

This submission is an extract of a PhD dissertation of a co-author. The idea came from the WHO SNOMED CT common work to try to create a common ontology between the 11<sup>th</sup> version of WHO International Classification of Diseases and Health Problems (ICD) and the most used in the world clinical terminology named Systematized Nomenclature of Human and Veterinary Medicine – Clinical Terms (SCT).

The work aims to develop a SNOMED like ontology for ICD11 chapter 1 using on one hand the textual definitions of ICD11 codes which is a completely new character of ICD and on the other hand the ontology tools provided by SCT in the publicly available SNOMED browser.

The first step lexical analyzed if the labels of ICD11 codes were lexically aligned with SCT codes fully specified or synonymous names.

The lexical stage showed that there is a complete lexical alignment between ICD-11 codes labels and SCT codes fully specified or synonymous names when the different levels of post-coordination between the 2 systems are taken into account.

What was the issue of the second step ontological was to know if this lexical match means the same thing for ICD11 textual definition and SCT concept model (ontology representation) for the lexically match labels of ICD11 and SCT.

For ICD11 it was necessary to decide if the textual definition characters was always present (alone without restriction) or not (can be, sometimes et.)

The SNOMED browser provides an Information Model and a Compositional Grammar which are practically applied and available on the browser for ONLY a subset of SCT codes (concepts in the SNOMED terminology) which are said Fully Specified by SNOMED editorial board.

When a SCT code is not fully defined to day officially by SNOMED the work has tried to give a fully ontology representation with attributes and values present in SCT browser BUT not validated as well as when some characters always present in the ICD11 textual definitions were not represented by SCT fully defined concept models.

The ontological stage showed a complete representation of ICD-11 textual definitions by SCT concept models of SCT codes attributes and values authorized OR not authorized.

The work has certain limitations:

- Some ICD-11 titles do not yet have a description. We have considered that the ICD-11 label took its place.
- This work focuses on only Chapter1 of ICD-11 and shall be tested on the whole ICD-11.
- We excluded from our work the ICD-11 codes "other" and "unspecified" which cannot have any formal logical meaning and needs queries for the common ontology ICD 11SCT.

As a conclusion

- The work measures the gap between a lexical alignment and a meaning alignment between different health terminologies.
- There is a need to extend the use of SNOMED attributes and values presently not authorized to align ICD11 and SCT
- The work opens a way to a Formal Ontology comparison between ICD-11 and SCT critical point before a joint development of a Common Ontology between ICD-11 and SNOMED CT