

The use of HES data on procedures and interventions, cross mapped to SNOMED, to generate subsets of frequently used SNOMED terms to support data entry by clinicians.

Graham Ponting | Independent UK Clinical Terminologist

INTRODUCTION

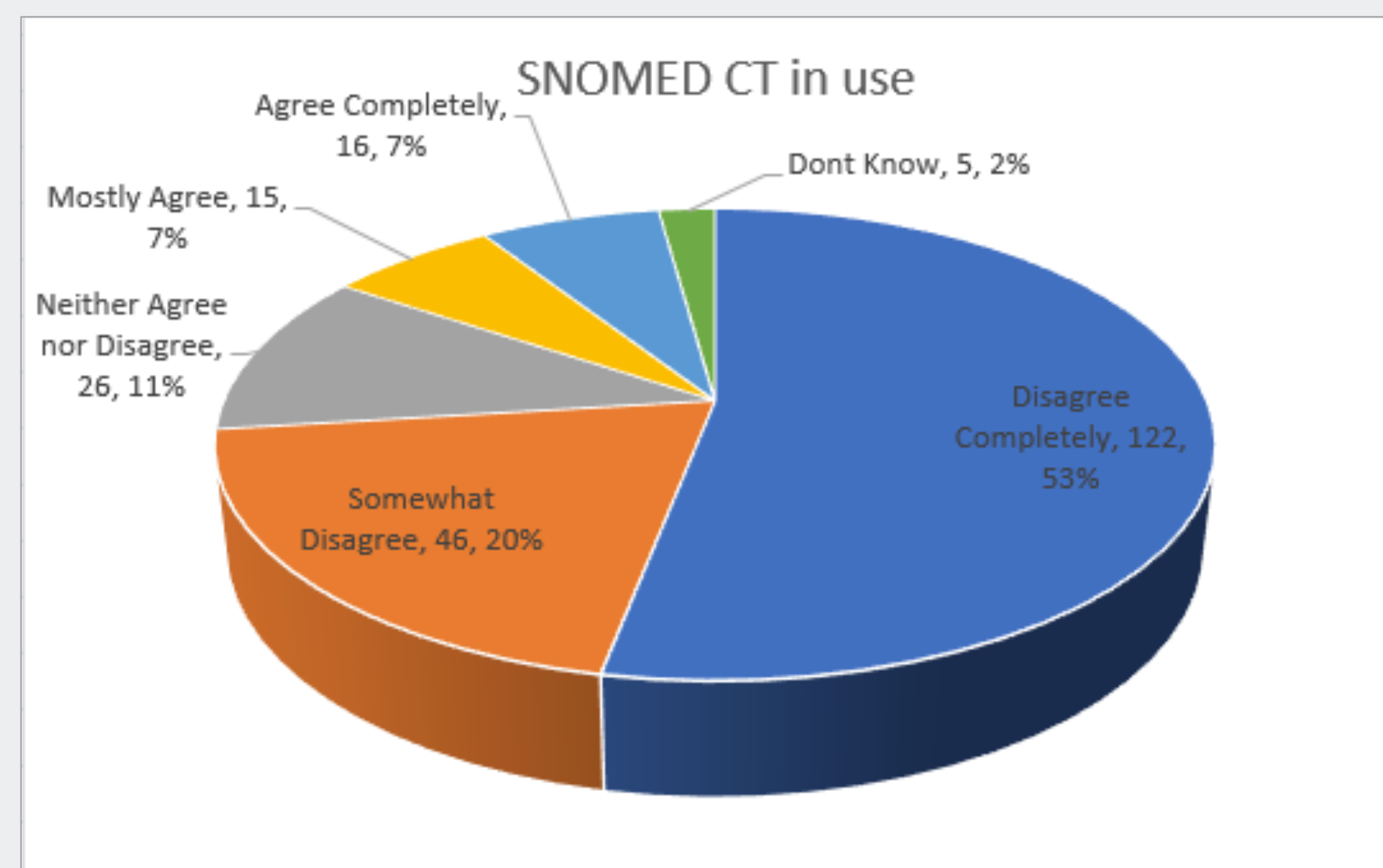


Abstract

This study demonstrates that HES procedures data, collected as part of routine reporting, can be mapped directly to SNOMED in most cases (90%), and used to generate “frequently used” subsets which can be linked to a specialty. The availability of these SNOMED subsets will assist clinicians entering data at the point of care, by providing small, focused lists, relevant to the context in which they are working.

