Possible design for selection of Clinical Findings and Medical Procedures in SNOMED CT

Presenter: Arabella D’Havé, Chief of Terminology, Classification, Grouping & Audit
Dr. Ingrid Mertens, Chief of Department Datamanagement
Federal Public Service of Health, Food Chain Safety and Environment
Terminology Center

Abstract

Introduction: The decision has been taken to use SNOMED CT for the coding of the EHR in Belgium. In 2010 the development of a Belgian SNOMED CT subset has been started with physicians and terminologists.

Objective: Selection of SNOMED CT concepts on Clinical Findings and Medical Procedures, which are considered relevant for the coding of the medical record.

Design: At monthly teleconferences a group of ten physicians agreed on rules for selection or elimination of SNOMED CT concepts. Selected concepts should be ‘meaningful’, ‘specific’, ‘distinct’ (not ambiguous). Different codes should be easy to differentiate: synonyms should be excluded. Concepts which constitute time indications, axis modification and negative expressions should be post-coordinated.

Results: The selection versus elimination in Dutch versus French was concordant for 73%, kappa value=0,80 (n=51.706). The selection in Dutch versus French was concordant for 73%, kappa value=0,80 (n=51.706). The level of concordance is poor.

Conclusion: The constitution of the Belgian SNOMED CT subset was done by a selection or elimination of concepts by a French speaking and a Dutch speaking physician in an independent way. Because new rules were accepted during this process, parts of the terminology were covered in a different way. A consistent methodology needs to be developed.

In order to come to a single Belgian subset, the discorrences between physicians should be solved.

The coverage of the Belgian SNOMED CT subset for concepts used in the Patient Summary in hospitals, should be studied. The results of such a study should offer specifications for the finalization of the subset.

The Belgian SNOMED CT subset is yet not final, a first evaluation has to be planned in order to prepare further steps. Concepts which were not treated by physician are classified as “Not done”. The concepts “to be reviewed” are the concepts for which the physician didn’t want to make a choice because of uncertainty.

Clinical Findings

For the subset Clinical findings Dutch, 92,7% of the 79.287 SNOMED CT concepts have been selected/eliminated, 3.3% ‘to be reviewed’ and 4.0% ‘not done’.

For the subset Clinical findings French 69,5% of the 79.287 SNOMED CT concepts have been selected/eliminated, 2,1% ‘to be reviewed’ and 28,3% ‘not done’.

The following table presents the main reasons for elimination of concepts from the SNOMED CT Core by Dutch and French Physicians.

<table>
<thead>
<tr>
<th>Reason for elimination of concept</th>
<th>Number of concepts in both languages</th>
<th>% Concordance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of MEDD in entry</td>
<td>87</td>
<td>78,2%</td>
</tr>
<tr>
<td>Ambiguities</td>
<td>3.258</td>
<td>33,8%</td>
</tr>
<tr>
<td>Coarse homonyms</td>
<td>2.623</td>
<td>92,3%</td>
</tr>
<tr>
<td>Inclusion</td>
<td>380</td>
<td>88,9%</td>
</tr>
<tr>
<td>Negation of expression</td>
<td>3.062</td>
<td>45,4%</td>
</tr>
<tr>
<td>Concepts not post-coordinated</td>
<td>34.546</td>
<td>93,5%</td>
</tr>
<tr>
<td>Synonyms</td>
<td>12.120</td>
<td>79,5%</td>
</tr>
<tr>
<td>Time reference</td>
<td>1.193</td>
<td>65,4%</td>
</tr>
<tr>
<td>Time intervals</td>
<td>1.495</td>
<td>84,5%</td>
</tr>
<tr>
<td>No reason given</td>
<td>55.425</td>
<td>82,3%</td>
</tr>
<tr>
<td>Total</td>
<td>147.786</td>
<td>89,0%</td>
</tr>
</tbody>
</table>

Procedures

The first working package only covered therapeutic procedures, mainly surgical and therapeutic interventions. The initial working package contained 25.249 concepts.

For the subset Procedures Dutch 88,0% of the 25.249 SNOMED CT concepts have been selected/eliminated, 5,0% ‘to be reviewed’ and 7,0% was ‘not done’.

For the subset Procedures French 89,6% of the 25.249 SNOMED CT concepts have been selected/eliminated, 1,4% ‘to be reviewed’ and 9,0% was not done.

The selection in Dutch versus French was concordant for 73%, kappa value=0,34. At this stage, 79% of the 25.249 concepts were treated by both Dutch and French terminologists (n=20.007). The level of concordance is poor.

Methods

The strategy is to start off with a limited corpus (n=30.000) of agreed terms and to extend this vocabulary with new terms based on the real life use of care takers who will be able to request new terms if they feel they don’t find the proper concept.

Selected concepts needed to be clinical, distinct, specific, actual. Synonyms and homonyms were excluded. Concepts containing “or” and “other” are excluded. The granularity of the chosen concepts should satisfy the needs of all health care professionals. Different levels of specificity are accepted. When a concept is selected, one preferred term in Dutch and French is selected.

Reasons for elimination are documented in free text by the physician.

Elimination and replacement by linkage concept is done when two different concepts should be registered apart and the relationship between both concepts can be expressed with a linkage concept “due to”, “caused by”, “associated with”.

Pre-coordinated concepts with attributes are accepted if they comply with the rules above. Elimination and replacement by post-coordinated attributes is done when the pre-coordinated concept is considered extremely pre-coordinated and thus rare and/or too specific.

Because the terminology interfaces of most of the electronic patient records (EPR) don’t provide post-coordination at this moment, it was decided to keep the major pre-coordinated concepts which are Fully Defined.

References
