LOINC 2.65
Content Updates & Work in Progress

Swapna Abhyankar, MD
Associate Director for Content Development,
LOINC and Health Data Standards
Overview

• 2.65 release
  • New terms
  • Term updates
  • Other content updates

• Work in progress
New LOINC terms in 2.65 (December 2018) release
New LOINC terms in 2.65 release
Total = 1408
New Laboratory terms

- Over 200 new microbiology terms, including 19 new panels
  - Includes new terms with Hair/Skin/Nails System
- Approximately 90 new terms in DRUG/TOX class
- Over 60 new chemistry terms
- Approximately 55 new serology terms
  - Includes new terms with Method CBA IFA (Cell binding assay Immunofluorescent assay)

**Description:** Cell binding assays are performed using cells that are engineered to only express the antigen of interest, which increases their specificity compared to traditional immunofluorescent assays.

<table>
<thead>
<tr>
<th>LOINC</th>
<th>LongName</th>
<th>Component</th>
<th>Property</th>
<th>Timing</th>
<th>System</th>
<th>Scale</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>91084-4</td>
<td><strong>Fungal 18s rRNA gene [Presence] in Dermatologic specimen by NAA with probe detection</strong></td>
<td>Fungal 18S rRNA gene</td>
<td>PrThr</td>
<td>Pt</td>
<td>Hair/Nail/Skin</td>
<td>Ord</td>
<td>Probe.amp.tar</td>
</tr>
<tr>
<td>91088-5</td>
<td><strong>Fungal BT2 gene [Presence] in Dermatologic specimen by NAA with probe detection</strong></td>
<td>Fungal BT2 gene</td>
<td>PrThr</td>
<td>Pt</td>
<td>Hair/Nail/Skin</td>
<td>Ord</td>
<td>Probe.amp.tar</td>
</tr>
<tr>
<td>91092-7</td>
<td><strong>Fungal ITS region [Presence] in Dermatologic specimen by NAA with probe detection</strong></td>
<td>Fungal ITS region</td>
<td>PrThr</td>
<td>Pt</td>
<td>Hair/Nail/Skin</td>
<td>Ord</td>
<td>Probe.amp.tar</td>
</tr>
</tbody>
</table>
New Clinical and Survey terms

• Approximately 130 new Radiology and Document Ontology terms
• Orthodontic service attachment document code (90875-6) and over 20 new dental codes
• New terms for data elements included in the Centers for Disease Control (CDC) Public Health Emergency Operations Center (PH EOC) minimum data set (MDS) (89724-9)
  • This is a work in progress; the full set of LOINCs is expected to be included in the June 2019 release.
- 38 new PROMIS item banks and short forms in the adult, pediatric, parent proxy, and cancer domains
- New version of the Inpatient Rehabilitation Facility - Patient Assessment Instrument (IRF-PAI) - version 3.0 (89963-3)
- HEDIS 2019 value sets (90766-7)
New Clinical and Survey panels

- Pressure Ulcer Scale for Healing Tool 3.0 (90982-0)
- Pain intensity, Enjoyment of life, General activity scale (91148-7)
- Patient-Oriented Eczema Measure (89862-7)
- Psoriasis care satisfaction questionnaire (90018-3)
- Fracture Risk Assessment (FRAX) (90264-3)
- Duke Anxiety Depression Scale (90854-1)
- Chronic Respiratory Questionnaire Self-Administered Individualized Format (CRQ-SAI) (89906-2); Chronic Respiratory Questionnaire Self-Administered Standardized Format (CRQ-SAS) (89905-4)
- Routine Assessment of Patient Index Data 3 (90028-2)
New questions for existing Clinical panels

- Pulmonary Embolism Severity Index panel (89694-4)
- Revised Geneva Score panel (89549-0)
- Wells pulmonary embolism risk calculator panel (89546-6)
- Pulmonary Embolism Rule-out Criteria panel (89544-1)
Term Updates in 2.65
Term updates in 2.65 release
Total = 6678

- Component updates: 317
- One of 5 other main parts: 285
- Other attributes: 5978
- Deprecated: 98
Updates based on community feedback

• 250 Allergy terms with a Property of Ratio without a denominator were updated to include the denominator IgE.total and correct the Property to AFr to clarify and accurately reflect the meaning of the term.

