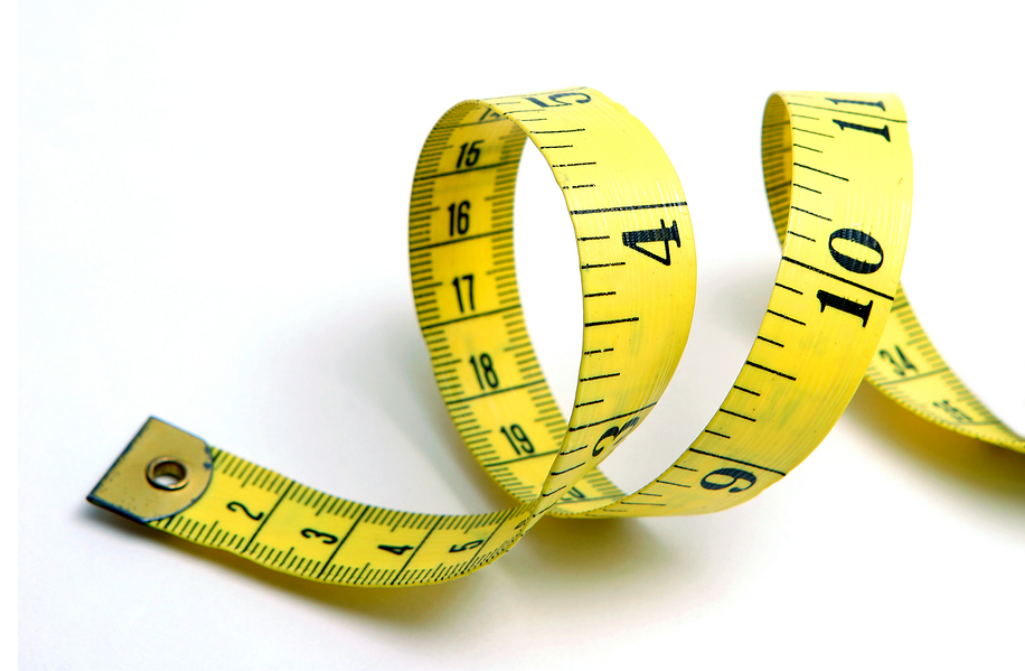# AART User Group Mini-Series

June 24, 2020

4:00 PM ET

Agenda

- Welcome to Session 5!
- Goals of the AART Mini-Series
- Validation
- Future Areas to Be Tested
- Improving ACK Messages

Goals

1) Increase the use of AART to:
- ✓ identify areas for improvement,
- ✓ prioritize IIS enhancements,
- ✓ test new IIS functionality,
- ✓ and reflect on accomplishments.

2) Support your use of AART by convening a group of engaged users to share and learn from one another

Measurement and Improvement Initiative – What Is it?

- The IIS Measurement and Improvement (M&I) Initiative began in 2015 as an effort to:
  - Test IIS alignment with standards
  - Provide IIS with information and assistance to improve

AIRA Measures and Tests IIS → **IIS Make Improvements** → **The IIS Community Demonstrates Alignment** →
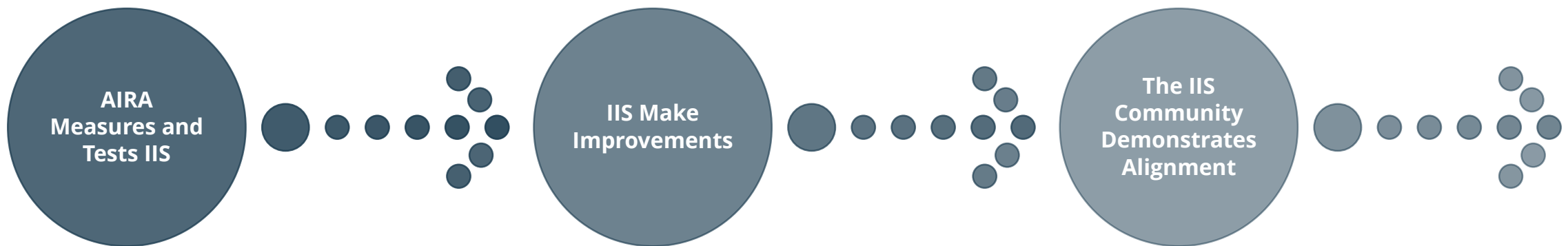
So What is AART?

