Interoperability MATTERS

an initiative of The Sequoia Project

Data Usability Work Group

August 12, 2021

the sequoia project

Agenda

- Welcome, Introductions, Membership, Agenda - Dr. David Camitta – 5 minutes
- Website, Meeting and Workgroup Logistics & Collaboration Forum – Dr. Bill Gregg - 5 Minutes
- Topic Focus: Effective Uses of Codes in Shared Information - Didi, Bill, David, John, Russell – 20 minutes
- Topic Focus: Reduce Impact of Duplicates - Didi, Bill, David, John, Russell – 20 minutes
- Phase 2 Implementation Guide Structure and Development Process – Didi - 5 minutes
- Questions/Next Steps – 5 minutes

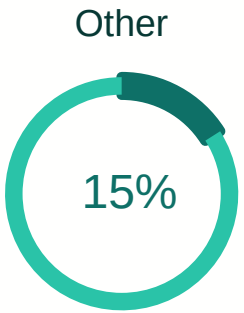
David Camitta, Co-chair
Anthem, Inc.

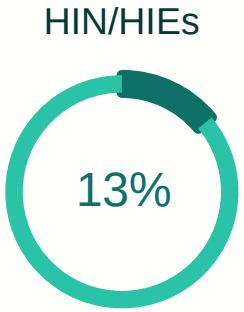
Bill Gregg, Co-chair
HCA Healthcare

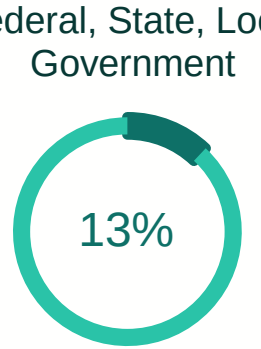
Didi Davis, VP
The Sequoia Project

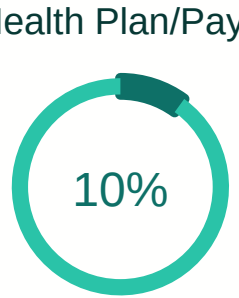
Workgroup Members

217 Organizations | **310 Participants**







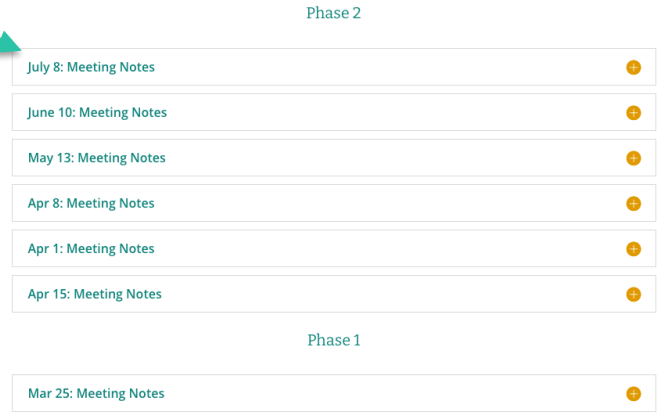


The Sequoia Project's Members

- Audacious Inquiry
- CA Emergency Medical Services Association
- ConSensys Health
- Cureous Innovations
- Hawaii HIE
- Health InfoNet
- Innovaccer
- CVS Health
- Mayo Clinic
- Virginia HIE

