



Interoperability MATTERS

an initiative of The Sequoia Project

Data Usability Workgroup

April 3, 2025

Agenda

- Welcome, Introductions, Membership, Agenda - Bill Gregg, MD– 5 minutes
- Data Usability Implementation Guide V2.0 - Adam Davis, MD — 10 min
- Data Usability Taking Root Community of Practice Update – Didi Davis – 10 minutes
- HL7 Implementation-A-Thon Overview (March 19 - 20, 2025) – 20 minutes
- Reminders – 5 minutes
- Workgroup Discussion & Q&A – Didi Davis, Co-chairs and Workgroup – 10 minutes



Adam Davis, MD, Co-chair
Sutter Health



Bill Gregg, MD, Co-chair
HCA Healthcare



Didi Davis, VP
The Sequoia Project

Workgroup Members

392 Organizations

490 Participants



Healthcare Providers



Public Health



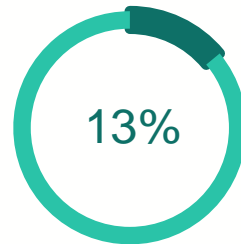
Consumer/Patient



Standards Developer



HIN/HIEs



Federal, State, Local Government



Health Plan/Payer



Health IT Developers



Other



Sequoia Members Shape Interoperability for the Public Good



Sequoia Members Shape Interoperability for the Public Good

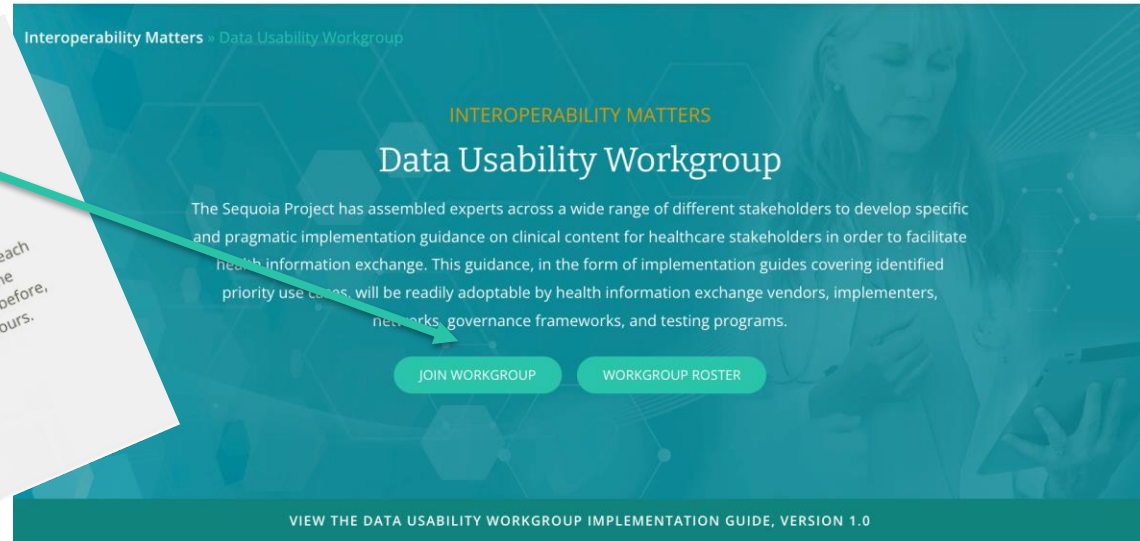
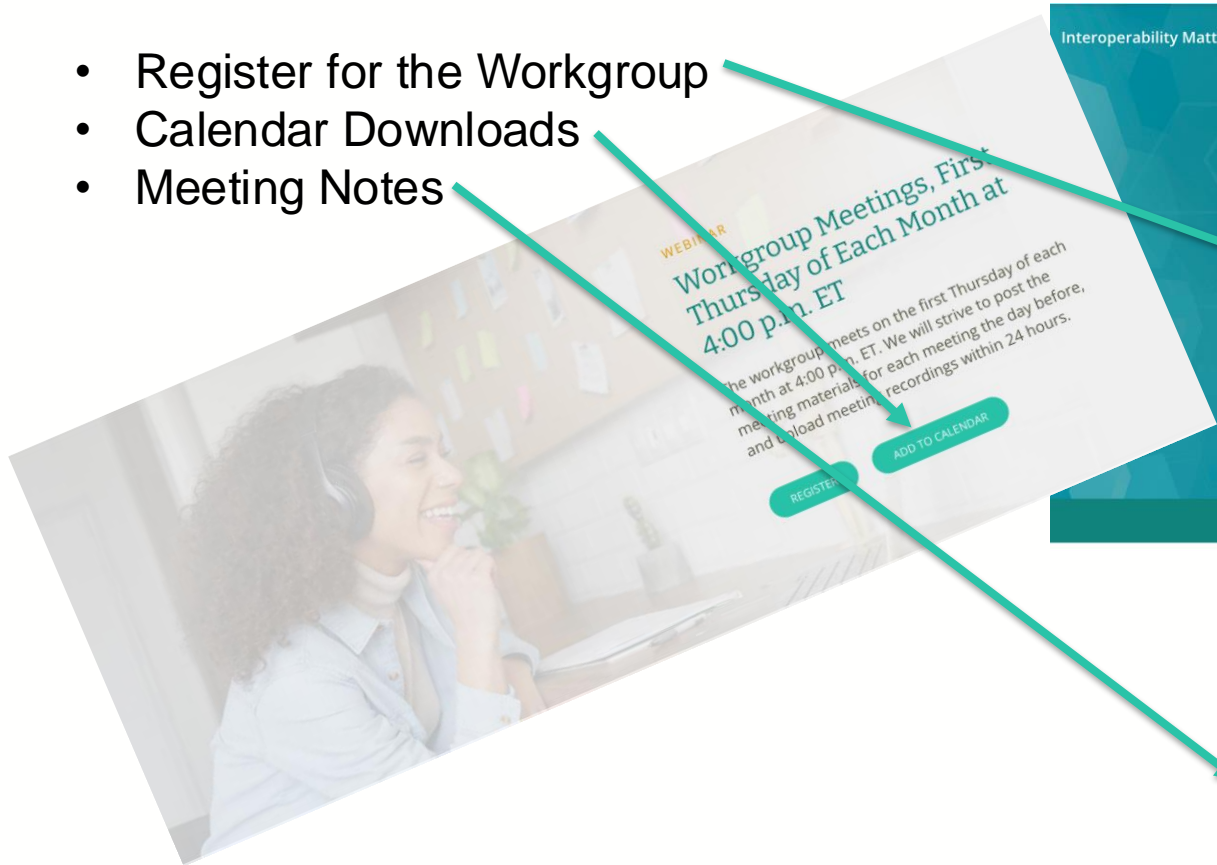


