigate the hierarchies and improve mappings
- Estimate time and resources needed to complete the mappings



Overview of source datasets mapping candidates selection

* Matentzoglu N, Balhoff JP, Bello SM, Bizon C, Brush M, Callahan TJ, et al. A Simple Standard for Sharing Ontological Mappings (SSSOM). Database. 2022 May 25;2022:baac035.