Website, Meeting and Workgroup Logistics

- Register for the Workgroup
- Calendar Downloads
- Meeting Notes



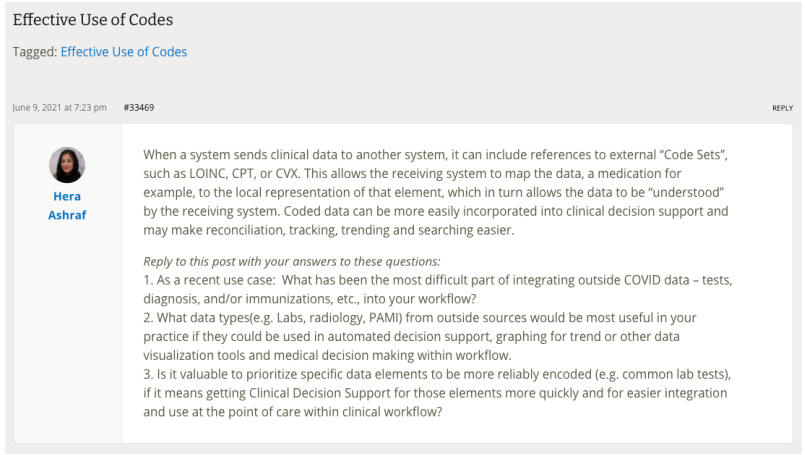
https://sequoiaproject.org/interoperability-matters/data-usability-workgroup/

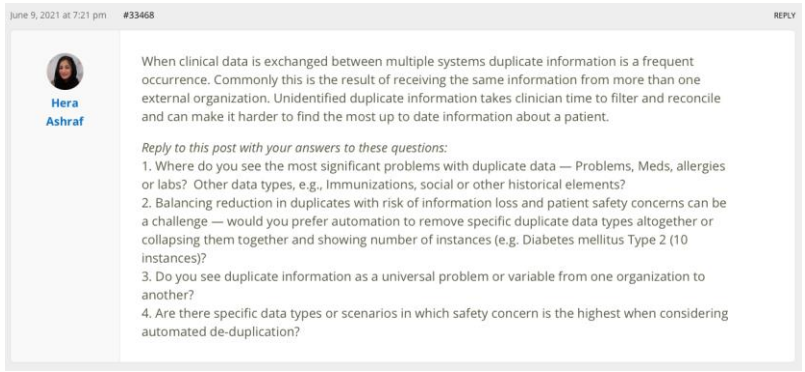
Data Usability Workgroup Forum – Please Respond

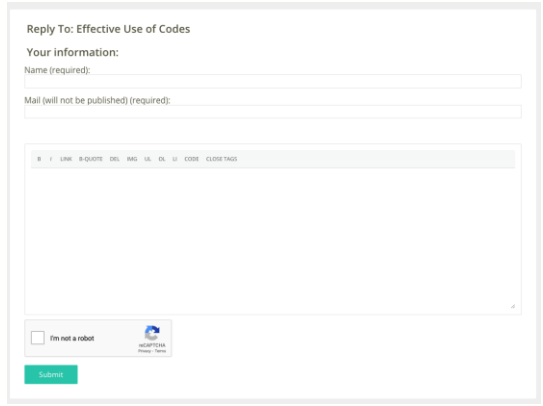
Data Usability Workgroup Forum

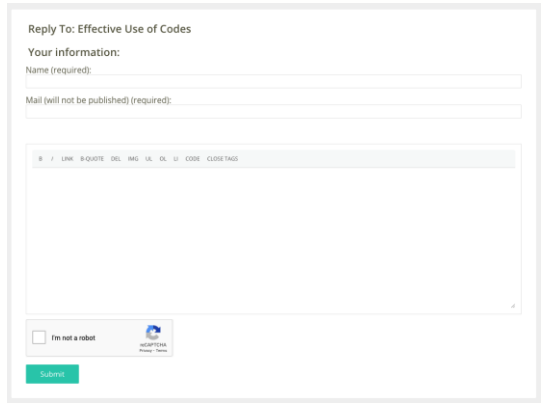
Let's keep the discussion going! After each workgroup meeting, the co-chairs will suggestion discussion topics to keep the conversation going. Please contribute your thoughts in the below message forum.