Sequoia Members Shape Interoperability for the Public Good



Website, Meeting and Workgroup Logistics

- Register for the Workgroup
- Calendar Downloads
- Meeting Notes



<https://sequoiaproject.org/interoperability-matters/data-usability-workgroup/>
Interopmatters@sequoiaproject.org

Meeting Logistics and Timeline

- In 2025, the Data Usability Workgroup will begin a quarterly meeting cadence on the following dates:
 - ~~February 6~~
 - ★ April 3
 - August 7
 - October 2
- This will allow industry to familiarize themselves with the new V2.0 before we get too ahead of ourselves for the expected **18-month** adoption expectations.
- Calendar invites are available [here](#) for download

Data Usability Implementation Guide V2.0

DUWG Implementation Guide Version 2.0 – Summary

Key changes in this final publication included:

- Added guidance for receiving systems in addition to sending systems
- Advancing the baseline requirements from USCDI V1 (Problem, Allergy, Medications, Immunizations ONLY) to all data classes within USCDI V3
 - ASTP/ONC has updated the USCDI standard in § 170.213 by adding **USCDI Version 3 (v3)** and establishing a **January 1, 2026, expiration date for USCDI v1 (July 2020 Errata)** for purposes of the Certification Program.
- Expanded guidance to be technology agnostic with added requirements for HL7® FHIR®, HL7 v2.x and HL7 C-CDA across the topic categories
- Added an additional topic category for laboratory



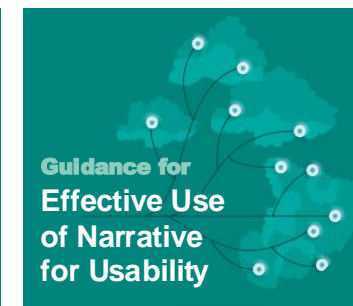
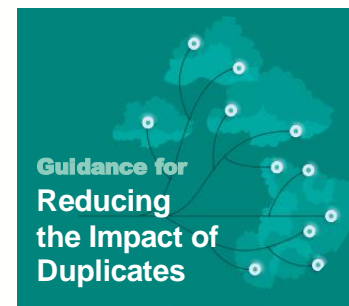
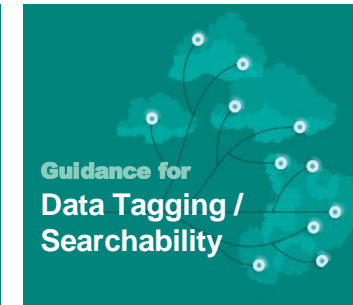
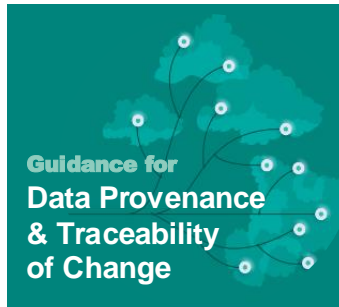
USCDI Version 3 – Required in Base EHRs by 2026

