Advancing Laboratory Test Order Information Exchange Through Collaboration

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OBJECTIVE

Strengthen laboratory information exchange by developing a national standard to describe test names, test results, and units of measure.

BACKGROUND

The Clinical Laboratory Improvement Advisory Committee (CLIAC) recognized the need for standardizing test names across laboratories to be able to exchange laboratory test data by electronic health systems. As a result of this need, the Standards and Interoperability (S&I) Framework Laboratory Tiger Team developed a set of business rules for laboratory tests to guide the selection of universal names and abbreviations which could be more commonly understood by providers and patients.

As a part of the vision described by in the Interoperability Roadmap by the Office of the National Coordinator for Health IT (ONC), federal partners should collaborate and advance laboratory data interoperability, including specifications to ensure compliance with CLIA, state and local quality laboratory regulations and the establishment of requirements for common application programming interfaces that meet CLIA requirements for laboratory test ordering and reporting[1].
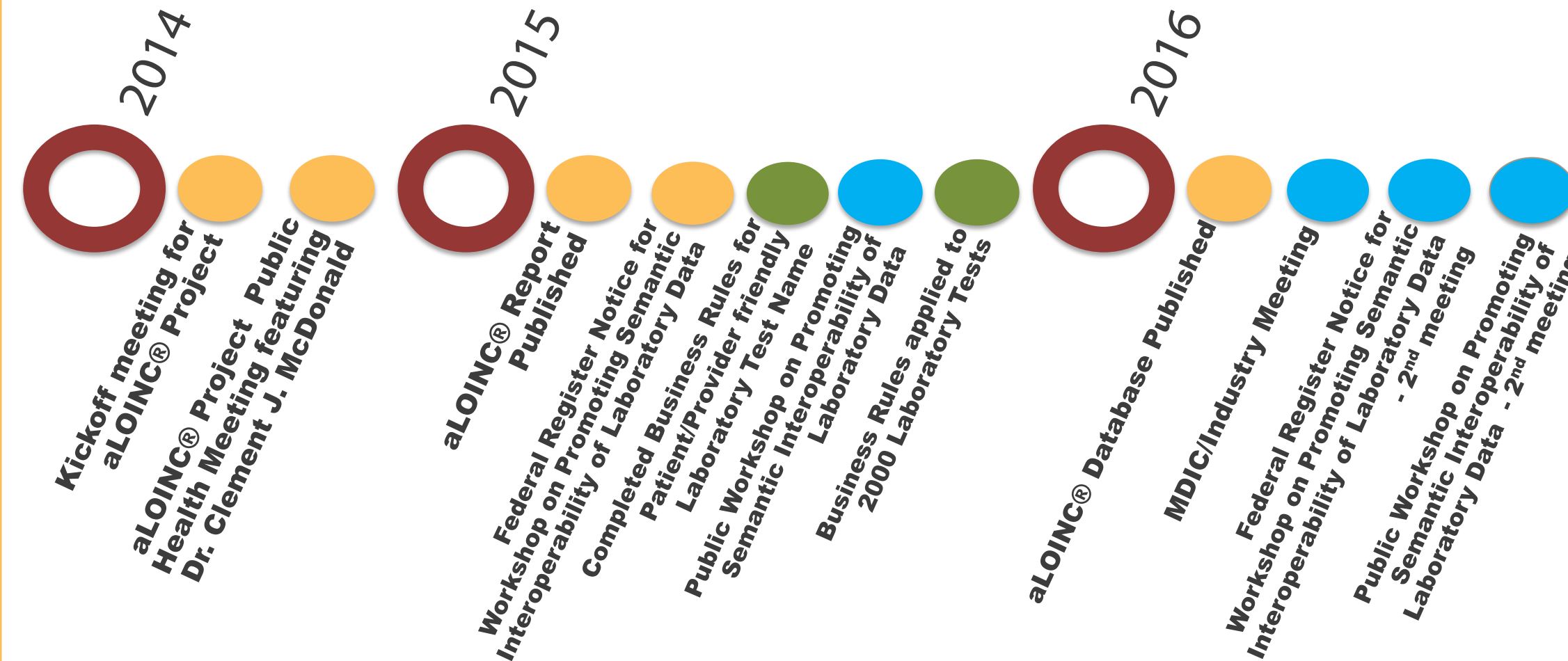
Health IT certification criteria adopted by ONC includes the adoption of standards (e.g. LOINC® and SNOMED-CT ®[2].