Background

SNOMED is the mandated Clinical Terminology for the “direct management of care” of an individual patient, in the NHS, UK (Ref 1). However uptake has been slow in Secondary Care, with the majority of NHS Trusts not yet implementing (Digital Maturity Assessment 2015/16. On the question of whether Trusts had implemented SNOMED, the responses are summarised below. (Ref 2)



Hospital Trusts in the UK record procedures data using OPCS 4 and complete mandatory returns of activity data to a high standard which is published as the HES (Hospital Episode Statistics), which describe episodes of care (Ref 3).

Objectives

This study addressed the following issues;

1. Define the shape of the frequency distribution of OPCS codes, based on the published NHS HES data, main procedure for a hospital episode of care. (Ref 3)
2. Create a mapping table, based on the top 95% of procedures from OPCS 4 to SNOMED.
3. Based on the mapping table, what proportion would directly map with a “one to one” relationship to SNOMED Concepts.?
4. Could this table, be used to define common procedures subsets by Specialty which could then be used to facilitate easier data entry. ?

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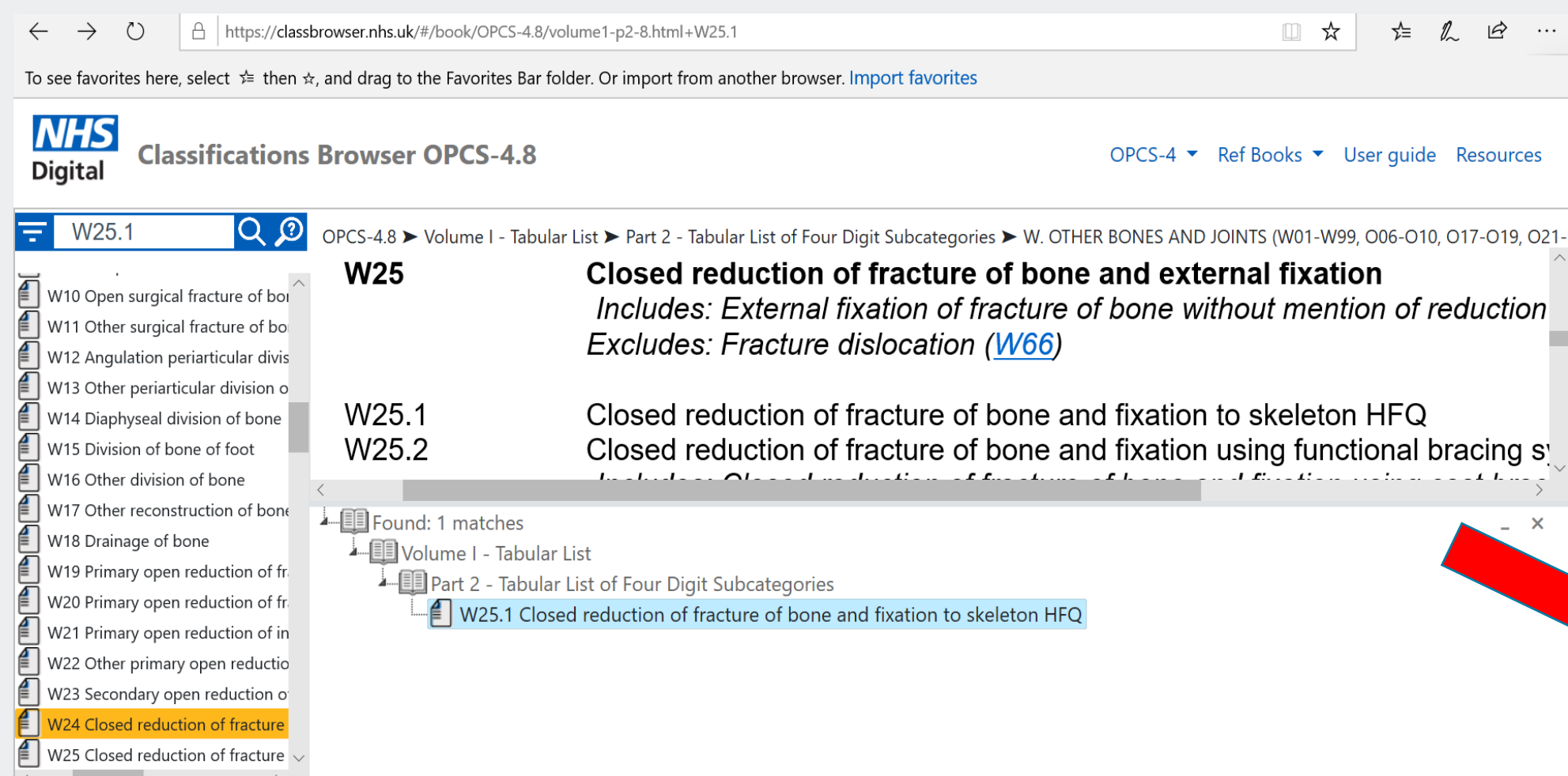
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METHODS