Allergies and Intolerances <ul style="list-style-type: none"> Substance (Medication) Substance (Drug Class) Reaction 	Clinical Tests <ul style="list-style-type: none"> Clinical Test Clinical Test Result/Report 	Health Status/ Assessments <ul style="list-style-type: none"> Health Concerns → Functional Status ★ Disability Status ★ Mental / Cognitive Status ★ Pregnancy Status ★ Smoking Status → 	Patient Demographics/ Information <ul style="list-style-type: none"> First Name Last Name Middle Name (Including middle initial) Suffix Previous Name Date of Birth Date of Death → Race Ethnicity Tribal Affiliation ★ Sex Sexual Orientation Gender Identity Preferred Language Current Address Previous Address Phone Number Phone Number Type Email Address Related Person's Name ★ Related Person's Relationship ★ Occupation ★ Occupation Industry → 	Procedures <ul style="list-style-type: none"> Procedures SDOH Interventions Reason for Referral ★
Assessment and Plan of Treatment <ul style="list-style-type: none"> Assessment and Plan of Treatment SDOH Assessment 	Diagnostic Imaging <ul style="list-style-type: none"> Diagnostic Imaging Test Diagnostic Imaging Report 			Provenance <ul style="list-style-type: none"> Author Organization Author Time Stamp
Care Team Member(s) <ul style="list-style-type: none"> Care Team Member Name Care Team Member Identifier Care Team Member Role Care Team Member Location Care Team Member Telecom 	Encounter Information <ul style="list-style-type: none"> Encounter Type Encounter Diagnosis Encounter Time Encounter Location Encounter Disposition 	Immunizations <ul style="list-style-type: none"> Immunizations 		Unique Device Identifier(s) for a Patient's Implantable Device(s) <ul style="list-style-type: none"> Unique Device Identifier(s) for a patient's implantable device(s)
Clinical Notes <ul style="list-style-type: none"> Consultation Note Discharge Summary Note History & Physical Procedure Note Progress Note 	Goals <ul style="list-style-type: none"> Patient Goals SDOH Goals 	Laboratory <ul style="list-style-type: none"> Test Values/Results Specimen Type ★ Result Status ★ 		Vital Signs <ul style="list-style-type: none"> Systolic blood pressure Diastolic blood pressure Heart Rate Respiratory rate Body temperature Body height Body weight Pulse oximetry Inhaled oxygen concentration BMI Percentile (2 - 20 years) Weight-for-length Percentile (Birth - 24 Months) Head Occipital-frontal Circumference Percentile (Birth - 36 Months)
	Health Insurance Information ★ <ul style="list-style-type: none"> Coverage Status ★ Coverage Type ★ Relationship to Subscriber ★ Member Identifier ★ Subscriber Identifier ★ Group Number ★ Payer Identifier ★ 	Medications <ul style="list-style-type: none"> Medications Dose ★ Dose Unit of Measure ★ Indication ★ Fill Status ★ 	Problems <ul style="list-style-type: none"> Problems SDOH Problems/Health Concerns Date of Diagnosis Date of Resolution 	

★ New Data Classes and Elements → Data Element Reclassified

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Community of Practice Update

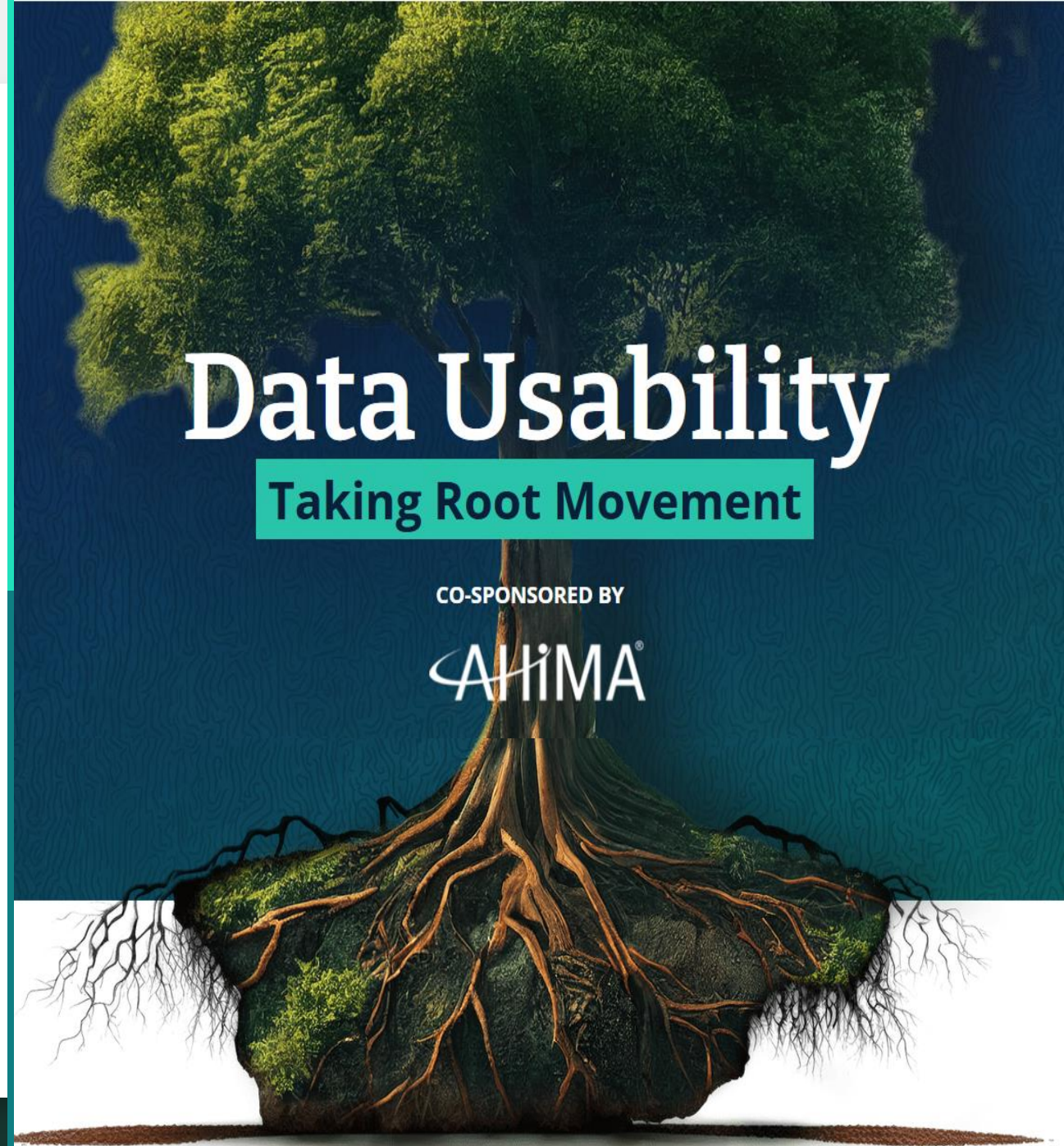
Next Meeting April 23, 2025

Data Usability

Taking Root Movement

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What is the difference between the Data Usability Taking Root Movement and the Data Usability Workgroup?



