Representing a Lab Result – Developing a LOINC Reference Table for a Distributed Research Network

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Introduction

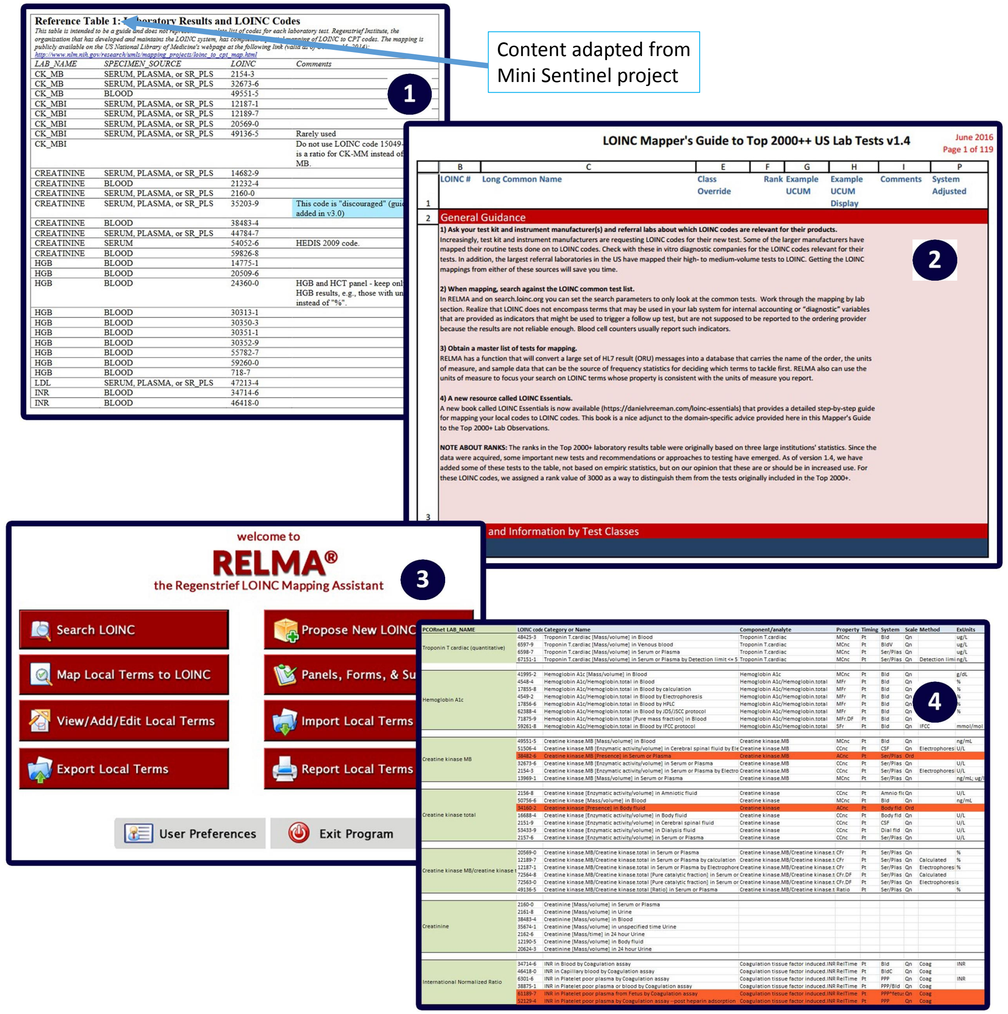
- The PCORnet CDM laboratory results table **includes 11 common laboratory tests (CLTs)**, to which local data are mapped.
- LOINC (Logical Observation Identifiers Names and Codes) values may be included for laboratory results.
- Clinical laboratory results are notorious for their **heterogeneity**. For many data partners, PCORnet was one of the first large-scale drivers for the **assignment of LOINC codes to laboratory results**.
- A laboratory result can be represented by **several "correct" choices.**
- PCORnet data partners asked the PCORnet Distributed Research Network Operations Center (DRNOC) for a **reference table** that would help them determine whether the LOINC codes they assigned for the 11 CLTs were appropriate.

Methods

The following process was used to expand the lab result reference table:

1. Reviewed content of **existing CLT – LOINC reference table** (to determine conceptual scope for each CLT in the CDM)
2. Reviewed **LOINC Top 2000+** list and **LOINC tutorials**
3. Attended **LOINC workshop** to confer with LOINC experts on Regenstrief LOINC Mapping Assistant (RELMA®) best practices
4. Utilized **RELMA®** to identify LOINC codes for inclusion in updated CLT – LOINC reference table (https://github.com/CDMFORUM/CDM-GUIDANCE/wiki/Lab-Mapping-Resources)

- Received input from PCORnet Lab Mapping Interest Group



Results

- A **more complete CLT – LOINC mapping table** was created. An additional 59 codes were added, with each CLT having between 2 and 35 codes.

Discussion

- The updated listing of LOINC codes does not address all the **nuance** associated with the secondary use of laboratory data.
- Much as investigators had to learn which ICD codes to use when identifying patients who were treated for a particular condition, they will need to similarly **understand which LOINC code(s) to choose to represent which laboratory test(s)**.

Lessons Learned

- As new laboratory tests are developed, and existing test methods are clarified, LOINC codes are created and deprecated. Consequently, **upstream LOINC assignment (e.g., reference labs/instrument manufacturers) might be more optimal**
- While a more complete reference table was created, the LOINC codes that correspond to a categorical name (e.g., "hemoglobin") **will depend on the intended analytical purpose of the data, which must be considered on a case-by-case basis**

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