Topic	Posts	Last Post
Effective Use of Codes	4	3 weeks, 6 days ago
Specific Domain Guidance for Usability	3	3 weeks, 6 days ago
Data Integrity and Trust	4	3 weeks, 6 days ago
Reduce the Impact of Duplicates	4	3 weeks, 6 days ago
Effective Use of Narrative for Usability	3	3 weeks, 6 days ago
How does your organization exchange data today with consumers?	5	4 weeks ago
How does your organization exchange data today with providers?	3	4 weeks ago
Data Provenance and Traceability of Changes	3	1 month ago
How does your organization exchange data today with public health ?	3	1 month ago
Data Tagging/Searchability	3	1 month ago









https://sequoiaproject.org/interoperability-matters/data-usability-workgroup/

Carequality/Commonwell Joint Document Content Guide

- Carequality has dusted off the original guide created in September 2020 but not published due to outstanding comments
- The September 2020 guide will be
- Tiger Team was formed and first meeting was held August 6, 2021
- Carequality's expectation is to publish final guide with comments resolved September 2021
- Carequality will require content testing with a timeline TBD
- Commonwell will also require content testing with a timeline TBD

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Effective Use of Codes

Topic: Effective Use of Codes – Clinician Workshop Recap

- Most useful to clinicians - high priority data classes
  - Allergies, Vital Signs (blood pressure) & Medications
  - Labs (COVID & Prioritized list of lab codes)
    - Blood Chemistry
    - Urine Chemistry
    - Coagulation
    - Endocrinology
    - Hematology
    - Immunology/Serology
    - Lipids
    - Prenatal Labs
    - Other high priority results
      - Pap smear
      - Group B strep
      - Urine culture
- Providers desire to:
  - Enable clinical decision support
  - Enable graphing/trending data (requiring normalization)
  - Enable population health management (labs & medications)
  - Enable indexing or filtering of types of documents (Labs or Radiology by date)
    - Type and Title filtering problematic)

Topic: Effective Use of Codes – Summary

- Prioritized list of laboratory results to be shared
- Guidance for Lab codes in discrete data elements
- Guidance for the translation of lab result codes and nomenclature
- **In Scope:**
  - Lab results as defined in Prioritized list of laboratory results to be shared
    - Health Information Exchange (HIE) Redistribution
    - HIE Transformation
    - Clinical Information Reconciliation and Incorporation (CIRI)
  - Allergies, Vital Signs (blood pressure)
- Definitions for Human, Machine, and Inter-organization Useability to be defined:
  - Human Useability
    - How can we structure data to make it more useful and actionable for end user at the point of care within clinical workflow?
    - Which situations are the most important for receiving an updated piece of clinical data?
      - What data types(e.g. Labs, radiology, PAMI) from *outside sources would be* most useful in your practice if they could be used in automated decision support, graphing for trend or other data visualization tools.
  - Machine Useability
    - How can we make data we send out easier for machines to display, parse, sort, index, etc.
  - Inter-organization Useability
    - How can we send data in a way that is easy for the receiving party to accurately interpret and derive value from
      - Is it valuable if external sources of data began with a prioritized subset of data elements (e.g. common lab tests) more reliably encoded, if it means getting Clinical Decision Support for those elements more quickly?

Effective Use of Codes Use Case: Provider to Provider

- EHR/HIE Clinical Information Reconciliation and Incorporation (CIRI)
  - In scope (COVID and Prioritized labs list):
  - **Scenario:** EHR/HIE converts and shares lab results (lab priorities only) in CDA documents with other EHRs/HIEs
    - Providers wish to:
      - Graph/trend lab data requiring normalization of data
      - Enable clinical decision support
    - Regarding lab values specifically, LOINC coding is well-developed, but reference ranges vary. With accurate lab value LOINC coding accompanied by reference ranges in the metadata, graphing and trending is possible and would be useful.
      - Reference ranges will not be addressed in the 2022 Implementation Guide
    - LIVD COVID maps on the CDC website provide a great example of the hundred of ways a “COVID test” can be performed. PCR, Antigen and Antibody results are impact decision making differently as so screening, diagnostic and surveillance results.
  - **Scenario:** EHR/HIE converts and shares allergy information (allergens priority list)
  - **Scenario:** EHR/HIE converts and shares immunization information (COVID only)