METHODS

The Laboratory Coding Standards Team of the CDC Division of Laboratory Systems has made concerted efforts in identifying opportunities to engage with national stakeholders on federal guidance and policy issues that will impact the future of state and local public health informatics in the area of semantic interoperability. These opportunities include:

- Logical Observation Identifiers Names and Codes (LOINC®) Clinical Laboratory Test Menu Coding Project: two national reference laboratories provided a comparison of the top 500 tests performed at their facilities to a combined list of the Regenstrief Institute's Universal Order Codes and Observations from LOINC® duplicate and unused codes were removed; remaining codes were divided into two spreadsheets (single tests and panels) which make up the aLOINC® Common Order Codes Value Set.

- LOINC® Common Name Project: business rules for the selection of a universal name and abbreviations were applied to >1,000 laboratory tests.

- FDA/CDC/NLM Workshop on semantic interoperability promotion: held on September 28, 2015, clinicians, electronic health record (EHR)/laboratory information System (LIS) vendors, public health officials, and laboratorians gathered to discuss ways to promote pathways to greater adoption of interoperable standardized codes and terminologies.

Timeline: LOINC®Clinical Lab Test Menu Coding/LOINC®Common Name/ FDA-CDC-NLM Workshop on Semantic Interoperability Promotion Activities

2014
- Kickoff meeting for aLOINC® Project
- aLOINC® Project Public Health Meeting featuring Dr. Clement J. McDonald

2015
- aLOINC® Report Published
- Federal Register Notice for Workshop on Promoting Semantic Interoperability of Laboratory Data
- Completed Business Rules for Patient/Provider friendly Laboratory Test Name
- Public Workshop on Promoting Semantic Interoperability of Laboratory Data
- Business Rules applied to 2000 Laboratory Tests

2016
- aLOINC® Database Published
- MDIC/Industry Meeting
- Federal Register Notice for Workshop on Promoting Semantic Interoperability of Laboratory Data - 2nd meeting
- Public Workshop on Promoting Semantic Interoperability of Laboratory Data - 2nd meeting

RESULTS

The LOINC®Clinical Laboratory Test Menu Coding project resulted in a common order code value set which is now included in the LOINC® database for laboratory coders to download. The value set is available on the LOINC®s LIS test directory, currently used by clinical and public health laboratories.