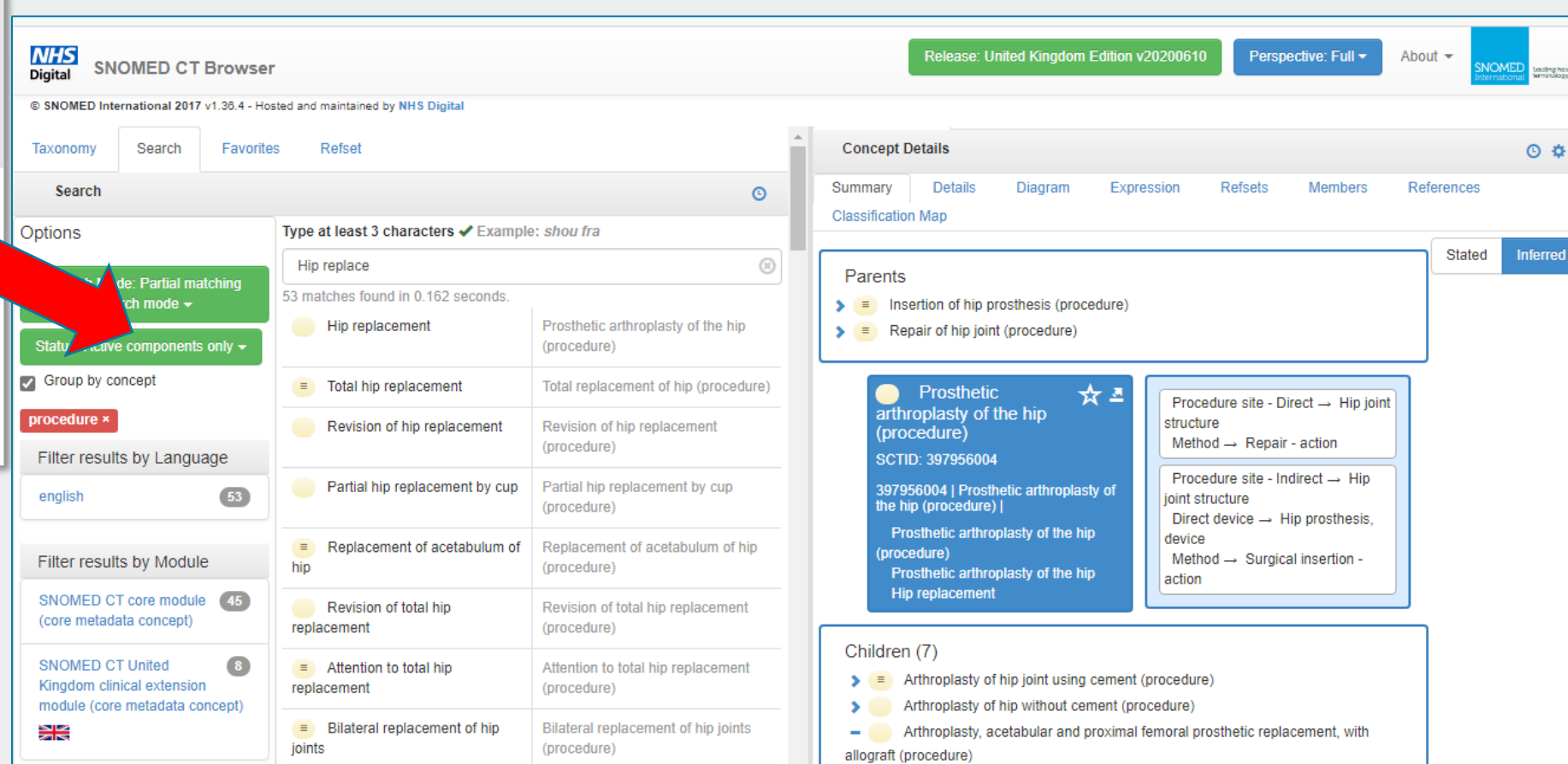


Mapping process

NHS OPCS browser (Ref 5)



Using the NHS SNOMED browser with the UK extension (Ref 4)



Mapping categories

“One to one”

Implies a direct map to the Fully Specified Name or one of it’s synonyms. Alternative mappings were included in comments. If there were multiple potential mappings and one was “subsumed” by the other(s) then the “parent” was chosen.

“One to many”

More than one concept is required to provide equivalent meaning, although extensive lists were avoided (maximum of four).

“Map to local parent”

Defines a local parent where a direct map could not be made. This group includes OPCS codes such as “other”.

Principles

1. All SNOMED concepts mapped were within the “procedures hierarchy” which includes “regime/therapy”.