- EHR/HIE Transformation – Out of scope
  - **Scenario:** EHR/HIE converts and shares lab results in FHIR resource/bundle?
  - **Scenario:** Provider imports and reconciles a medication list within an HIE or across HIEs
  - **Scenario:** Provider imports and reconciles a problem list with an HIE or across HIEs

Effective Use of Codes Use Case: Provider to Public Health Agency

- **Scenario:** Electronic Case Reporting results sent to public health originating from a laboratory and sent to the provider
  - The 2022 Implementation Guide will only focus on COVID for eCR
  - Reference to SMART on FHIR efforts to create a bulk FHIR based Public Health reporting and perhaps comment on that work rather than convening here

- Immunization Section guidance will be documented as a good place to start
  - **Scenario:** COVID administered vaccines, historical documentation, EHR, HIE, Registry
    - Patient history of immunizations/vaccinations is sometimes recorded in the official vaccination section of the EHR to satisfy gaps in care/CDS, but can be done inconsistently or inaccurately
    - Emphasize exchange of ONLY primary information (not secondary)
  - **Scenario:** COVID results https://loinc.org/sars-coronavirus-2/
    - *The Regenstrief LOINC team has been working closely with APHL, CDC, FDA, labs, IVD manufacturers, and other stakeholders on terminology specifically related to SARS-CoV-2/COVID-19. This work helps support the HHS COVID-19 Pandemic Response, Laboratory Data Reporting: CARES Act Section 18115 requirements that were published on June 4, 2020.*

Effective Use of Codes Use Case: Healthcare Entity to Consumer

- Scenario: Consumer data shared with the EHR (i.e. Home Meter Glucoses, pregnancy tests, COVID home tests, home drug screens)
  - This is out of scope for the 2022 Implementation Guide

Effective Use of Codes Use Case: Collaboration Space Discussion

June 30, 2021 at 10:42 pm #34595 REPLY

Riki Merrick

I have a problem of calling lab tests data types – they are data elements, or if you want to use type, call them types of data (data type defines the format depending on the content, which is not wha you are asking here).
SHIELD (Systemic Harmonization and Interoperability Enhancement for Laboratory Data) is a public provate partnership that is working on a strategic plan with the goal to "Name the same test the same way across the healthcare continuum" – this group is tackling the difficult problem of making sure lab results from differnt performers / vendors / instruments can be compared without the risk to patient safety.

July 8, 2021 at 1:08 pm #36029 REPLY

Tom Bronken

While proper coding of data can facilitate automatic use of the data, this will probably be restricted to automatic alerts and reminders for the foreseeable future. Taking an automatic action on a patient is fraught with risk, and is not something we'll see soon.

Codes are most useful for locating specific outside data by a user on the receiving end. Our EHRs are designed for efficient hurting down of internal data desired by the user. Unfortunately, data from outside sources arrives piecemeal. Assigning codes (especially if similar codes can be grouped) allows organization of the data and makes searching for and finding what is looked for much more efficient.

Regarding lab values specifically, LOINC coding is well-developed, but reference ranges vary. With accurate lab value LOINC coding accompanied by reference ranges in the metadata, graphing and trending is possible and would be useful.

Currently, documents rarely have accurate and granular LOINC codes when received, even though these are available. This makes finding a document of interest very difficult.

July 8, 2021 at 6:28 pm #36074 REPLY

Andrea Pitkus

Concur with previous posts.