AART is... the Aggregate Analysis Reporting Tool

AART was developed to visualize and compile the testing results and information on **prioritized** community-driven measures and tests related to Functional Standards

Did you know...

1. AART has been testing with IIS since 2015
2. There are over 6 million test cases in AART
3. You can view test results for your peer IIS at the content area level, and at the test case level
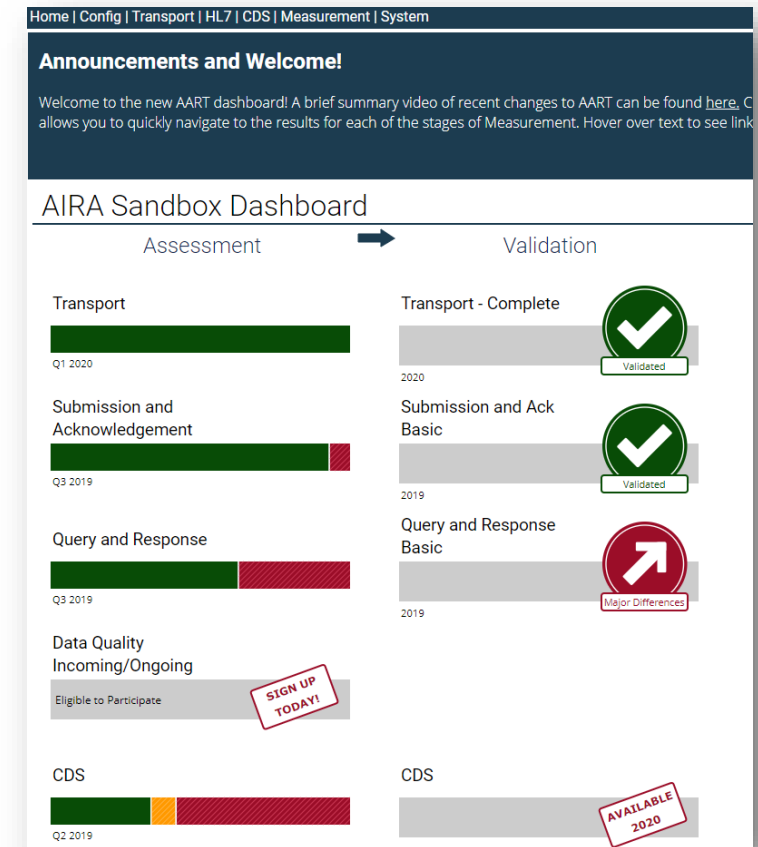
Thank You For Engaging With Us!

