Ontology Development in FHIR Resources with the Fast Evidence Interoperability Resources (FEvIR) Platform – Extended Abstract

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Abstract

Fast Healthcare Interoperability Resources (FHIR) is a standard for health data exchange used globally for electronic health records. Shareable digital objects are called Resources. FHIR defines a CodeSystem Resource structure that can be used to fully represent an ontology.

We extended FHIR to become a standard for data exchange for scientific knowledge. In doing so, we needed to create an ontology, the Scientific Evidence Code System (SEVCO), for expression of study design, risk of bias, and statistics, and we collaborated with the Statistics Ontology (STATO). We created a CodeSystem Resource for the development version of SEVCO (https://fevir.net/27270) and a CodeSystem Resource for the published version of SEVCO (https://fevir.net/sevco).

The Fast Evidence Interoperability Resources (FEvIR) Platform is a free platform supporting the creation, viewing, editing, and storing of scientific knowledge in the form of FHIR Resources. We created FEvIR®: CodeSystem Builder/Viewer to facilitate the creation and viewing of ontologies in the form of FHIR CodeSystem Resources. For the creation of SEVCO, with more than 42 contributors from at least 18 countries, we developed software features and term properties to manage comments, disagreements, agreements, and iterative voting until 100% agreement was reached. We also created FEvIR®: MyBallot to make voting on multiple terms more efficient.

This software demonstration will show the use of FEvIR®: CodeSystem Builder/Viewer and FEvIR®: MyBallot to develop the ontology, and will show the use of FEvIR®: ValueSet Builder/Viewer and Computable Publishing®: Risk of Bias Assessment Tool (RoBAT) as examples of application of the ontology in data curation.

Keywords

Evidence-based medicine, FHIR, data exchange standard, ontology, CEUR-WS

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