

Activity Definition and Duration Estimate for LOINC® mapping

| ID | Task Name          | Activity Name                | Activity Definition   | Duration Range Estimate | Dependencies & Resources |
|----|--------------------|------------------------------|---|-------------------------|--------------------------|
| A  | Charter Definition | Identify Needs               | What are the drivers to implementing LOINC? What's the environment of the organization? Where this would be prioritized with other projects or plans on the horizon? What is the expected timeline? Is the platform in place to accept and incorporate the LOINC code?  | 3 wks                   | None                     |
| B1 | Identify Roles     | LOINC Sponsor                | Determine authoritative person who can clear hurdles for the designated LOINC mapper to get the content and resource time they need.<br>Gain project prioritization agreement with department heads.  | 1 wk                    | None                     |
| B2 | Identify Roles     | LOINC Mapper                 | Identify laboratory medical technologist or technician with knowledge of lab assay details of performance. Medical coder skill set may be substituted, if lab support resource available for consultation. This becomes an ongoing duty.  | 1 wk                    | None                     |
| B3 | Identify Roles     | LOINC outsourcing (optional) | If site deems appropriate, contract with outside vendor to perform LOINC mapping and/or maintenance; saving in-house resources for other aspects of project. Interview, obtain pricing, negotiation and contract agreement. LOINC support resources identified in B4 still apply.   | 1 month                 | None                     |
| B4 | Identify Roles     | LOINC support resources      | <ol style="list-style-type: none"> <li>1. Information Technology – able to write queries of the lab test catalog or consolidate existing HL7 messages (depending on how the site plans to map). Will act as the liaison between LOINC mapper and IT department. This will become an ongoing duty.</li> <li>2. Laboratory medical technologist – if non-lab person is assigned to the task. Consults and advises on lab assay details of performance.</li> <li>3. Pathologist or medical director – for ad hoc consultation.</li> <li>4. Pulmonary technician – for ad hoc consultation if lab system used to report blood gas functions.</li> </ol> | 1 wk                    | None                     |

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| B5 | Identify Roles              | Maintenance Impact                      | Run a security audit to locate sign ons/ security clearances to alter the laboratory test catalog. These people should be instructed on how their daily work impacts the accuracy of LOINC mapping. See LOINC Maintenance table instructions.   | 2 days                  | None                     |
| B6 | Identify Roles              | LOINC Output                            | Information Technology staff member deals with the completed LOINC mapping; loading to site specific computer location. This becomes an ongoing duty.   | 1 day                   | None                     |
| B7 | Identify Roles              | LOINC Benefactors                       | What other benefits can be gained from this? <ul style="list-style-type: none"> <li>• HEDIS measure reporting</li> <li>• Payer repository population of standardized data</li> <li>• Quality outcomes metrics</li> <li>• Local research repository</li> <li>• Health information exchange</li> <li>• Public health reporting with standardized data (automated or semi-automated)</li> <li>• Enterprise identification of assay performance (i.e. regional or national reference lab infrastructure)</li> </ul>   | 1 wk                    | None                     |
| B8 | Identify Roles              | Reiteration                             | What insight from others affects the charter timeline? If additional benefactors are determined, who else needs to be included in planning?   | 1 wk                    | B1, B3, B4, B6, B7       |
| C1 | Benchmark Enterprise Stance | Determine Organizational Process Assets | 1. Computer system has discrete data elements for lab results. (Examine work center activity reports, sample charts across all test mix to definitely answer.)<br>2. Is there existing HL7 messaging?<br>If #1 is NO, rethink the project on the existing lab platform. An example of discrete data elements is given in Figure 1.<br>If #2 is NO, define how the LOINC coding would be transmitted to all benefactors. Will HL7 be developed?<br>If #2 is YES, there's an additional option on mapping by HL7 contents by top volume (See paper in Appendix) | 3 days                  | B2, B3, B4, B7           |

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| C2 | Benchmark Enterprise Stance | Examine Enterprise Environmental Factors | <ol style="list-style-type: none"> <li>1. Is laboratory system getting replaced on near horizon?</li> <li>2. Are there plans to change send out labs or add additional satellite labs or lab stations in near future?</li> <li>3. Are there plans for integration with other modules, service departments in near horizon?</li> <li>4. Are there plans for system updates in near horizon?</li> <li>5. How many test catalogs and system platforms are involved?</li> </ol> <p>How does YES to any of these questions affect Charter and Resources?</p> | 3 days                  | B1, B4                   |
| D1 | Team Development            | Team Introduction                        | Introduce team members, review initial planning concepts. Include vendor, if outsourcing the mapping  | 1 day                   | B1, B2, B3, B4           |
| D2 | Team Development            | Brainstorming                            | Introduce Use Expert Judgment of team to discover additional risks, assets, or security/authorization needs. Try to meet multiple times, to allow for reflection and studying the process. Include vendor, if outsourcing the mapping   | 2 weeks                 | B1, B2, B4               |
| D3 | Team Development            | Mapper Training                          | Formal education at LOINC tutorials (in person or online); or self-education via LOINC User's Guide<br>Can be omitted at the start, if mapping being outsourced. The Vendor can orientate them for maintenance.   | 3 days                  | B2                       |
| E1 | Develop mapping strategy    | Determine mapping rules (optional)       | This activity is encouraged if multiple hospitals or labs will be sending data to a central repository. If the patients can be seen at any facility, and a Master Patient Index can identify them sufficiently, the lab results trend better over time if using the same level of granularity. Such as: use methods attribute sparingly, agree on direction for timed urines, will the generic LOINC codes for service comments or referral tests be used the same way across all sites?  | 1 week                  | B1, B2, B3, B7           |
|    |                             |  |   |                         |                          |