Data Usability Workgroup
Develops Guidance



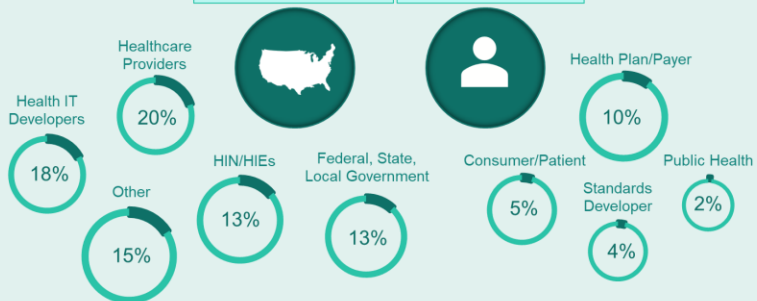
Taking Root Movement
Implements Guidance

An initiative co-sponsored by **AHIMA**

Deployment Guidance

Development Feedback

268 Organizations | 443 Participants



Community of Practice



Roundtables



Technical Assistance



Testing Platform

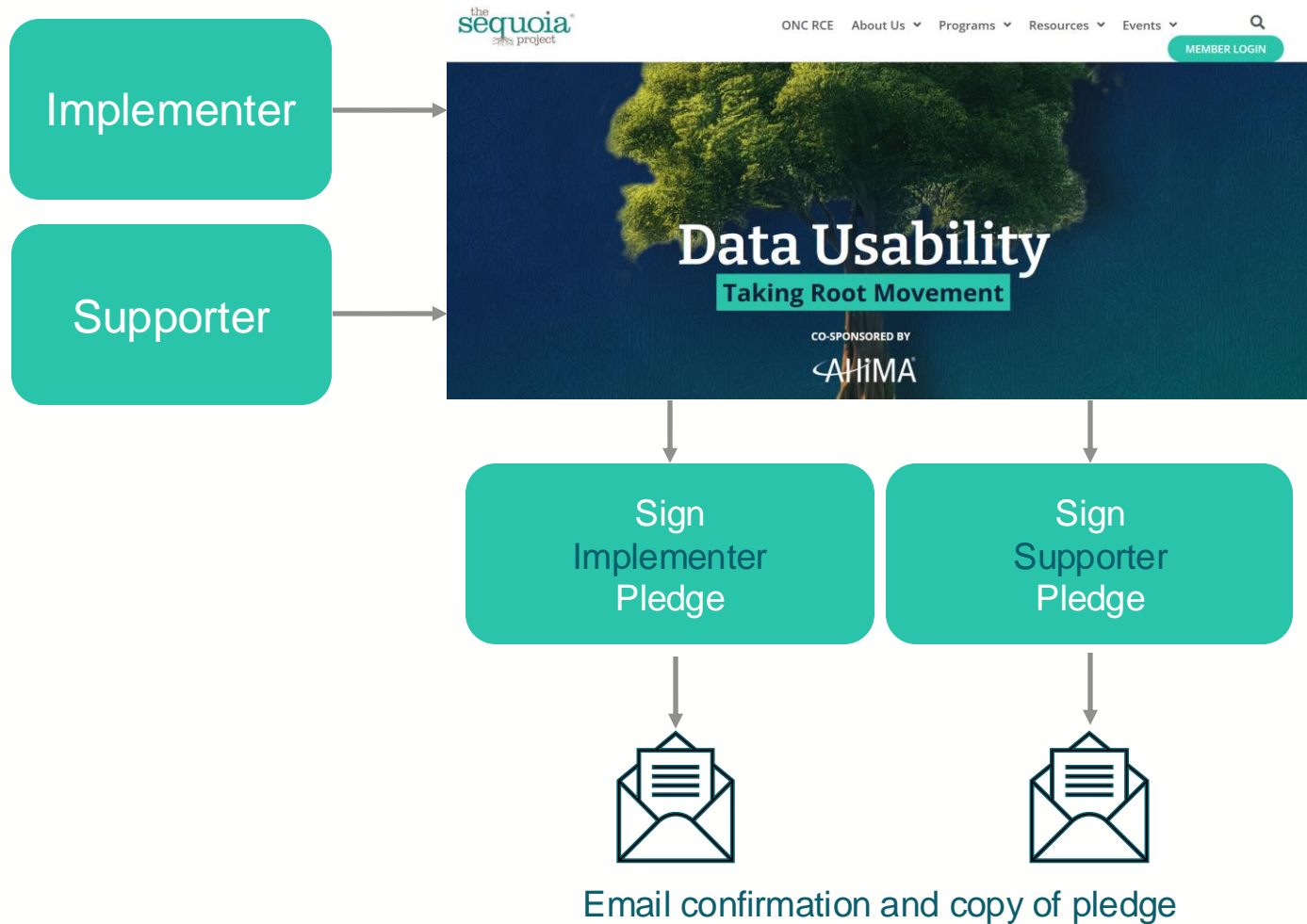


In-person Convenings

Participation Levels



Pledge Process – Open NOW!



Those who have pledged will have password-protected access to Data Usability Taking Root Resources on the Sequoia website

Taking Root Meetings

- Jan 22 2pm ET: Office Hour
- Feb 26 2pm ET: Community of Practice Roundtable
- Mar 26 2pm ET: Community of Practice Roundtable
- 📍 Apr 23 2pm ET: Community of Practice Roundtable
- May 28 2pm ET: Community of Practice Roundtable
- Jun 25 2pm ET: Community of Practice Roundtable
- Jul 23 2pm ET: Community of Practice Roundtable
- Aug 27 2pm ET: Community of Practice Roundtable
- Sep 24 2pm ET: Community of Practice Roundtable
- ★ Oct 12 AHIMA25 Conference
- Oct 22 2pm ET: Community of Practice Roundtable
- ★ Nov 19 Sequoia Project Annual Meeting



Taking Root Supporters

OVERARCHING AIM IMPLEMENTATION OF DUIG V1.0

PLANNED ACTIVITIES

OUTPUTS

OUTCOMES

1.