• Consistent with Rosa's Law (Pub. L. 111-256), several terms were discouraged, and one term and Answer list were updated to replace the phrase "mental retardation" with "intellectual disability."

• A set of terms with the Components "LDL 1", "LDL 2", etc. were discouraged because they were being used incorrectly by a major reference laboratory for reporting the amount of cholesterol contained in the LDL fraction rather than the amount of the LDL fraction itself, and we could not find any laboratories who are reporting results for each LDL fraction.
  • A replacement set of terms with Components "Cholesterol.in LDL 1", "Cholesterol.in LDL 2", etc. were created and the discouraged terms were mapped to the new terms as appropriate.
  • The reference lab was notified about the issue and provided with the correct terms.
Updates based on community feedback (cont.)

• OrderObs value for 30 terms updated from “Order” to “Both”
• The Method for two Reticulocytes terms were updated from "Manual" to "Manual count" for consistency across terms
• The Components Cytarabine C (53450-3) and Cytarabine U (53451-1) were updated to Cytarabine and Uracil arabinoside, respectively
• For the Imipramine and Desipramine panel - Serum or Plasma (43123-9), the duplicate child element for Imipramine+Desipramine [Mass/volume] (9627-1) was removed and replaced with Imipramine (3690-5)
Updates based on community feedback (cont.)

- Over 60 blood banking terms with "NOS" in the Component were deprecated because they were ambiguous.
- Several terms for reporting mass or substance concentrations of combinations of drugs (e.g. Amoxicillin+Clavulanate or Trimethoprim+Sulfamethoxazole) were deprecated because each drug is typically measured and reported separately rather than as a combination.
- LOINC 60549-3, 8-Estriol, was deprecated without a MapTo because it is not clear what analyte this term was meant to represent.
- LOINC codes for Complement C3d+G (4493-3, 4494-1, 4405-8) and Complement C3d-c3d+Gg-IC3b receptors (6294-3, 4496-6) were deprecated due to their ambiguity.
Updates based on internal review

• For about 50 molecular resistance terms, updated the System from Isolate to Isolate/Specimen and Method from Probe.amp.tar to Molgen according to the model approved by LOINC Laboratory Committee in June 2018.

• Updated the Answer List type for more than 200 terms from "NORMATIVE" to "EXAMPLE" because the Answers included in the lists are examples of the types of results that may be reported and not an exhaustive list; in a few cases the type was changed to “PREFERRED”.

• Updated the Method for several terms from Thromboelastography to Thromboelastography.rotational to clarify that the Method used for these assays are rotational TEG ("ROTEM") and to distinguish from the original thromboelastography and new resonance thromboelastography Methods.
Updates based on internal review (cont.)

- In the LOINC Document Ontology, dropped "Physician" from Role values where the Role could be used across physician and non-physician specialties. For example, "Physician resident" is now "Resident"
- Updated the PhenX ID from "PhenX.<ID>" to "PX<ID>" in the Survey Question Source field for over 4000 terms to align with the variable identifier used in the PhenX Toolkit
Other content updates in 2.65
Display names

- Continued work on Display names to fix inconsistencies, add more common acronyms
- Moved the Property to the end of the name in square brackets
- For Deprecated terms, rather than having the word “Deprecated” as the Display Name, created actual names and wrapped them in angle brackets
- Release file promoted to Beta 1
- Display Name included in the RELMA grid, and on term details pages

**SPOILER FOR THE JUNE RELEASE!!**

- Based on Laboratory Committee discussion in December, Display names for deprecated terms will no longer include a status indicator (i.e., we removed the angle brackets), and duplicate Display names WILL BE ALLOWED for true duplicates
  - These names are not meant for orders or mapping, but rather for downstream result display, and even if the term is deprecated, the result is still valid
## Display names (cont.)