2. NEC codes, Unspecified codes were mapped to their main parent. For example “F104. Extraction of multiple teeth NEC”, was mapped to “50585009 |Tooth extraction, multiple (procedure)|”.
3. “Other codes” were mapped to the respective local parent.
4. Only “active” concepts, at the time of cross mapping, as defined in the NHS browser and followed up with validation against the UK extension files.
5. Assumptions
 1. The Clinician could refine the choice within the EPR system, by choosing a child, alternative concept or using post-coordination.
 2. Post coordinated expressions were not used for the mapping.

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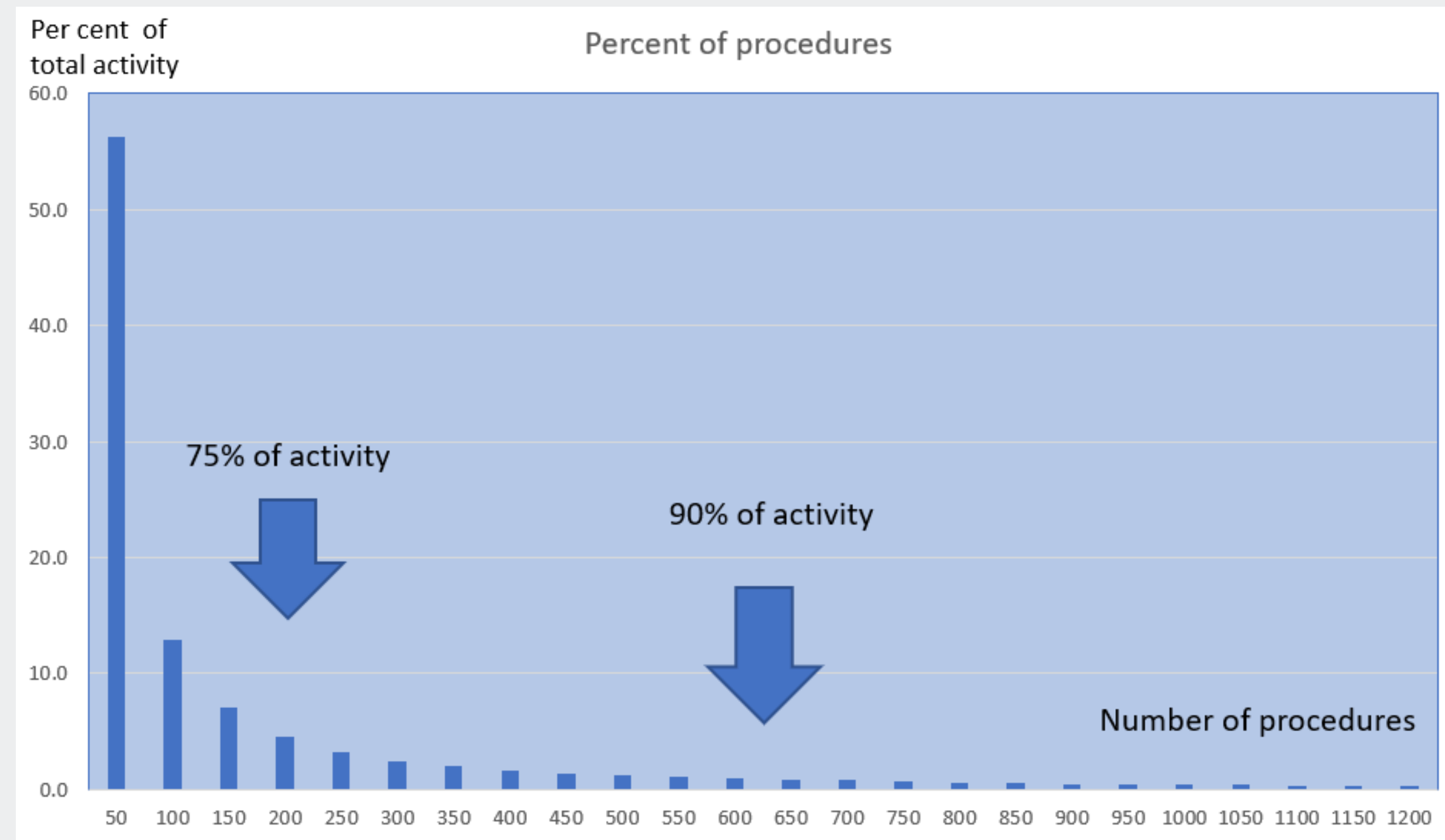
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RESULTS



