Another Look at LOINC

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by Maida Reavis Herbst, RHIA

We have all heard Logical Observation and Identifier Codes (LOINC) mentioned in the same breath with standards or medical vocabularies, but what are they exactly?

What Is LOINC?

LOINC is a niche vocabulary useful in reporting laboratory and clinical observations. The laboratory section of LOINC covers chemistry, hematology, serology, microbiology (including parasitology and virology), and toxicology. The clinical observation section contains entries for vital signs, hemodynamics, intake/output, EKG, obstetric ultrasound, cardiac echo, urologic imaging, gastroendoscopic procedures, pulmonary ventilator management, and other clinical observations.

The Regenstrief Institute's LOINC Web site defines LOINC as a "database which provides a set of universal names and ID codes for identifying laboratory and clinical test results."[1] The Web site further states the purpose as facilitating "the exchange and pooling of results such as blood hemoglobin, serum potassium, or vital signs, for clinical care, outcomes management, and research."

Work on LOINC first began in 1994 by the National Library of Medicine and the Agency for Health Care Policy and Research at the Regenstrief Institute, a research foundation affiliated with the Indiana University School of Medicine. LOINC was originally intended to build on earlier nomenclatures such as the work of the European Clinical Laboratory Data Exchange Standard, the Silver Book from the International Union of Pure and Applied Chemistry and the International Federation of Clinical Chemistry, and textbooks of clinical pathology.

One expert states that project members envisioned that LOINC would become a clear, unambiguous vocabulary with unique codes.[2] The *LOINC User's Guide* states that there are more than 24,000 different lab tests and clinical observations, with cross references to other coding schemes and synonyms.

Why Do We Need LOINC?

Nomenclatures provide a common reference point so that data can be communicated between care providers and the systems used to support the business of healthcare. Although facilities use standards to electronically transfer data through interfaces, the content within the interface standard is usually unique to the laboratory system that generates it. Therefore, it is difficult for diverse laboratory systems to share meaningful data unless one system adopts another system's codes or uses a mapping utility.

Physician Thomas S. Payne concisely describes LOINC as a useful, externally maintained standard for tests within a laboratory, for identifying tests sent in HL7, and for pooling together tests from various laboratory systems.[3] The *LOINC User's Guide* states that the ultimate goal of LOINC is to allow the exchange of clinical laboratory data between heterogeneous computing environments in the context of the messaging standards.

Writer Gretchen Murphy, RHIA, purports that LOINC fosters common vocabulary use in healthcare facilities, clinical laboratories, physician offices, and local and state health departments. It's also popular with current informaticists for its potential use with electronic health records, Murphy says.[4]

The *LOINC User's Guide* lists 45 committee members and a project team that meets regularly in person. They also use e-mail and the Web, and their efforts are accessible on the Internet for any interested party. In addition, updated versions are available to be downloaded with no license fee. These new LOINC versions, user manuals, and a mapping utility are available online at www.regenstrief.org/loinc.

Overall, LOINC is a well-designed, vendor-independent, standardized medical vocabulary that has proven useful in a computerized patient record environment. The *LOINC User's Guide* includes a section on successes, with endorsement by the College of American Pathologists, recommendation by the American Clinical Laboratory Association, and adoption by large commercial laboratories and healthcare providers. The *User's Guide* also describes the National Library of Medicine's Unified Medical Language System (UMLS) incorporation, ICD-10-PCS lab codes, and SNOMED collaboration.

Notes

1. Logical Observation Identifiers, Names and Codes are available at The Regenstrief Institute Web site at www.regenstrief.org/loinc.
2. Forrey, A. W. "Electronic Health Records, the Clinical Laboratory, and the LOINC Vocabulary." In *Electronic Health Records: Changing the Vision*, Murphy, G. F. et al (eds). Philadelphia: WB Saunders Company, 1999, pp. 176-182.
3. Payne, T. H. et al. "Electronic Exchange of Patient Information." In *Electronic Health Records: Changing the Vision*, Murphy, G. F. et al (editors). Philadelphia: WB Saunders Company, 1999, p. 134.
4. Murphy, G. F. "The Role of Vocabulary in Electronic Health Record Systems." In *Electronic Health Records: Changing the Vision*, Murphy, G. F. et al (eds). Philadelphia: WB Saunders Company, 1999, p. 164.

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