1.

1.

2.

2.

2.

3.

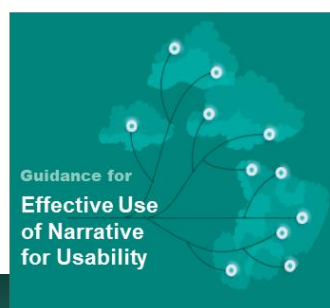
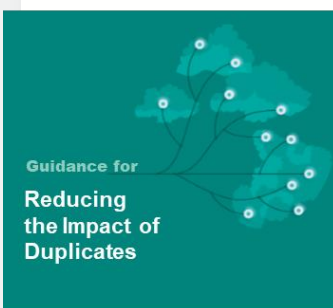
3.

3.

Identify what your organization will do to advance the aim.

Identify the direct products of the activities and estimated timing; include metrics.

Identify how these outputs will advance the aim; include metrics.



Organizations that have pledged to participate!

AHIMA



CIVITAS
Networks for Health

Clinical
Architecture

commonwell
HEALTH ALLIANCE

DirectTrust

Epic

HAWAII
PACIFIC
HEALTH

HEALTH
GORILLA



Kno2



MedAllies

MEDITECH

MyD

Netsmart

nextgen
healthcare

opala

Optum

ORACLE
Health

patientory
association

SCHIO
Serving Communities Health
Information Organization
Community Interoperability
Since 1996

smile
DIGITAL HEALTH

surescripts

THSA
TEXAS HEALTH SERVICES AUTHORITY

CALL to ACTION:

- Consider Pledging to be a Supporter or Implementer of the Data Usability Taking Root Initiative
- Share/Socialize this information internally to our organization or with your partners/peers

Contact Us

Thank you for your interest in The Sequoia Project's new **Data Usability Taking Root** Initiative.



If you would like to get in touch you can reach us at:



takingroot@sequoiaproject.org

To join the Community of Practice Roundtables, please sign up as a Supporter, Implementer or Sponsor here:

<https://sequoiaproject.org/data-usability-taking-root-movement/>

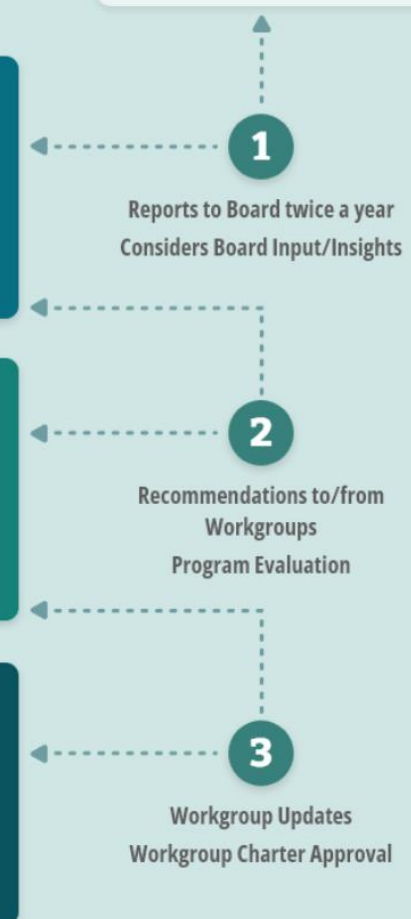
Laboratory Topic Highlights Presented to HL7 Implementation-A-Thon March 19 – 20, 2025

Your voice matters

You have an impact at all levels within the Interoperability Matters initiative.

- Virtual meetings 3x/year
- Decision making
- Program evaluation
- Prioritization
- Strategic planning
- Workgroup recruiting
- Cross-Workgroup Intersecting

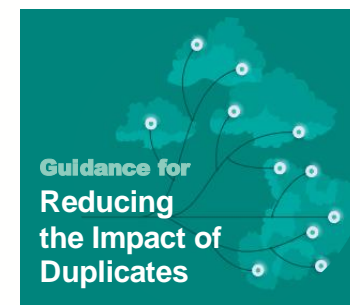
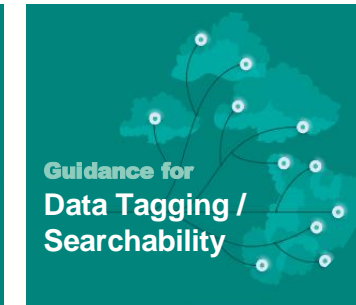
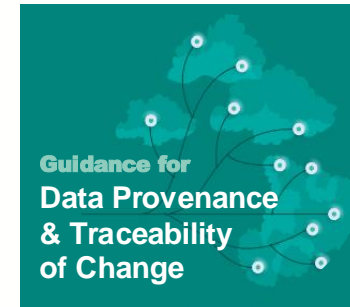
- Virtual meetings 2-3x/year
- Voting workgroup charters
- Focus on workgroup updates
- Educational programming