Results

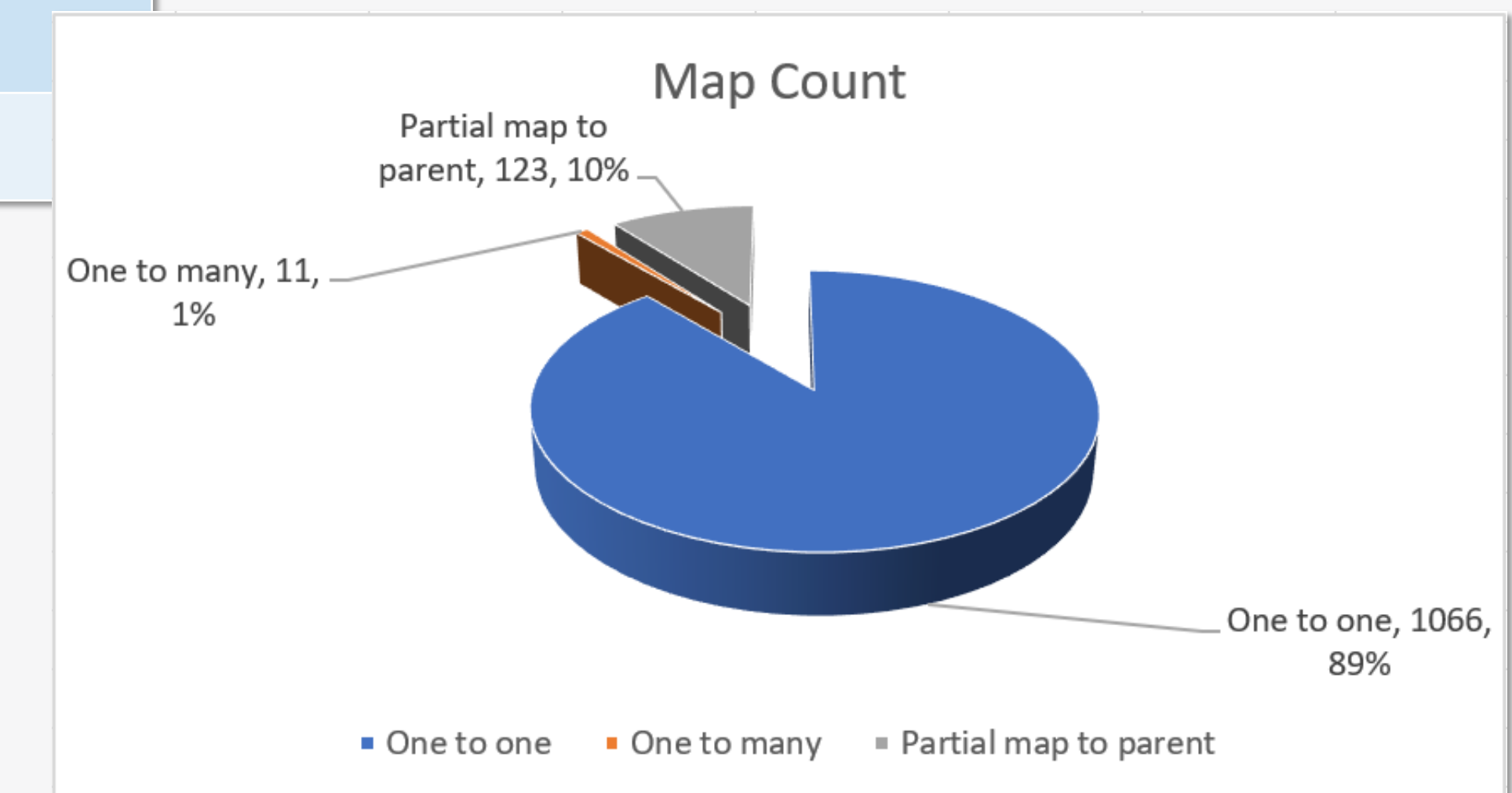
- A total of 7100 types of coded procedure were recorded against a total activity of over 12 million performed procedures.
- A frequency distribution graph confirmed that the majority of procedures were concentrated on a small number of codes (75% of activity on 200 codes, 95% on 1200).



