



SNOMED CT clinical imaging procedure codes for Radiology Information Systems and national dataset in UK

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Audience

People working on implementation of SNOMED CT for use in clinical records, research and epidemiology.

Objective

Clinical imaging SNOMED CT procedure codes have been actively developed in collaboration with professional bodies and user groups over the last 6 years in the UK. As a result, the international releases have been enhanced by over 1000 new additions. To implement national IT strategy in the UK and overcome the limitations in Radiology Information Systems, an interface terminology, National Interim Clinical Imaging Procedures (NICIP), has been developed and mapped to SNOMED CT in order to support rapid deployment[1]. The NICIP with SNOMED CT codes became the UK national standard in 2009 and has since been mandated for the national Diagnostic Imaging Dataset (DID)[2].

The established SNOMED CT to OPCS-4 (UK national classification for procedures) maps are being refined to eliminate the subjective assignment of supplementary classification codes by non domain experts, e.g. usage of contrast. The clear semantics of clinical information in SNOMED CT enabled these refinements and improved mapping accuracy and consistency to classifications for commissioning by comparing to different maps proposed from submitting organisations.

One key benefit of using SNOMED CT is that formal knowledge representation can be utilised to successfully facilitate intelligent reasoning. This has been demonstrated by the work in the DID national publication and national Diagnostic Imaging Waiting Times Census. It was not a feasible option to publish the performed procedures by different organisations, over 4000 individual codes. The solution was to aggregate procedure codes by imaging modalities, body regions and body systems for facilitating publication of the DID data collections in a more meaningful and manageable form.

The hierarchy in SNOMED CT provides an effective solution for grouping procedures by imaging modalities. In contrast, this task becomes more difficult in unstructured code schemes though limited classification is possible, e.g. a prefix of 'F' for fluoroscopy as in the NICIP. Significantly, the properties of SNOMED CT allow procedures to be grouped much more flexibly according to multiple axes such as MRI, Cardiac MRI, or MRI (excludes cardiac MRI). The body site in the concept model enables us to query procedures over anatomy hierarchies and produce a procedure lookup group table for different body regions and systems. The approach utilises the transitive closure table and concept model of SNOMED CT, and it can be used for other use cases.

References

1. UK national standard representation of clinical imaging procedures.
<http://systems.hscic.gov.uk/data/uktc/imaging/>
2. Diagnostic Imaging Dataset publication <http://www.england.nhs.uk/statistics/diagnostic-imaging-dataset/>