

DLSS LabHIT Team and Specimen Test Vocabulary LabMCoP

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August 22 2013

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THE COMPUTER AGE; INFORMATION TECHNOLOGY (IT) AND LABORATORY COMMUNICATION

The Goal:

Building public health and clinical laboratory networks with a common shared computer coding language to optimize function of the Electronic Health Record (EHR)

APHL and CDC Informatics Team History

- Initially subject matter experts (SMEs) from public health volunteered for the initial project which started in 2007 with data collection
- Specimen Cross Mapping table started in 2009 and was organized as working group under a *CDC Community of Practice (CoP)* called Laboratory Messaging CoP (LabMCoP)
- CDC CoPs are *defined as “a group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise by interacting on an ongoing basis”*
- www.cdc.gov/phcommunities/index.html

APHL and CDC Informatics Team History

- **Gaps found with this process, not all types of laboratories represented, CDC LabHIT joined team 2 years ago and recognized need for clinical laboratory input**
- **Outreach by CDC LabHIT team to include representation of clinical laboratory personnel and appropriate clinical laboratory professional organizations**
- **CDC LabHIT team outreach includes outreach to individuals with specific expertise in clinical specialties such as Microbiology, Molecular diagnostics, Chemistry, Anatomic Pathology, and others to assist with decision making**

The Specimen Cross Mapping Table-A Tool for Harmonizing the Specimen Vocabulary Domain

History

- Public Health Laboratory Interoperability Project (PHLIP)
 - Funded by the CDC to optimize computer communication between clinical laboratories and public health laboratories
 - Associated Public Health Laboratories (APHL) Informatics Team working on project with assistance of subject matter experts (now includes CDC LabHIT)
 - Work involves harmonizing computer codes which describe a laboratory test
 - Health Level 7 (HL7)
 - Logical Observation Identifiers and Codes (LOINC)
 - Systematized Nomenclature of Medicine clinical terms (SNOMED-CT)

Health Level 7 code (what is it?)

- **A computer communication protocol developed in 1987**
 - Message or language to describe a laboratory order or a result
 - Structure is series of data element segments which completely describe the specimen and patient attached to it
 - Goal is to standardize between computer interfaces
- **All volunteer nonprofit organization (www.HL7.org)**
- **Globally used reference interface for exchange of healthcare information**
- **American National Standards Institute (ANSI) accredited in 1994**
- **Several 2.x versions in use which make interoperability between systems a challenge, also 3.x and RIM in the works**

LOINC (what is it?)

- **Logical observation identifiers and codes or LOINC**
- **Developed by the Regenstrief Institute at Indiana University and released in 1995**
- **Provides universal standard for reporting Lab results, previously a variety of local codes were used**
- **Scope is broader than laboratory results and many clinical observations are included such as vital signs, EKG findings, Glasgow coma scale....**
- **As of 2009, 54,000 codes in LOINC and 40,000 of these are lab related (the number continues to grow)**
- **CDC LabHIT is leading a team to develop a LOINC code set for ambulatory lab test orders**

SNOMED-CT (what is it?)

- **Systematized Nomenclature of Medicine-Clinical Terms**
- **Most comprehensive, multilingual clinical healthcare terminology in the world, over 300,000 concepts**
- **Originally developed in 1965 as Systematized Nomenclature of Pathology (SNOP) by pathologists at College of American Pathologists Committee on Nomenclature and Classification of Disease**
- **SNOP became SNOMED in 1974 and then was extended to other medical fields**
- **Owned/licensed in 2007 by International Health Terminology Standards Development Organization (IHTSDO), United States extension housed at National Library of Medicine (NLM)**

Specimen Cross Mapping Table (CMT)- The Specimen Vocabulary Domain and Gaps Discovered

- **Only 2 fields used to describe specimen and local terms used do not map to existing HL7 terminologies**
 - **Need more fields called SPM segments to fully describe type, type modifier, additives, collection method, site site modifier, others**
- **HL7 code tables limited and ambiguous, for example the common respiratory sample “Nasopharyngeal swab” could not be mapped to HL7 terminologies**
- **SNOMED nomenclature is missing terms**
- **Local terms do not match between different computer systems – needs standardization**

Specimen Cross Mapping Table- Solution To Gaps In Codes

- **Used SNOMED codes for medical terminology mapping of specimen related terms (following National Animal Health Network model-Veterinary medicine)**
- **Decision to use multiple HL7 SPM fields to fully characterize specimens**
- **Many different terms used by local laboratories so Specimen- CMT developed a “preferred term” with clear and complete definition with input of Public Health, National Library of Medicine, CDC team to be reviewed by appropriate clinical professional laboratory society experts**

More LabCoP Specimen Cross Mapping Table Working Group Solutions

- **Goal 1: to become national resource for curated specimen related vocabulary**
- **Goal 2: establishment of ongoing laboratory community review**
- **Goal 3: Long term content oversight structure needs to be developed and maintained as new laboratory tests are developed all the time and old laboratory tests become obsolete**
- **Goal 4: The table includes specimen collection methods which can be used to educate specimen collectors about correct/preferred types of specimens to be submitted, these will be used to develop a standardized collection manual with plans to provide to laboratories**

For more information please contact Centers for Disease Control and Prevention

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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