Incorporation of CVX Vaccines into the OMOP Drug Hierarchy

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INTRO:

The flexibility of OMOP CDM enables us to develop approaches serving to enrich the set of instruments available to OHDSI collaborators. A particular case is CVX vocabulary, the purpose of which is to code vaccinations performed by different healthcare providers and to be a target for the mapping of immunization drugs. Although CVX codes are quite common in the real-world data and are very useful to convert immunization-related source records with a lack of details (e.g. ”unspecified influenza vaccination”), none of them can be obtained as a descendant of ATC classification concepts in Atlas.

METHODS

We propose the methodology of vaccine representation in OMOP Standardized Vocabularies. It is based on the embedding of CVX vocabulary into the existing ATC - RxNorm/RxNorm Extension Drug Hierarchy. The level of incorporation of a particular CVX code depends on the presence of one-to-one equivalent mapping and a semantic topography relative to the Standard Ingredient taken as a benchmark. Using this, we have defined the following categories:

1. CVX vaccines having single Standard semantic equivalents in the RxNorm.
2. Multicomponent CVX vaccines with several Standard compositional parts represented by separate RxNorm Ingredients. They are considered to be “close to” the RxNorm Ingredient level and above RxNorm Clinical Drug Form.
3. CVX vaccines which cannot be covered by OMOP Drug Domain rules and figuratively are “above” the RxNorm Ingredient level:

3.1 CVX vaccines with several relevant RxNorm Ingredients, Dose Forms, and/or Dosages.

3.2 Category-like CVX vaccines of "unspecified formulation".

4. CVX vaccines requiring mapping to SNOMED Procedures.
5. “Unmappable” CVX concepts excluded from the hierarchy (e.g. vaccines which are represented in other vocabularies).

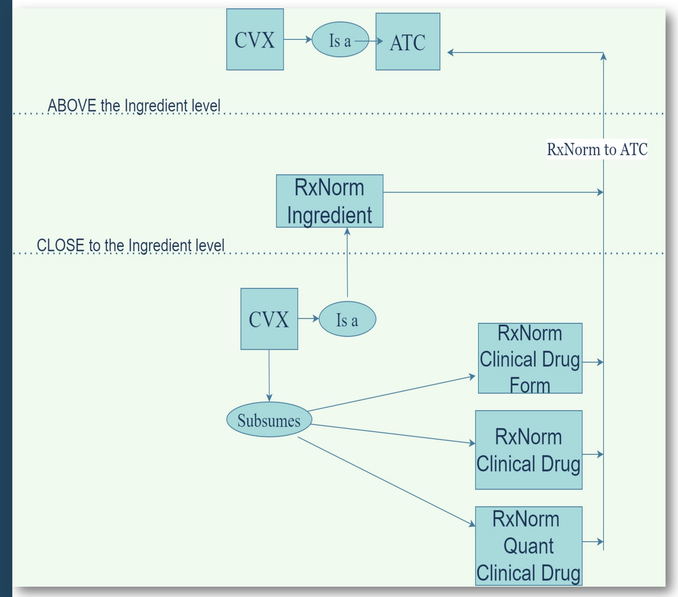
RESULTS

The approach provides us with the opportunity to incorporate the majority of CVX concepts into OMOP Drug Hierarchy. Such integration will increase the sample size in any cohort somehow related to patient immunity status by expanding the ancestry of Standardized Vaccines in OMOP CDM.

Embedding **the CVX vocabulary** in the **OMOP hierarchy** can enlarge the scope of research in the field of population immunization by expanding the **ancestry** of **Standardized Vaccines** in **OMOP CDM.**

Take a picture to access the showcase repository or follow this link

Hierarchical crosswalk from CVX concepts to ATC and RxNorm



* All CVX source information was obtained from the Center for Disease Control and Prevention (CDC) and The National Library of Medicine (NLM) Websites.

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