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201931 SNOMED CT, NPU and LOINC integration for semantic interoperability of laboratory test results

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Summary

In a collaborative development of SNOMED CT Observables content using separate publication snapshots as OWL files, we will demonstrate semantic interoperation of laboratory test results within a worldwide audience employing diverse laboratory coding schemes.

Audience

Policy/administration, Research/academic, Clinical

Learning Objectives

1. International scope of laboratory terminology resources
2. Use of SNOMED CT for representing laboratory medicine content
3. Interoperability between multiple laboratory coding systems

Abstract

Several IHTSDO members are collaborating in a project to support interoperation of laboratory test results between and within the US, UK, Canada, Australia, Sweden and Norway. The goal of this work is to allow global interoperability between laboratory terminologies as well as to allow reasoning on laboratory terminologies by applying the SNOMED CT ontology.

The aim is to create an OWL representation of various laboratory coding systems using content from SNOMED CT concept model and hierarchies. To accomplish this, statistical inventories are being developed of the laboratory tests currently most frequently reported and used within electronic health records in each country employing SNOMED CT, LOINC or NPU coding schemes. Those inventories define the initial scope of work that will be used to extend the Observable entity ontology developments begun by the IHTSDO-LOINC technology preview. The Observables project team guides the development and application of the SNOMED CT concept model to develop SNOMED CT expressions, which define each of the codes within scope. The objective is to publish an ontology snapshot for each of the three coding schemes used by IHTSDO members. For US, Canada and Australia, a LOINC OWL ontology snapshot technology preview has been created by SNOMED International. For UK, lab codes based on SNOMED CT Observables are already being added to the UK extension. For the Nordic countries, an NPU-OWL ontology snapshot will be developed after the concept inventories are completed.

In all cases, OWL files will be prepared and made available to SNOMED CT members with axioms employing the term identifiers and terminology tags of the affiliated SDO (LOINC or NPU). This will support for each of these countries

an OWL snapshot of their national laboratory schemes and any SNOMED CT content needed to correctly classify the laboratory expressions.

The ontology snapshots will be provided to the member NRCs or their designees including concept IDs, relationship IDs, FSNs and preferred terms of all SNOMED CT concepts employed in the definition of laboratory concepts. To move this work further, a business plan will be developed which allows releases to be in synchronization with the usual maintenance release cycle for SNOMED CT.

In this presentation we will report the results of statistical profiling of laboratory codes used in cooperating IHTSDO member countries. We will demonstrate the progress in development of SNOMED CT expressions and use that work to demonstrate how SNOMED CT can be used as an interlingua in the laboratory domain and hence showcase interoperability use cases between cooperating members.