Regarding lab data to be usable as proposed in clinical decision support, etc. it needs to be:
1. electronic (paper doesn't cut it any more)
2. discretely captured (pdf reports, scans of faxed reports, text blobs may be mapped to a single LOINC at best which may be so generic to not be helpful such as pathology report or reference lab report)
3. encoded accurately (and at the most detailed level) at the source/its origination. Lab data shouldn't be mapped downstream by those who don't have access to package inserts or other nuances of testing as they will only be able to encode at a higher level missing key information. Errors are more likely to occur when done by non laboratory/informatics/terminology folks too.

also....
4. Laboratory data comprises over 70% of EHR data and utilized in clinical decision making (older Mayo study published by Dr. Rodney Forsman)

5. With encoding common lab results, it will depend on all the variances in how the test is performed. Again this is best known by the performing lab. LIVD COVID maps on the CDC website provide a great example of the hundred of ways a "COVID test" can be performed. PCR, Antigen and Antibody results are impact decision making differently as so screening, diagnostic and surveillance results.

6. With clinical decision support design/development, often it's not a single data element or kind of data, but a combination of them. May wish to focus on simpler use cases/fewer data items/high impact use cases/scenarios, but many decisions are complex or involve multiple kinds of data for each decision and clinical care involves many decisions each hour. Decision support should be clinically validated to ensure harm doesn't result either. Recent U MI study indicates Epic's Sepsis indicator is missing many cases of sepsis. The question may be which data are best assessed by a health professional/clinician and which can be automated?

https://sequoiaproject.org/groups/data-usability-workgroup/forum/topic/effective-use-of-codes/

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Reduce Impact of Duplicates

Topic: Reduce Impact of Duplicates – Clinician Workshop Recap

- Priority should be given to Allergies, Immunizations, Medications, & Problem Lists
  - Clinicians have desire to universally exchange this data and import the data for trending within EHR
  - Minimally this data should be group uniformly
  - Immunizations should focus on COVID for this first pass
  - Focus on specific discrete data
    - Prescribing provider credentials/Clinician Signatures
    - Allergies
      - Reaction or severity data may differ from one data source to another
    - Immunizations
    - Medications
      - Low priority but EHRs need to make it easy to change/update – reconcile
      - Data from Pharmacies is most useful because of knowledge of how often dispensed
    - Problems – grouping data with same ICD or SNOMED
      - Grouping should go beyond exact matches & include similar parts of the terminology tree
      - Provide guidance to resolve issue with adding comments to problems that complicate deduplication

Topic: Reduce Impact of Duplicates

- Reduce Impact of Known Duplicates
- List Reconciliation
- Carequality/Commonwell Joint Document Content Workgroup addressed one use case partially
- In Scope: Goal to reduce impact of data duplication in CDA documents exchanged ONLY
  - Basic CDA Data Duplication Exchange where the generating system knows exactly what is duplicated because the duplication is cause by exchanging the same source data in multiple ways
  - Mechanisms and guidance for generators of clinical information to mark duplication within IHE XDS document metadata (DocumentReference, SubmissionSet, and Folder)
- Definitions for Human, Machine, and Inter-organization Useability to be defined:
  - Human Useability
    - Balancing reduction in duplicates with risk of information loss can be a challenge -- would you prefer removing duplicates altogether or collapsing them together and showing number of instances (e.g. Diabetes mellitus Type 2 (10 instances)?
  - Machine Useability
    - How can we make data we send out easier for machines to display, parse, sort, index, etc.
  - Inter-organization Useability
    - How can we send data in a way that is easy for the receiving party to accurately interpret and derive value
    - Do you see duplicate information as a universal problem or variable from one organization to another?

Reduce Impact of Duplicates Use Case: Provider to Provider

- **Scenario:** A generating system repeats the same clinical item in the same underlying data structure
  - Scenario: CDA Document A includes an entry for angina in the Problem List
  - Scenario: CDA Document B includes the same entry in the Problem List. All the information is the same

- **Scenario:** Generating system repeats the same clinical item in a different data structure and with different detail exposed
  - Scenario: CDA Document A includes an entry for an immunization, including the type of immunization and vaccination date/time
  - Scenario: CDA Document B includes an entry for the same immunization, but with full vaccination information, including lot number and administration site

