LOINC Mapping: Planning Stage

Lessons Learned

The mapping of Laboratory Information Systems (LIS) tests to the pan Canadian LOINC Observation Code Database (pCLOCD) requires the use of a mapping tool. The pCLOCD is published in Excel or Access format, and is not conducive to the mapping of LIS test catalogues. Review and implementation of a tool requires time, and should be planned for during the initial stages of a Repository project.

Considerations:

- Investigate mapping tools available at an early stage as they all require specific set up. There are no known custom off the shelf (COTS) products available, which has resulted in some jurisdictions creating their own tool.
- Mapping to the pCLOCD/LOINC requires a good knowledge of those standards; specific training is required for the tool being used and the standard. PCLOCD/LOINC training can be arranged through Canada Health Infoway. Regenstrief also provides free LOINC training, available online.
- Mapping tools need 3-6 defined data elements to match the LIS test to the standard: testing component, specimen, timing, unit of measure, scale of reporting, and optionally method.
- Mapping tools hold multiple data bases, one for each LIS being loaded, one for the pan Canadian standard and one for the LOINC data base (if required). Each database may have specific formatting and data requirements.
- Mapping tools require expertise from an Information Technology department, different tools have different back end and front end software and require different levels of expertise.
- Electronic data is required for loading into the mapping tool, which may mean an additional step if the data needs to be converted into the correct format.
- Data extracts from the LIS are not sufficient for loading into most mapping tools. Additional time and effort from subject matter experts in the lab is needed to create the missing data. The better the LIS data, the less time will be spent on mapping. Typically, 70% of the tests are mapped in 30% of the time, but the remaining 30% of the tests will take the last 70% of the time. This is due to difficulty in finding the correct code within the pCLOCD or LOINC standard, difficulty in obtaining the specific details about the test or difficulty in retaining the right resources.
- Some mapping tools don't provide a synonym database and rely on exact name match lookups, access to a synonym database is required. (RELMA from LOINC contains an extensive synonym database.)

Recommended Actions:

- Begin mapping early in the project, mapping takes time and requires lab resources which may be difficult to acquire.
- Acquire a mapping tool early in the project timelines, allowing time for set up and data collection.
- Determine requirements of a mapping tool.
- Understand the significance of ongoing maintenance to the pan-Canadian standard as well as the changes to LIS test catalogues. Mapping is not a one time task, but continues to evolve over time because of changes to the standard and changes to the LIS test catalogue. When gathering data requirements for a mapping tool, these things need to be taken into consideration (If purchasing a limited use mapping tool, what will I use to do maintenance, if I want to include maintenance in my mapping tool requirements, what does that look like, what are those specific requirements?)
- Identify resources with appropriate expertise in the lab and the IT department.
- Dedicate lab resources to mapping, removing them from other duties if possible.
- Acquire subject matter experts for mapping to provide quality control checks throughout the mapping project, this helps to catch errors or inconsistencies in the use of the standard.
- Ensure there is a test and a production environment available for the mapping tool, each environment is required.
- Ensure appropriate training is available and provided for LOINC, pCLOCD and the mapping tool. Training should occur right before mapping begins, timing is important. Often a refresher training session on the LOINC standard is beneficial once the mapping has started as there is so much information to grasp.
- Ensure the most recent version of the pCLOCD is being used; it is found on the Terminology Gateway. The use of the most current version eliminates the creation of local codes. Starting with the most current version saves time and effort.
- Ensure the data required is in the correct format for loading into the mapping tool, some use Excel, some Access and some other formats. Ensure mappers have access to the RELMA tool as it provides multiple synonyms for LOINC codes.

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