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Mapping from SNOMED CT to ICD-10 in the UK

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Abstract

To provide an overview of how the maps from SNOMED CT to ICD-10 are developed in the UK by the Terminology and Classifications Delivery Service at NHS Digital

Introduction

The UK National Health Service (NHS) have been developing maps between supported terminologies and ICD for over 25 years.

As we move towards the use of a single terminology in NHS systems, we at NHS Digital are concentrating our efforts on the development and maintenance of the maps from SNOMED CT to ICD-10.

The maps are provided to NHS organisations whose Electronic Health Records (EHRs) use SNOMED CT as their underlying clinical terminology.

The maps support the transformation of clinical terms into the ICD-10 codes that are subsequently used to support mandatory reporting requirements such as the Admitted Patient Care Commissioning Data Sets (APC CDS) and Hospital Episode Statistics (HES).
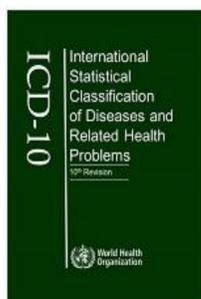
We have recently introduced new map tooling which prepares files in RF2 only and we have taken the opportunity to update our mapping methodology, process and editorial principles.
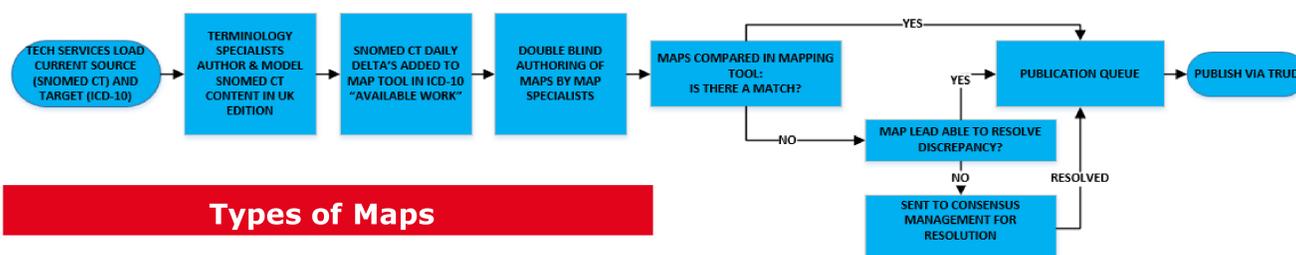
Map Objective

The objective of mapping is to produce a reliable, consistent and reproducible link **in one direction**, from SNOMED CT to ICD-10, supporting the "collect once and use many times" principle.

What the maps are

The maps provide a semi-automated selection of codes from the classifications to represent the multiplicity of circumstances encountered in the medical record. One-to-one maps may be collected automatically, but more complex maps require manual intervention by an individual trained in the application of ICD-10's rules and conventions. This ensures the correct assignment of codes and sequence of codes to meet national and international clinical coding standards.

Process

Types of Maps

A map has cardinality of one SNOMED CT concept to one-or-many ICD-10 target codes. The maps provide:

1. Maps from a single SNOMED CT concept to a single ICD-10 code which represents the clinical meaning of the concept
2. Maps from a single SNOMED CT concept to a combination of ICD-10 target codes that collectively represents the clinical meaning of the concept
3. Maps from a single SNOMED CT concept to a choice of ICD-10 target codes
4. Maps from a single SNOMED CT concept to a choice of maps

Editorial Map Principles

The mapping team works with an approved set of editorial mapping principles designed to promote consistency and reproducibility. Principles cover matters such as:

- The circumstances in which it is acceptable to add alternative target codes
- How to handle instances where a concept expresses an unspecified form of a condition which is assumed by ICD-10 to be specific e.g. Tonsillitis, stated as such, is assumed to be "acute" in ICD-10. In this case it is acceptable to add an alternative target code for "chronic"

Methodology

Briefly the steps are:
1. Evaluation of the concept Fully Specified Name (FSN), defining relationships (parents) and attributes to fully understand the semantic domain of the concept
2. Location of the best semantic domain for the concept in ICD-10 using the four step coding process
3. Identification of a default target code or codes ensuring application of the rules and conventions of ICD-10 and national clinical coding standards
4. Consideration of ICD-10 Alphabetical Index essential modifiers and Tabular List exclusion notes to identify "alternative" target codes
5. Correct sequencing in support of the three dimensions of coding accuracy (individual codes, totality of codes and sequencing of codes
6. Application of editorial mapping principles

Map Advice

There is a list of human-readable map advices that are assigned to the maps at the time of authoring and which appear in the mapping files to inform suppliers and end users of important rules or standards. For example, to advise:

- when it is acceptable to add an additional ICD-10 code to a target code in the map
- when it is mandatory to add an additional code to a target code in the map

Quality Assurance and Validation

Quality assurance protocols for the production and maintenance of maps consists of technical validation rules and warnings which are applied automatically and in real time throughout the editing cycle within the mapping tool. Further QA rules and warnings are applied following the pre-release "freeze" of the editing environment.

The list of pre-defined validation rules and warnings can be updated as necessary in response to, for example, new national clinical coding standards, issues and lessons learned.

Publication and Release

The NHS Digital SNOMED CT to ICD-10 maps are released as an artefact of the SNOMED CT UK Edition in April and October each year via our distribution service **T**erminology **R**elease and data **U**pdate and **D**istribution (TRUD).

We provide technical specification and implementation guidance as part of the release pack