- **Scenario:** A generating system makes the same document content available in multiple flavors, e.g. C-CDA 1.1, C-CDA 2.1, FHIR document, PDF.
  - Scenario: Consuming system queries for available encounter documents from March 2020 for a patient
  - Scenario: There was one such encounter at the generating system
  - Generating system returns three documents available. The Generating system knows these three documents are the same content in different formats

Reduce Impact of Duplicates Use Case: Provider to Public Health Agency

- None identified

Reduce Impact of Duplicates Use Case: Healthcare Entity to Consumer

- Documents/data imported into a system should not be displayed in patient portals (ONLY primary information)

Reduce Impact of Duplicates Collaboration Space Input Discussion

June 24, 2021 at 4:16 pm #33687 REPLY

Andrea Pitkus, PhD, MLS(ASCP) CM

A clear operational definition of what constitutes duplicate data is needed as there were various definitions on the calls. Where a down or upstream system eliminates clinical data, errors of omission can occur and patient harm may result. Regulatory requirements may impact actions too. There is not a one size fits all responses as it depends on several factors (the type of clinical data, etc.)

How does a provider know a result/data element is truly a duplicate versus needed by another provider for a different reason?

July 8, 2021 at 5:53 pm #36071 REPLY

Andrea Pitkus

Adding to what Riki posted....

Time is another factor which varies by lab test/scenario. Some genetic tests may only be done one in a lifetime. So what time period is utilized for assessing.

Also a hgb may be performed pre transfusion and another post transfusion and they may appear to be duplicate, but truly impact clinical decision making as to how much the transfusion raised the hgb level.

For medications, does it depend on the same drug with different dosing, ways it's dispenses, etc. (IV vs oral pill)? Again over which time frame? Is it tied to a chronic problem like Parkinson's and will be needed over a lifetime or is it a short term treatment such as antibiotics for an infection?

Hopefully more clinicians will jump in with more use cases/scenarios. I would urge extreme caution in deduplicating automatically as patient harm may result if the process is not clinically validated/implementable in all systems where data is utilized (up/down stream), etc.

June 30, 2021 at 10:28 pm #34591

Riki Merrick

As Andrea states we need a defintion of duplicates.
If you mean the exact same result of a lab test for example (performed by 1 lab, but reported by 2 orgranizations – maybe the EHR to the patient and the lab to the patient, or the lab and EHR to another porvider in the care team) we need to have the same identifiers to be sure it is truely the same (and currently the results themselves don't have identifiers, so you would need to use a common specimen id / accession number of the related sample as well as the performing lab and related dates etc to be able to identify it.
One important factor in any attempt to de-duplicate is that you MUST have the assigning authority for all identifiers, else you will have no luck being able to use them.

https://sequoiaproject.org/groups/data-usability-workgroup/forum/topic/reduce-the-impact-of-duplicates/

Phase 2 Implementation Guide Development Process

- Co-chairs and continue to organize and gather the content for the 8 topic areas developed in phase 1 activities – the following tasks will be completed bi-monthly for each topic area by staff to review
- Topics will be addressed in priority order with one – two topics reviewed each month
  - This will be documented in the existing Google docs and/or the draft IG for the work items
    - Priority Work Items Spreadsheet:
      - https://docs.google.com/spreadsheets/d/1eRbgoStsfhYzIK-wj4TIU9Wr4MEkxfF3syOxsHWIPdg/edit#gid=0
  - Staff will take a high level pass of existing recommendations from the Carequality/Commonwell IG
  - Integrate feedback from vendor discussions and workshop(s) to the draft IG
  - Incorporate feedback from Data Usability Collaboration space / forum
    - https://sequoiaproject.org/interoperability-matters/data-usability-workgroup/
  - Go over problem statements from a more technical perspective
  - Document other aspects to be considered for the solution
  - Identify questions that still require clarification for all topics
  - Update the Draft IG for each topic category and use case

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Data Usability Work Group

For more information:
www.sequoiaproject.org/interoperability-matters/data-usability-workgroup/

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Convene

Collaborate

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Thank You for your support of Interoperability Matters!