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| E2 | Develop mapping strategy | Determine common display names (optional) | <p>Used only when multiple labs are populating one repository. Having each site's display name side by side can lead to confusion and illegibility.</p> <p>LOINC offers short and long common names. HINs sometimes design formats for use in a common display, such as use proper case, list only non-serum specimens, avoid abbreviations, list methods only for "gold standards", such as electrophoresis or immune blot</p>  | 1 wk                    | B1, B2, B3, B7, E1       |
| F1 | Testing / Inspection     | Design audit                              | <ul style="list-style-type: none"> <li>• Inspection style depends on site</li> <li>• Determine how closely behind the mapper the auditing will occur</li> </ul>  | 2 days                  | B2, B4, B7               |
| F2 | Execution                | Create mapping source file                | <ul style="list-style-type: none"> <li>• Work with IT to determine what needs to be in and what can be excluded</li> <li>• Evaluate file for completeness; are all departments represented?</li> <li>• Are micro cultures and susceptibilities stored in separate module?</li> <li>• Will blood bank non-charting workups be coded for a repository?</li> <li>• Is there any research repository or new test development database that needs to be included?</li> <li>• Cleanse out unnecessary internal tracking, QC metrics, and problem resolution entries that don't contain chartable patient information.</li> <li>• Record final row count</li> <li>• This file can be cut into subsets by department, for manageability.</li> <li>• Note date of file creation, and capture database changes from this point for maintenance phase.</li> </ul> | 2 days                  | B2, B3, B4, B6           |
|    |                          |   |  |                         |                          |

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| F3 | Execution | Set target goals                        | <ul style="list-style-type: none"> <li>Base timeline according to size of file to be mapped.</li> <li>File size could vary from 800 – 22,000 rows, depending on complexity of the lab (outpatient lab, rural hospital, trauma setting, academic/research facility)</li> <li>For novice mapper, allow 4 codes per hour for the first few days, working up towards 100 codes per day after 4 months</li> <li>Experienced mappers and vendors with advanced toolsets should be able to do 500 codes per day</li> </ul> | 1 day                   | F2                       |
| F4 | Execution | Load to RELMA                           | <ul style="list-style-type: none"> <li>RELMA is Regenstrief’s lab mapping tool.</li> <li>Download RELMA tool from <a href="http://www.loinc.org">www.loinc.org</a></li> <li>See RELMA User’s Guide in Appendix / also download current version from <a href="http://www.loinc.org">www.loinc.org</a></li> </ul>   | 1 day                   | B2, B4                   |
| F5 | Execution | LOINC mapping                           | <ul style="list-style-type: none"> <li>Largest variant of time here, depending on experience of the mapper and size of file to be mapped</li> </ul>   | Varies Weeks to months  | B2, B3, B4, F2           |
| F6 | Execution | Audit                                   | <ul style="list-style-type: none"> <li>Export from RELMA and review for correct analyte; property, specimen, scale</li> <li>Novice mappers rate = 200 codes per day</li> <li>Experienced mappers/vendors rate = 800 codes per day</li> </ul>  | Varies Weeks            | B2, B4                   |
| F7 | Execution | Implement                               | Transfer data to lab system for incorporation in messaging streams to target destination.   | 1 day                   | B4                       |
| F8 | Execution | Reiterate for multiple sites (Optional) | Reiterate B2 through F7 per catalog defined. If multiple sites operate off of one catalog, only need to do once.  | Varies                  | B2 through F7            |
| F9 | Execution | Prepare for maintenance                 | Create maintenance mapping record to use in Monitor & Control Phase. Consists of all definitions with LOINC code  | 1 day                   | B4                       |
|    |           |   |   |                         |                          |

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| G1 | Monitor & Control / Maintenance | Backlog of changes from original file creation | Notify all authorized database editors that their tracked changes from date of original file creation are to be submitted for review. See LOINC Maintenance Checklist in Appendix.         | Ongoing                 | B1, B2, B4, B5           |
| G2 | Monitor & Control / Maintenance | Regular review                                 | As changes or additions are made to the system, maintenance file is kept up to date  | Ongoing                 | B2, B4, B6, F2           |
| G3 | Monitor & Control / Maintenance | LOINC Version Releases                         | As LOINC versions are released (2x/year), run a comparison check. Looking for 1) newly deprecated codes being used at this site and 2) new LOINC codes for currently unmapped local codes. | Ongoing                 | B2, B4, B6, F2           |

**Figure 1. Determine Discrete Data criteria**

LOINC® codes are intended to identify the specific test or order set that is being conveyed in the HL7 message. It is necessary for a site to have individual result fields defined in the test catalog.

Example of Non-discrete Data:

|                   |  |
|-------------------|--|
| Auto Immune Panel | Single result field of with generic answer such as “See Report” and a text field encompassing multiple result values |
|-------------------|--|

Example of Discrete Data:

|                   |                                      |   |
|-------------------|--------------------------------------|---|
| Auto Immune Panel |                                      | Multiple result fields, one for each component of the panel. They each have local code, and can be orderable or non-orderable on their own: |
|                   | Extractable Nuclear Antigen antibody | Positive  |
|                   | Nuclear antibody titer               | < 1:20  |
|                   | Scleroderma antibody                 | < 1:20  |
|                   | Sjogren Syndrome A antibody          | < 1:20  |
|                   | Sjogren Syndrome B antibody          | < 1:20  |
|                   | Centromere antibody                  | 1:160 *   |