Mapping to SNOMED, UK Ext

Category	Number	Per cent
One to one map	1066	88.8
One to many	11	0.9
Partial map to parent	123	10.3
Total	1200	100

Direct map 90%



The mapping and subset

- Of the 1200 procedures selected, 90% mapped directly to SNOMED and 10% to a local parent instead.
- From the mapped codes, a subset of 1171 SNOMED terms/codes, representing at least **95%** of coded activity has been defined, which can be used to support data entry in variety of ways.
- There were 40 duplicates in the cross map list, mainly related to the NEC/Unspecified and 121 Concepts were from the UK extension.

Hospital Surgery activity data



Top of the procedures were;
 Endoscopy (upper and lower)
 CT scans
 Intravenous therapy
 Cataract surgery
 Drug procurement
 Normal delivery

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DISCUSSION



Conclusions

- 1.This study has confirmed that HES data can be used to generate a frequency distribution of procedures performed.
- 2.The list of OPCS codes (1200) can then be mapped to SNOMED with a 90% a direct map.
- 3.The list of SNOMED codes produced can then be used as the basis for Common Procedures Subsets (1175) based on specialty
- 4.These subsets could make a real impact on the implementation of SNOMED by providing focused lists which can be used within an EPR solution to support data entry.
- 5.Alternative uses for the subsets might be managing waiting lists, scheduling theatre lists and recording operation notes.

Specialties

- This subset of codes can further be broken down to into “Specialty” areas, based on the OPCS chapter letters. These can be used to derive small subsets relevant to the context of use. In practice, when a clinician/surgeon is recording a procedure, they only need to see the procedures relevant to their specialty
- Examples of the specialty subsets are;
 - Ophthalmology – 60 procedures (C prefix)
 - Breast Surgery – 29 procedures (>B274)
 - ENT Surgery – 24 procedures (D prefix, E <426, F >222)

Next steps

- 1.The mapping tables and subsets should be made available to users (NHS Trusts/suppliers/ NHS Digital) to assist in the Implementation of SNOMED.
- 2.Similar subsets can be derived from the ICD10 activity and ICD10> SNOMED mapping based on the SNOMED Clinical Findings/Diagnosis hierarchy.

References

1. <https://digital.nhs.uk/snomed-ct>
2. <https://data.england.nhs.uk/dataset/digital-maturity-assessment-2015-2016>
3. HES data <https://digital.nhs.uk/data-and-information/publications/statistical/hospital-admitted-patient-care-activity>
4. NHS SNOMED Browser <https://termbrowser.nhs.uk/>
5. <https://classbrowser.nhs.uk/#/book/OPCS-4.8>

For further information, please contact;
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METHODS

RESULTS

DISCUSSION