

Common Lab Orders – Version 1.2

Preface

June 3, 2011

What follows is the third update to the list of the most commonly ordered laboratory tests with their LOINC codes and names. The Lister Hill Center at the National Library of Medicine (NLM) developed this list empirically based on data from five source systems and with the collaboration of the Regenstrief Institute and help of the Healthcare Information Technology Standards Panel (HITSP), ACLA, HCA, 3M, and many other individuals and organizations.

Download Formats

You can obtain the Common Lab Orders Value Set in two formats downloadable from the LOINC website at no cost (<http://loinc.org/usage>):

- 1) PDF format: contains the common test orders list sorted alphabetically by LOINC^{®1} class and within class by LOINC long common name.
- 2) Excel Spreadsheet (XLS format): contains the common test orders list sorted alphabetically by LOINC class and within class by LOINC long common name, and also includes additional columns with each of the 6 parts of the LOINC formal name.

Common Lab Orders Value Set Version History

“Beta” Version (11/05/2009): presented at a HITSP meeting

Version 1.0 (01/14/2010)

Version 1.1 (04/07/2010)

Version 1.2 (06/03/2011)

The genesis of the November 5, 2009 common lab test orders “beta version”

The November beta version was based on data from five clinical sources, described below. Four of these sources had mapped all of their orders/results to LOINC codes using RELMA^{®2} and they provided us with their frequency statistics.

- 1) The Indiana Network For Patient Care (INPC), who reported ordering statistics from a sample of 10 million orders from more than 15 hospitals and clinics.

¹ The purpose of LOINC[®] is to facilitate the exchange and pooling of clinical results for clinical care, outcomes management, and research by providing a set of universal codes and names to identify laboratory and other clinical observations, and they are distributed at no cost. The Regenstrief Institute, Inc, an internationally renowned healthcare and informatics research organization, maintains the LOINC database and supporting documentation, and the RELMA mapping program. The LOINC[®] codes are copyright © 1995-2011, Regenstrief Institute, and the Logical Observation Identifiers Names and Codes (LOINC) Committee. All rights reserved. Full LOINC[®] and RELMA[®] Terms of Use are available at: <http://loinc.org/terms-of-use>.

² The Regenstrief Institute provides a Windows-based mapping utility called the Regenstrief LOINC Mapping Assistant (RELMA) to facilitate searches through the LOINC database and to assist efforts to map local codes to LOINC codes: <http://loinc.org/relma>. LOINC also provides a web-based search tool, available at: <http://search.loinc.org>.

- 2) Health Care (UHC) who derived their statistics from a sample of 30 million referral laboratory test *results* from their nationwide database.
- 3) Five Northeast US hospitals that derived their statistics from a sample of 1.5 million orders.
- 4) One Southeast US hospital that derived its statistics from 200,000 test orders.
- 5) A list of about 200 tests gathered by survey from an internal medicine project run by Stasia Kahn, MD (Chicago).

The first four of these data sets had LOINC codes and statistics attached; we added LOINC codes for the tests from Dr. Kahn's list, and did not have statistics. The INPC, NE US and SE US lists were weighted toward hospital laboratories (including inpatient and outpatient). The UHC results come from a national database and include only outpatient tests performed out of office. The UHC data helps to balance the hospital bias of the other samples.

We started with test orders contained in the INPC 99.5 percentile of test orders and only added terms from the other sources to this list if they were not already included in the starting list. We only included LOINC codes from the UHC list of result codes if the test was in the top 99.5 percentile of the UHC list *and* that code had not already been included in the Indiana list of orders or as part of a panel from that list. We continued with the other sources using the same rule where possible. When we finished the beta version of the common lab orders list, it contained about 300 tests and covered more than 99% of each sources' laboratory volumes.

We presented that original beta table of common lab orders at the HITSP face-to-face meeting in Silver Spring, MD on November 5, 2009. HITSP sent it out for public comments as part of the C80 Clinical Document and Message Terminology Construct³ and referenced a web site – <http://loinc.org/usage> – where future versions would appear. The HITSP C80 describes this Common Lab Orders set and future versions as the preferred “starter” set for laboratory orders.