### Examples:

<table>
<thead>
<tr>
<th>LoincNumber</th>
<th>Display Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>86898-4</td>
<td>Vedolizumab IA [Mass/Vol]</td>
</tr>
<tr>
<td>86899-2</td>
<td>Vedolizumab Ab IA [Mass/Vol]</td>
</tr>
<tr>
<td>869-8</td>
<td>A3 B Ab RBC Aggl Ql (Serum or Plasma BPU)</td>
</tr>
<tr>
<td>86900-8</td>
<td>Plasma cell monotypic population FC Nom (Bld)</td>
</tr>
<tr>
<td>86925-5</td>
<td>L. intracellularis Ab IA Ql (S)</td>
</tr>
<tr>
<td>86929-7</td>
<td>L. intracellularis Ab/Negative control IA (S) [Relative ratio]</td>
</tr>
<tr>
<td>86949-5</td>
<td>T. vaginalis and M. genitalium DNA panel (Unsp spec)</td>
</tr>
<tr>
<td>86950-3</td>
<td>Thymus IgG IF [Titer]</td>
</tr>
<tr>
<td>86951-1</td>
<td>Lipoprotein associated phospholipase A2 [Catalytic activity/Vol]</td>
</tr>
</tbody>
</table>

Review & feedback still welcome!!
Top 2000+ Result Codes

- Collection of the most frequent lab results
- Original version (2011)
  - Collaboration between NLM and Regenstrief Institute
    - Indiana Network for Patient Care (INPC)
    - Partners Healthcare System of Boston
    - United Healthcare (UHC)
  - 2017 additional terms
- 2017 terms
- US and SI versions
- 2017 terms
- Regenstrief added ~150 new tests based on our opinion that these are or should be in increased use based on more recent recommendations or approaches to testing
  - Assigned a rank value of 3000 to distinguish from the original list
- 2170 terms
- Handcrafted mapping guidance published as part of the original file and updated in 2016
  - Rankings and term-level mapping guidance are also available in RELMA and through https://search.loinc.org
- No deprecated terms are included

⚠️ THE TOP 2000+ FILE IS FROZEN
IT WILL LIKELY CONTINUE TO BE RELEASED AS IS UNTIL WE HAVE A REPLACEMENT
Work in Progress
Collaboration with CDC and APHL

- LOINC mapping for IVD HIV tests published in LIVD format
  - Original file published in August 2018
  - Updated version that includes molecular tests will be published soon (once cleared through CDC)

https://www.cdc.gov/hiv/guidelines/reporting.html
Other collaborations

• HL7 Emergency Care Workgroup on the next version of DEEDS (1.x)
• CDISC on mapping of sets of CDISC lab concepts to LOINC terms – to be circulated for review later this spring/summer prior to publication
• CMS for ongoing maintenance and updates of Long-Term Post-Acute Care (LTPAC) assessments
• RTI International on continued work linking complex disease and exposure data elements to LOINC
• Northwestern University on updating PROMIS content (expect to be caught up in June 2019 release)
• CDC for continued work on the Public Health Emergency Operations Center (PH EOC) minimum data set (MDS)
Expansion of Guide for Using LOINC Micro Terms and Feedback site

• Answer list chapter to be circulated for comment after approved by FDA
• Feedback site for Micro Guide implementers is open for business

(THANK YOU TIM!)

https://loinc.org/guides/micro

https://loinc.org/guides/micro/feedback
Other work

• Ongoing content review & term edits based on internal content analysis and community feedback
• New term requests (~900 concepts in the current queue)
• Multiaxial hierarchy review & clean-up
• Display names (continued enhancements)
• Consumer Names...Stay tuned! (more info this afternoon)
Q&A