- Participation is strong and results are being reviewed and acted upon

- Partners are publicly recognizing improvements in standardization across IIS

- We are seeing <u>progress</u> in all areas of quarterly measurement
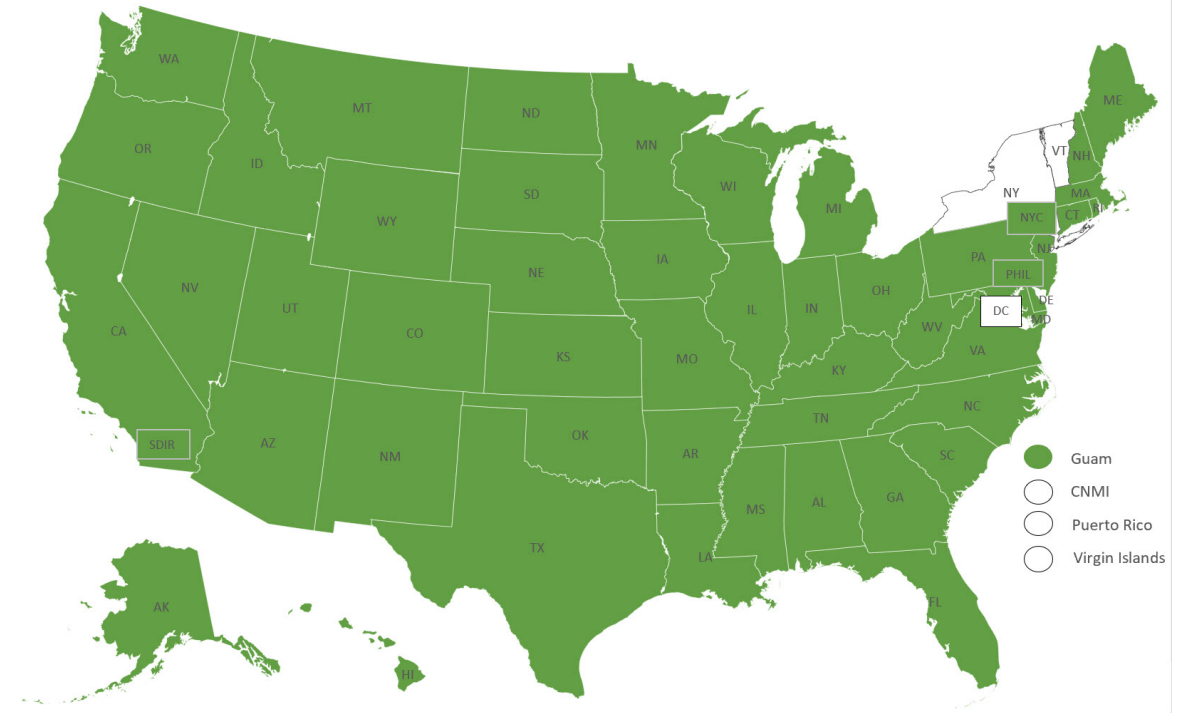
AART Clinics

- Once a year, in-person, @ AIRA National Meeting
  - National Meeting planned for Portland Oregon in August 2020 has been postponed until August 3-5, 2021
  - Working to schedule virtual meetings in the fall

- Request a clinic or follow up clinic anytime!

AART User Group Mini-Series

Session 1: Introduction to Series, polling for future topics **Completed**

Session 2: HL7 Discovery & Assessment Reports **Completed**

Session 3: Clinical Decision Support **Completed**

Session 4: User Experience – HL7 Assessment **Completed**

Session 5: Validation and Future Areas To Be Tested *Today!*

Session 6: User Experience – Clinical Decision Support

AART Registration

- AART login page
- Register here
  - You can also reset your password on this page
- AART Updates

Reminder! If you haven't registered yet you can do that today!

Validation

Future Areas to Be Tested

Future Areas to Be Tested

- Assessment
    - Data Quality – Incoming/Ongoing Data Submission
    - Data Quality – Data at Rest
- Discovery
    - HL7 – CDC Code Set Changes
    - HL7 – CDC Endorsed Data Elements

Data Quality - Incoming/Ongoing

In Incoming/Ongoing Data we are ensuring that IIS can detect if trading partners (e.g., EHRs, pharmacies, etc.) are sending poor data

The Incoming and Ongoing Data Content Area Isn't Entirely New...

Testing and Discovery

Submission & ACK — Tests what messages the system said they accept/return, and if they're conformant

Incoming & Ongoing Data Quality — Tests what the system actually did with the messages...

Data Quality - Incoming/Ongoing

- In Scope
  - The IIS's ability to detect data quality issues on a per message basis
  - The IIS's ability to retain and return vaccination events from submission to query without changing the meaning

- Out of Scope
  - Data quality monitoring of multiple messages (e.g., percentage of records submitted with phone number)
  - Patient or vaccine matching/deduplication algorithms
  - Address hygiene/cleansing

Measuring Data Element Data Quality

Step 1
- Submit intentionally poor data
- E.g., Missing, Invalid, or Conflicting Data

