MedDRA Literature Commentary

Subject of commentary:

Nadkarni, PM and Darer, JD. Determining correspondences between high-frequency MedDRA concepts and SNOMED: a case study. BMC Medical Informatics and Decision Making 2010, 10:66

Commentary:

The article by Nadkarni and Darer focuses on the alignment (mapping) of MedDRA and SNOMED-CT terms already present in the UMLS system. The intention is to show how limitations of this current mapping in UMLS can provide insight into other SNOMED-CT/MedDRA mappings that may be contemplated in the future.

The MSSO realizes that an eventual well-conceived, careful mapping of SNOMED-CT and MedDRA is a goal desired by many; this case study is of potential applicability to future mapping efforts between MedDRA and SNOMED-CT. We agree with the authors that clinical data from EHRs, likely to be coded using SNOMED-CT concepts, will need to be integrated into existing pharmacovigilance databases – such as those of the US FDA's AERS database – that are currently MedDRA-encoded. What we found interesting about the article was the emphasis on the mapping of MedDRA terms to SNOMED-CT concepts; we believe it is the reverse direction – SNOMED-CT to MedDRA mapping – that reflects what the reality will be once SNOMED-CT is widely adopted for EHRs. Nonetheless, some interesting points were made in this study.

The MSSO finds it interesting that the authors were able to identify terms in MedDRA – and, it should be stressed, *within* the UMLS mapping – that were not mapped to SNOMED-CT terms, but *could* be mapped if the resulting SNOMED-CT concept were "compositional" i.e., not a primitive concept but one derived from the complex relationships between concepts and attributes in SNOMED-CT. This is interesting and encouraging from an ontologic perspective, but it raises a question about how this would be addressed in the SNOMED-CT-to-MedDRA mapping direction.

One interesting idea that the authors touched upon but did not address in detail is whether or not it is necessary or desirable to map all 19 SNOMED-CT hierarchies to MedDRA. For example, the "body structure" hierarchy contains anatomic concepts. It is extremely unlikely that the concept of "thyroid" will ever be reported as an adverse event, medical history, or any other component of an individual case safety report; this raises the question: do certain SNOMED-CT concepts need to be mapped at all to MedDRA? Post-coordinated SNOMED-CT concepts reflecting morphology or findings combined with body structure, etc. pose more challenges for an eventual mapping than "primitive" and pre-coordinated ones.

The article also points out several ways in which MedDRA does not express the attributes of other medical ontologies, such as SNOMED-CT. The MSSO reminds

readers that the terminology was designed to address the specific regulatory and pharmacovigilance needs of its users, who still today contribute to its ongoing development and refinement. It is acknowledged that MedDRA is not a strict taxonomy or is without its limitations and occasional errors. But it has been optimized for the purpose of meaningful exchange of regulatory information and analysis of drug safety concerns. *Complete understanding of the types of source data in an EHR likely to be reported as adverse events (in SNOMED-CT) and complete understanding of the design and purpose of the repository terminology (MedDRA) will be key to the eventual success of a SNOMED-CT- to- MedDRA mapping.*

Finally, the MSSO wishes to make it clear to all readers of this article and to all users of MedDRA and UMLS that MedDRA is free of charge to all academic researchers, regulatory authorities, hospital libraries and direct patient care subscribers. Researchers in these fields need not feel constrained to using imperfect mappings in UMLS (as described by the authors) due to any cost concerns, as the “Conclusions” of this article implies.