Data Usability Implementation Guide Version 2.0 Laboratory Addition

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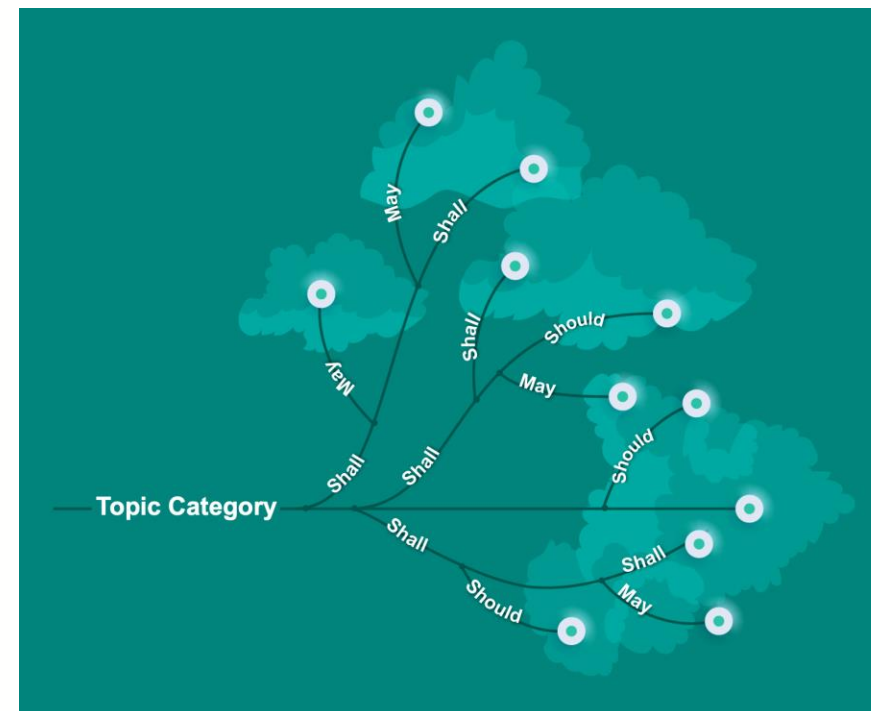


Use Cases

- Provider-to-provider health information exchange
- Provider-to-public health agency information exchange
- Healthcare entity-to-consumer information exchange

Section / Chapter Structure

- Problem statement
- Use Cases
- Existing Published Work
- Guidance
- Future Efforts



Laboratory Tiger Team Launch – October 2023

- Open call for Participation to workgroup members who are Laboratory subject matter experts and consumers of lab data
 - Ordering Physicians
 - Pathologist
 - Standards Development Organizations (i.e. HL7, SHIELD, LOINC, etc.)
 - Laboratory Information Systems
 - Reference Laboratory Stakeholders
 - Hospital and Health System Users
- **Tiger Team will meet monthly through June 2024**
- Purpose of the Tiger Team – work on Lab focused pain points to advance sending and receiving system guidance to improve usability for all stakeholders

Laboratory Interoperability

Problem Statement

- The current state of laboratory results interoperability across the health care community is highly variable.
- Different levels of standards adoption by clinical laboratories and health care facilities coupled with loss of information during transmission of discrete health data are contributing factors.
- DUIG V1.0 published a preliminary list of high value laboratory orders and results.
- Clinical laboratory data are impacted by one or more regulatory, accreditation, public health and HIT related regulations with specific technical requirements are not always aligned.

DUIG 2.0 First Baby Step - What can you do today?

Improve laboratory data interoperability by following this paradigm:

- **Electronic:** Paper doesn't cut it anymore. Orders should be electronic. Practices continue to print paper for specimen orders.
- **Discrete:** PDF & Text blob are physician readable but not easily digested by computers. Facilities are encouraged to review how laboratory data are stored, exchanged and used within their HIT platforms.
- **Encoded:** Proper and consistent encoding of laboratory orders and resulting tests, and qualitative results helps facilitate computer usability, increases semantic meaning and reduces clinician burden & errors.
- **Messaged:** Lab data transactions may occur from an EHR to another entity via HL7 CDA document format, HL7 FHIR or other HL7 V2 interface. The content and discrete encoding should be preserved for all users. Receiving systems should maintain structure and meaning of lab tests for all discrete data elements (i.e. single hemoglobin test result may be stored in a database of results and values, the specimen type, units, reference range/interval and the order are all important details to provide complete meaning and use of the result in context.
- **Maintained:** All systems must be maintained and kept up to date. (new tests (COVID))

Laboratory Interoperability

Use Cases

- **Provider to Provider – LIS results to Provider’s EHR**
 - Labs (sending system) are considered a provider when they share results with provider and hospital EHRs, HIEs, Public Health, and other laboratory LISs directly.
- **Provider to Provider – Provider’s EHR to another Provider’s EHR**
 - Shares lab results via an interface directly, HIE or HIN.
 - Shares lab results in FHIR Resources or CDA documents. Receiving systems must ensure lab orders and results are assembled/structured appropriately. Implementers will need to determine which result values are clinically equivalent to graph or trend lab data or enable accurate clinical decision support and AI applications.
 - Sending systems should consider format and readability of lab results contain in a CDA document to ensure usability for the receiving consumer.
- **Provider to Public Health Agency**
 - A provider receives lab results into their EHR from a laboratory, and is required to report to public health by law using Electronic Case Reporting specifications.

