

Presentation for the
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Using Logical Observation Identifiers, Names and Codes

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Logical Observation Identifiers, Names and Codes - LOINC

- www.regenstrief.org/loinc/loinc.htm
- HL7 content - LOINC provides a universal ID for HL7 OBX field 3 (Observation ID)
- LOINC Fully Specified Names use a 6-axis model:
ANALYTE:PROPERTY:TIMING:SYSTEM:SCALE:METHOD
- Examples:
TRIGLYCERIDE:MCNC:PT:SER/PLAS:QN
GLUCOSE^1H POST 75 G GLUCOSE PO:MCNC:PT:UR:QN
TRIIODOTHYRONINE.FREE:SCNC:PT:SER/PLAS:QN
HEMOPHILUS INFLUENZA A AG:ACNC:PT:CSF:ORD

Example HL7 OBX content

OBR||^0020007|LYTES^Serum Electrolytes|

OBX|1|NM|NA^Serum Sodium|1|142|mmol/L|

OBX|2|NM|K^Serum Potassium|1|3.4|mmol/L|

OBX|3|NM|CL^Serum Chloride|1|117|mmol/L|

OBX|4|NM|CO2^Serum CO2|1|23|mmol/L|

Ideal: Standardization Through LOINC

OBX|2|NM|2823-3^Potassium^LN|1|3.4|mmol/L|

OBX|2|NM|2823-3^S. Potassium^LN|1|3.4|mmol/L|

OBX|2|NM|2823-3^K+ Serum^LN|1|3.4|mmol/L|

Reality: Legacy Lab Codes are Used

OBX|2|NM|**20002**^Potassium|1|3.4|mmol/L|

OBX|2|NM|**K**^S. Potassium|1|3.4|mmol/L|

OBX|2|NM|**6778**^K+ Serum|1|3.4|mmol/L|

What is Vocabulary Mapping?

- **The establishment of equivalence between a data element (concept, code or term) from one vocabulary or coding system to a data element or a set of data elements in another vocabulary or coding system, such that the meaning of the first data element is the same as the meaning of the second data element (or set of data elements)**

LOINC Mapping

- **Interface a customer's lab system to the 3M Clinical Data Repository (CDR)**
- **3M Healthcare Data Dictionary (HDD) uses LOINC lab result names as the standard**
- **Each LOINC lab result is a concept in the 3M HDD (with a Numerical Concept Identifier NCID), and the LOINC code is one of the representations of the concept**

LOINC Mapping

- **Customer's legacy lab system uses proprietary interface codes and display names**
- **All legacy codes for lab result that can be used in the HL7 transactions to the CDR are obtained from the customer, together with additional required information**
- **Each legacy code/name is mapped to a LOINC lab result concept already in the 3M HDD**
- **The legacy code and name are two additional representations for the concept**

LOINC Mapping

- **If there is no existing match in LOINC/HDD, a new concept (lab result) is created in the HDD and the customer's legacy code and name are added as additional representations**
- **A LOINC name (in the LOINC format) is created for the new concept and submitted to LOINC for inclusion in the next version**
- **When the LOINC code is assigned by LOINC, it will be added into the HDD as a representation for the new concept**

Example of Mapping in the Data Dictionary

NCID	Representation	Context
123	2823-3	LOINC Code
123	20002	Customer #1 Interface
123	Potassium	Customer #1 Display
123	K	Customer #2 Interface
123	S. Potassium	Customer #2 Display

Results of Mapping seen in the Clinical Data Repository

Customer	Sent by Customer	Stored in CDR
1	20002	123 (NCID)
2	K	123 (NCID)
3	2823-3	123 (NCID)
4	LB-000063	123 (NCID)
5	6778	123 (NCID)

Practical Issues for Consideration

- **Standard is fine – it is the use of the standard that needs attention**
- **Consistent selection of LOINC code**
 - Sufficient information
 - Guiding rules
- **Commitment to standard**
 - Update/version
- **Additional information**
 - Lab test panels
 - Grouping for decision support/aggregation queries