Evolution of the common order list since the November beta version

We received many comments from the HITSP review process at the end of 2009, including especially useful comments from the American Clinical Laboratory Association (ACLA) who then helped to refine and improve the list. The ACLA suggested the addition of more than 50 tests that were high frequency orders in their member's laboratories. They also suggested replacing some codes with codes that were more appropriate for the intended use and removing other codes, for example the few non-orderable test codes that slipped in. ACLA also had questions, and/or lack of consensus among its members, about how to represent a subset of about 90 orders in the November 5th beta version and asked LOINC to hold these back, in order to give ACLA members time to review them. We initially reviewed 25 of these with

³ This list is referenced by the HITSP C80 Clinical Document and Messaging Terminology Construct in Table 2-97 “Laboratory Order Value Set” which states that it “should be considered a minimum “starter” set,” and “does not attempt to include all possible LOINC codes” or all possible lab orders: http://www.hitsp.org/ConstructSet_Details.aspx?&PrefixAlpha=4&PrefixNumeric=80

ACLA (including the most frequently ordered chemistry panels and bacterial cultures) and included them in the version 1.0 list that we posted on Jan 14, 2010.

By April 2010, when we released version 1.1, ACLA, NLM and Regenstrief had reviewed an additional 14 of the most important of these “held back” terms, including urinalyses and blood counts. As part of both batches of reviews, each of the participating ACLA labs compared the elements of the panels in question with what they reported. For some panels, the ACLA labs differed with respect to the optional elements included within the panels but not with respect to the required elements. They all reported the same required elements. In both rounds of review, Regenstrief added optional elements to some panels to cover the optional elements reported by any of the ACLA laboratories, adjusted the Required/Optional flags for other panels to align with the ACLA consensus. In a few cases, Regenstrief created new panels to replace old ones to ensure the panels fit better with current ordering patterns. All of these changes described above were included in a special release of the LOINC data base (version 2.30) and RELMA (version 4.3) both released 2010-02-26.

This review process took extra time, but it was more than worth it. The final product is a much better one for the review by many eyes from many laboratories; it produced, and is aligned with, a new consensus among the ACLA laboratories about content of panels, and other aspects of LOINC test ordering.

Some of the tests in this list of common lab orders are not provided by most ACLA labs. We indicate such tests — most of which are point of care tests — with an X in the column labeled “Usually not performed at a referral lab.”

As a matter of good clinical practice, the ACLA laboratories and most hospital laboratories perform susceptibility testing on any significant isolate on a reflex basis, and there is no need for order codes that say “culture and susceptibility,” because it is implied.

Because frequency statistics were obtained from multiple sources, they are not strictly comparable, so instead of including a numerical statistical percentage, we include an overall rank order number column (from most to least frequently ordered labs; 1 = most frequently ordered). Because we did not get frequency statistics from some sources, we list “N/A” as the rank order for some of the lab orders.

The list of common orders (version 1.2) below includes 332 laboratory tests, including 40 that were added since the last release (version 1.1). We reviewed many of these newly-added tests with ACLA. A few of the additions, e.g., aluminum and erythropoietin, were not in the original top 300 list but had quite high usage statistics according to CMS’s 2009 part B National Summary Data File report.⁴ We also added tests from the original top 300, which ACLA could not review because of the surge of demands on their time from the many current national standardization efforts. We included this last group of test orders because they are ordered so frequently and/or had special public health importance. As part of

⁴ Y2009_80047.csv, available as a free download from: https://www.cms.gov/NonIdentifiableDataFiles/03_PartBNationalSummaryDataFile.asp

due diligence for each such test, we reviewed the definitions presented on ACLA laboratory web pages for them and discussed any questions that arose from these reviews with experts in the field. The reporting of a few of the panels in this last group of tests varied from laboratory to laboratory; for these we noted in the comments column that the LOINC members of these panels are just examples and should not be taken as normative.

As we review additional tests, we will add them to the common orders file available at <http://loinc.org/usage>.

We'd like to thank to all who contributed data, helped develop this list and provided such valuable feedback. Special thanks to the HITSP Care Management and Health Records Domain Technical Committee and its co-chairs Keith Boone, Corey Spears and Greg Alexander, and to the ACLA members who have provided extensive analysis.

Your comments and suggestions are welcome: commontestsandorders@mail.nih.gov