

Extending Health Intervention Representation Through Annotations

ALEXIS MCCLIMANS, UNIVERSITY OF WASHINGTON

BACKGROUND HEALTH INTERVENTIONS TAXONOMY

The Cost-Effectiveness Meta-Regression (CEMR) team at the Institute for Health Metrics and Evaluation (IHME) informs health policy by conducting analyses exploring the costs, constraints, and cost-effectiveness of health service provisions. CEMR researchers created the Health Interventions Taxonomy (HIT) to index incremental cost-effectiveness ratios within the Tufts Cost-Effectiveness and Global Cost-Effectiveness Registries.

Creating HIT was the first step to enabling CEMR team members to model the cost-effectiveness of health interventions. Several years on, more work is required to both formalize HIT into a knowledge organization system, and to expand representation of the interventions within the registries. An evaluation of HIT was performed, and a prototype ontology was developed to represent the interventions in the context of their study via annotations.

INFORMATION PROBLEM

TANGLED processes

Terms were initially defined and scoped in a manner that best facilitated automated indexing, with synonyms, alternative terms, and entry terms combined into one facet. Ideally, these processes would be separate but connected and developed in tandem with one another, with the automated indexing process fit to the taxonomy structure, rather than the other way round.



LACK of structure

Terms in HIT lack definitions, and are not easily scoped due to the conflation of synonyms, entry terms, related terms, and hidden labels.

MISSING context

Analyzing the cost-effectiveness of a given intervention requires representation of additional details and attributes for each study. This is difficult to achieve with the current structure of the registries.



HIT NEXT STEPS

1 IMMEDIATE

- merge redundant poly-hierarchies into single taxonomic structure
- remove term associations from labels
- implement term versioning and log system



2 LONG-TERM

- restructure the taxonomy, introducing SKOS facets
- develop taxonomy governance plan and documentation processes
- optimize indexing program for better performance with taxonomy



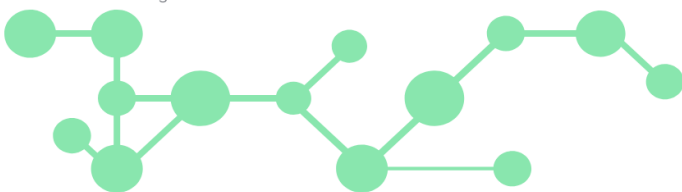
3 ONGOING

- validate indexed databases for disjoint mappings and misclassifications
- re-evaluate taxonomy for gaps in representation and missing terms
- collaborate with data library team to redefine structure and oversee implementation



HEALTH INTERVENTION COST-EFFECTIVENESS ONTOLOGY

Annotations can extend the current representation of taxonomy terms within the registries. The Health Intervention Cost-Effectiveness Ontology models salient concepts for describing incremental cost-effectiveness ratios, including attributes related to study design and methods, epidemiological and socio-demographic contexts. Individual intervention characteristics are extended via annotations, which model attributes by intervention, rather than ratio, providing researchers with more granular access to their data.



ACKNOWLEDGEMENTS

Thank you to the Institute of Health Metrics and Evaluation's Data Library Team and Cost-Effectiveness Meta Regression team for all of their assistance and guidance throughout this project. With special thanks to:

Lyla Medeiros, Data Library Curator II - IHME

Marcia Weaver, Research Professor - IHME

Kate Rosettie, Sr. Consultant - IQVIA

Pearl McCrea, MLIS