The LOINC®common name project resulted in a model database with long and short names for laboratory test results that is more patient and provider friendly to promote greater collaboration in healthcare decision making.
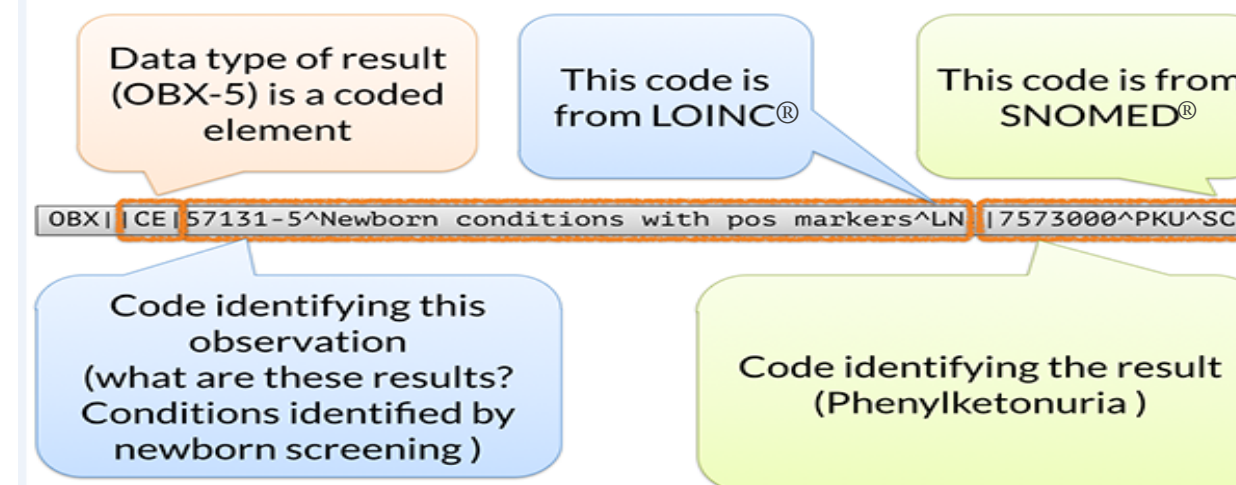
FDA/CDC/NLM Workshop initiated the process to include manufacturers in the selection of laboratory test codes and discuss the utility of promoting greater adoption of interoperable codes and terminologies. A follow-up workshop has been scheduled for November 2016.
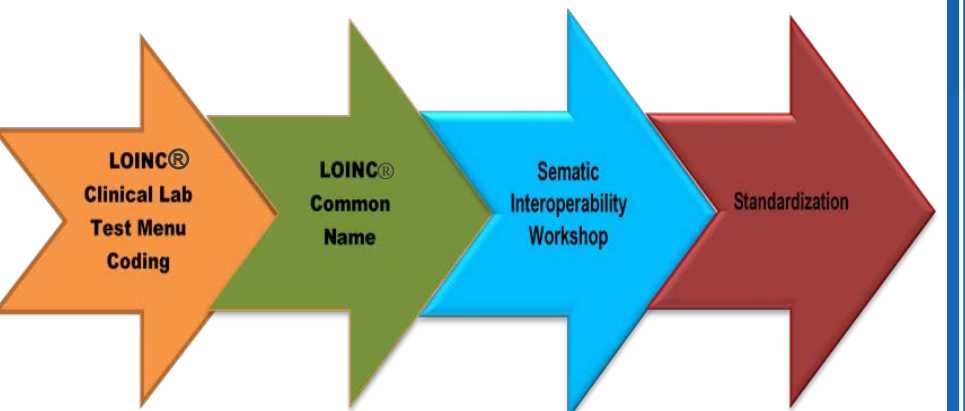
CONCLUSIONS

Future collaboration/project goals include:

- To establish a set of standardized laboratory test names and codes that will be used on the reference report within an EHR to enhance the understanding of test results by healthcare providers and patients.

- To develop pilot projects to identify potential and sustainable processes that will ensure complete and consistent LOINC® and Systematized Nomenclature of Medicine (SNOMED®) coding across laboratory test orders and results.

Interoperability provides the building blocks that are required for meaningful use of medical information across disparate systems, through adherence to a common and consistent vocabulary, code sets, values sets, and semantic.

Data type of result (OBX-5) is a coded element

This code is from LOINC®

This code is from SNOMED®

OBX | CE | 57131-5^Newborn conditions with pos markers^LN | 7573000^PKU^SCT

Code identifying this observation (what are these results? Conditions identified by newborn screening)

Code identifying the result (Phenylketonuria)

ACTIVITIES PROMOTING STANDARDIZATION

LOINC® Clinical Lab Test Menu Coding → LOINC® Common Name → Sematic Interoperability Workshop → Standardization

[1]Connecting Health and Care for the Nation A Shared Nationwide Interoperability Roadmap
https://www.healthit.gov/policy-researchers-implementers/interoperability

[2]Health IT Regulations: Meaningful Use Regulations
http://www.healthit.gov/policy-researchers-implementers/meaningful-use-regulations

Center for Surveillance, Epidemiology, and Laboratory Services

Division of Laboratory Systems