Laboratory Interoperability

Existing Work

- [USCDI V3](#) - V3 - (Test, Values/Results, Specimen Type, Results Status).
- [USCDI V4](#) - (Adds Result Reference Range, Result Unit of Measure, Result Interpretation, Specimen Source Site, Specimen Identifier, and Specimen Condition Acceptability).
- [USCDI V5](#) - (Adds Laboratory Order, Procedure Order, and Provenance Author and Author Role).
- [HL7 Version 2 Laboratory Value Set Companion Guide, Release 2 - US Realm](#)
- [HL7 Version 2.5.1 Laboratory Orders Interface \(LOI\)](#)
- [HL7 Version 2.5.1 Laboratory Test Compendium Framework \(eDOS\)](#)
- [HL7 Version 2.5.1 Laboratory Results Interface \(LRI\), Edition 5](#)
- [HL7 Version 2.5.1 Electronic Lab Reporting \(ELR\) to Public Health \(R1 and Clarification Document\)](#)
 - [CDC How to Implement ELR](#)
- Incorporating CLIA Requirements
 - [Part 493 - Laboratory Requirements](#)
 - [System Safety within Laboratory Data Exchanges Report](#)

US-CLIA Elements mapping to HL7 data elements

- HL7 Orders and Observations Workgroup created this [Confluence Page](#) as a resource
 - Goal of this page is to have a one-stop-shop for understanding where in each HL7 product family the element can be found.
 - *CLIA Element*
 - *CLIA Reference*
 - *Description*
 - *USCDI*
 - *Code System*
 - *V2*
 - *CDA*
 - *FHIR*
 - *Open Issues*

Laboratory Interoperability Guidance

- **Performing Laboratory to EHR: Sending System SHALL** exchange exchange Clinical Laboratory and/or Pathology Data available in electronic form with discrete data elements.
 - The discrete data elements **SHALL** conform to the [HL7 Version 2.5.1 Laboratory Results Interface \(LRI\)](#), Edition 5 Implementation Guide.
 - The performing laboratory (sender) currently sharing data electronically to provider EHRs (receiving system) **SHALL** include LOINC test mapping at most appropriate detailed granularity from the originating Lab Information System
 - **Results:**
 - Result Status **SHALL** be included
 - Result Value **SHALL** be included
 - Organisms **SHALL** be encoded with SNOMED CT Organism hierarchy codes, where available
 - Qualitative Result Values **SHALL** be encoded with SNOMED CT Qualifier hierarchy codes, where available
 - Unites of Measure **SHALL** be included, where applicable.
 - Unites of Measuer **SHALL** be encoded using The Unified Code for Unites of Measure (UCUM)
 - Reference Range **SHALL** be supported where applicable
 - Result Interpretation **SHALL** be supported where appliable and IF included, Result Interpretation **SHOULD** be encoded using SNOMED-CT where available, or HL7 Observation Interpretation Table HL70078 codes.
 - Result Date **SHALL** be included, and Result Time **SHOULD** be included

Laboratory Interoperability Guidance - continued

- **Performing Laboratory to EHR: Sending System SHALL** exchange exchange Clinical Laboratory and/or Pathology Data available in electronic form with discrete data elements.
 - **Specimen:**
 - Specimen Identifier **SHALL** be included.
 - Specimen Type **SHALL** be included and **SHOULD** be encoded using SNOMED CT Specimen Hierarchy Codes.
 - Specimen Type Qualifiers **SHOULD** be included as applicable and **SHOULD** be encoded using SNOMED CT Qualifier Hierarchy Codes.
 - Specimen Source Site **SHOULD** be included and **SHOULD** be encoded using SNOMED CT Anatomic Body Site Hierarchy Codes.
 - Specimen Source Site Qualifiers **SHOULD** be included as applicable and **SHOULD** be encoded using SNOMED CT Qualifier Hierarchy Codes.
 - Specimen Collection Method **SHOULD** be included and **SHOULD** be encoded using SNOMED CT Procedure Hierarchy Codes.
 - Specimen Condition **SHALL** be included where applicable; if included it **SHOULD** be encoded using SNOMED CT codes, where available, or HL7 Specimen Condition Table HL70490 codes.
 - **Sending System SHALL** include provenance information in accordance with CLIA Mandatory Reporting requirements as detailed in [HL7 Version 2.5.1 Laboratory Results Interface \(LRI\) Implementation Guide, Section 14 \(R1 STU R4 and Edition 5\)](#).

Laboratory Interoperability Guidance - continued

- **EHR/HIE/Public Health - Receiving systems** - When sending out laboratory data received from other organizations, receiving systems **SHALL** retain original discrete data and the associated encoding received from the sending system.
 - Laboratory (Tests) Results **SHALL** be included, and **SHOULD** be coded to LOINC, where available, to conform to [USCDI V1](#). The Laboratory Test Name **SHALL** be included.
 - LOINC test mapping **SHOULD** be coded to conform to [USCDI V3](#) at the most appropriate detailed granularity from the originating Laboratory Information System.
 - Sending systems, when sending lab data received from an external organization (i.e. re-serving), **SHOULD** maintain and send the same mapped codes that were received.
 - Downstream receiving and consuming system: Utilize value sets as a tool for consuming systems to identify groupings of different laboratory codes depending on use case.

Laboratory Interoperability Guidance - continued

- **EHR/HIE/Public Health - Receiving systems** - When sending out laboratory data received from other organizations, receiving systems **SHALL** retain original discrete data and the associated encoding received from the sending system.
 - **Results:**
 - Result Status **SHOULD** be included and **SHOULD** conform to [USCDI V3](#) using the HL7 Observation Result Status value set as defined in LRI Edition 5 in version 2 messages, in [Consolidated CDA](#) when using CDA, or in the [US Core Lab Observation Profile](#) when using FHIR.
 - When the Receiving System is transmitting this result to another, the original value for Result Status **SHOULD** be included, where possible.
 - Result Value **SHOULD** be included and, when included, **SHOULD** be coded to conform to [USCDI V3](#).
 - Organisms, where included **SHALL** be coded with SNOMED CT Organism hierarchy codes, where available.
 - Qualitative Result Values where included **SHALL** be coded with SNOMED CT Qualifier hierarchy codes, where available.
 - Numeric Result Values, where included and as applicable **SHALL** include Units of Measure.
 - Units of Measure **SHALL** be included, where applicable. Units of Measure **SHALL** be encoded using The Unified Code for Units of Measure (UCUM).
 - Result Reference Range **SHALL** be included, if applicable and, when included, **SHOULD** be coded to conform to [USCDI V4](#).
 - Result Interpretation **MAY** be included and, when included, **SHOULD** be coded to conform to [USCDI V4](#).

