Putting Biomedical Ontologies to Work

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Summary

Objectives

Biomedical ontologies exist to serve integration of clinical and experimental data, and it is critical to their success that they be put to widespread use in the annotation of data. How, then, can ontologies achieve the sort of user-friendliness, reliability, cost-effectiveness, and breadth of coverage that is necessary to ensure extensive usage?

Methods

Our focus here is on two different sets of answers to these questions that have been proposed, on the one hand in medicine, by the SNOMED CT community, and on the other hand in biology, by the OBO Foundry. We address more specifically the issue as to how adherence to certain development principles can advance the usability and effectiveness of an ontology or terminology resource, for example by allowing more accurate maintenance, more reliable application, and more efficient interoperation with other ontologies and information resources.

Results

SNOMED CT and the OBO Foundry differ considerably in their general approach. Nevertheless, a general trend towards more formal rigor and cross-domain interoperability can be seen in both and we argue that this trend should be accepted by all similar initiatives in the future.

Conclusions

Future efforts in ontology development have to address the need for harmonization and integration of ontologies across disciplinary borders, and for this, coherent formalization of ontologies is a pre-requisite.

Keywords

Quality Assurance, SNOMED CT, Biomedical ontologies, ontology harmonization