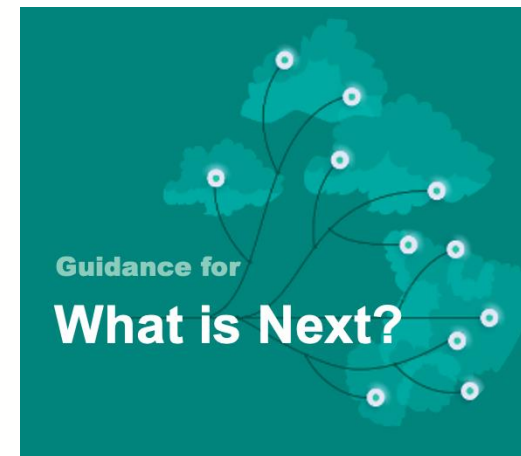
Laboratory Interoperability Guidance - continued

- **EHR/HIE/Public Health - Receiving systems** - When sending out laboratory data received from other organizations, receiving systems **SHALL** retain original discrete data and the associated encoding received from the sending system.
 - **Specimen:**
 - Specimen Type **SHOULD** be included and, when included, **SHOULD** conform to [USCDI V3](#). Specimen Type **SHOULD** be encoded with SNOMED CT Specimen Hierarchy Codes.
 - Specimen Type Qualifiers **SHOULD** be included as applicable and **SHOULD** be encoded using SNOMED CT Qualifier Hierarchy Codes.
 - Specimen Source Site **MAY** be included and, when included, **SHOULD** conform to [USCDI V4](#). Specimen Source Site when included **SHOULD** be encoded with SNOMED CT Body Site Hierarchy Codes.
 - Specimen Source Site Qualifiers **SHOULD** be included as applicable and **SHOULD** be encoded using SNOMED CT Qualifier Hierarchy Codes.
 - Specimen Collection Method **SHOULD** be included and, when included **SHOULD** be encoded using the SNOMED CT Procedure Hierarchy Codes and conform to [USCDI V3](#).
 - Specimen Identifier **SHOULD** be included and, when included, **SHOULD** conform to [USCDI V4](#). The Organization assigning the Specimen Identifier **SHALL** be included.
 - Specimen Condition Acceptability **MAY** be included and, when included, **SHOULD** conform to [USCDI V4](#).
 - When the Receiving System is transmitting this result to another, the original value for Specimen Condition Acceptability **SHOULD** be included.

Laboratory Interoperability Guidance - continued

- **EHR/HIE/Public Health - Receiving systems** - When sending out laboratory data received from other organizations, receiving systems **SHALL** retain original discrete data and the associated encoding received from the sending system.
 - **Provenance (Please reference the Provenance guidance requirements in section 1.4 of the DUIG V2.0)**
 - Sending systems **SHALL** send Provenance elements.
 - Receiving systems **SHALL** retain Provenance of the Sending System for Clinical Laboratory and/or Pathology Data. Original performing laboratory location in conformance with [USCDI V3](#).
 - This Provenance **SHALL** be taken from the values specified by the Sending System in accordance with CLIA Mandatory Reporting requirements as detailed in [HL7 Version 2.5.1 Laboratory Results Interface \(LRI\) Implementation Guide, Section 13](#).
 - **Sending or Provider Organizations SHALL** implement the requirements outlined in Section 2.5.1 of the [JDCWG C-CDA Whitepaper](#) Guidance, as applicable, where the laboratory test lifecycle is described in detail both as a specific example, but also as a template for other order types.
 - The HL7 [C-CDA 2.1 Companion Guide](#) also has useful guidance about laboratory tests, including examples, in Sections 5.2.5 Order, 5.2.17 Plan of Treatment (for pending orders), and 5.2.11 Result (for pending and completed results).

Laboratory Interoperability Future Efforts



- Test Methods (reflected in lab order or result name)
- Device and Test Kit Device Identifiers
- Proposed Expansion of Existing or Addition of New Use Cases
 - EHR to Reference Lab messaging for Laboratory Orders
 - Healthcare Entity to Consumer
 - Provider to Public Health
- Advance minimum set of labs
- Development of recommended value sets for grouping labs Incorporate more and expand guidance for Laboratory Test Lifecycle from [JDCWG C-CDA Whitepaper section 2.5.1](#) and [2.5.2](#)
- [Guidance for the translation of lab result codes and nomenclature](#)

Laboratory Interoperability

Appendix A – High Priority Lab Results

- **Blood Chemistry: Chemistry Results**
- **Urine Chemistry**
- **Coagulation**
- **Endocrinology**
- **Hematology**
- **Infectious Disease**
- **Lipids**
- **Additional Prenatal labs**
- **Additional high priority results for discrete exchange**

It's time for data usability guidance to **take root!**

Discussion/Questions

Reminders

Save the Date – AHIMA 2025 Conference



Data Usability Work Group

For more information:

www.sequoiaproject.org/interoperability-matters/data-usability-workgroup/



(571) 327-3640



Interopmatters@sequoiaproject.org

Convene



Collaborate



Interoperate



**Thank You for your support of
Interoperability Matters!**