Step 2
- Submit query for patient

Step 3
- Analyze ACK and RSP
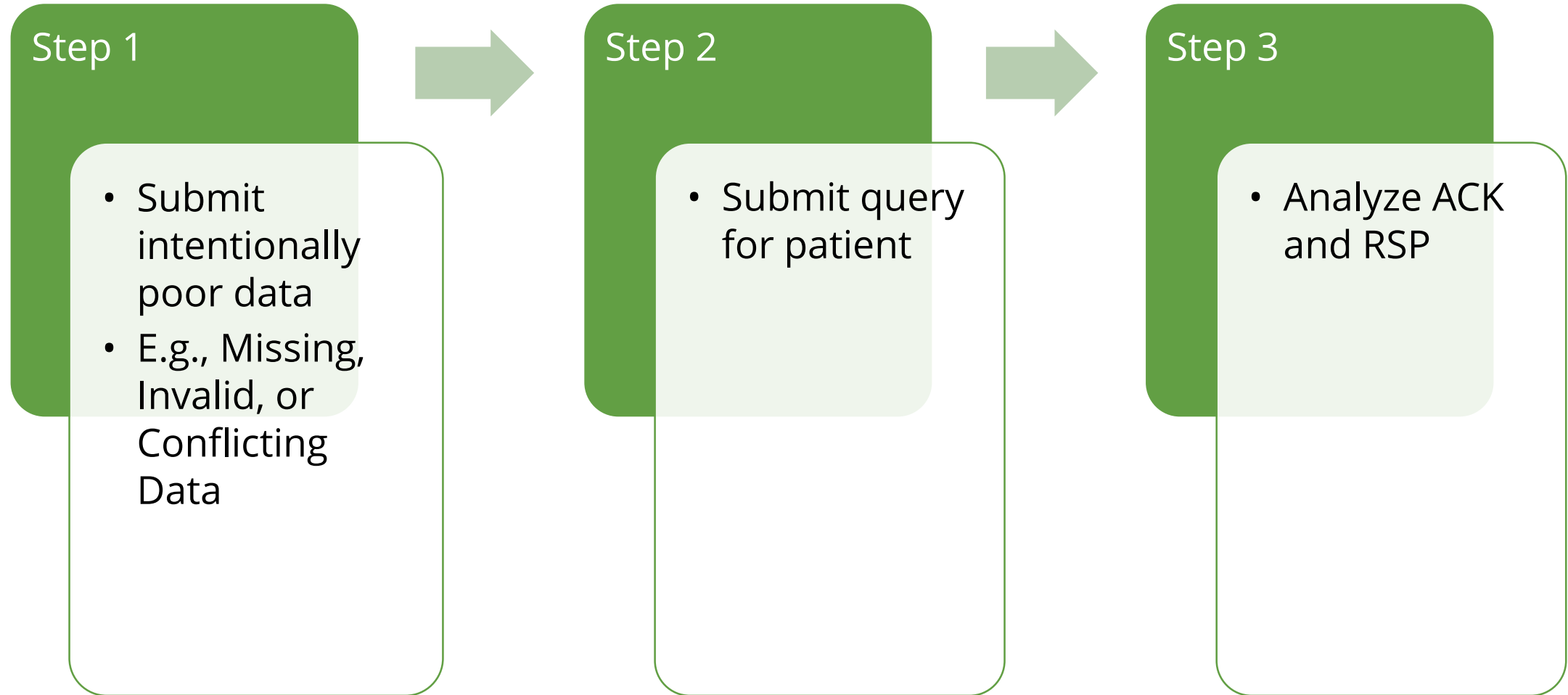
Data Element Data Quality Issues

- **Missing data:** These tests intentionally omit a data element and submit the record to the IIS.
  - e.g., The IIS detects the first name is empty

- **Invalid data:** These tests intentionally submit an illogical value and submit the record to the IIS.
  - e.g., The IIS detects the phone number has an invalid value of "no phone"

- **Conflicting data:** These tests intentionally submit HL7 messages per the HL7 Implementation guide, but the data within the message is illogical when compared against other data elements
  - e.g., The IIS detects the vaccination date is before the birth date

Patient Demographic Data Elements

- Patient name: first
- Patient name: last
- Patient date of birth
- Patient gender
- Patient ID
- Patient ID type
- Race
- Ethnicity
- Patient multiple birth indicator
- Patient birth order

- Patient address: zip code
- Patient address: state
- Patient address: country
- Patient telephone number
- Patient telephone number type
- Patient status indicator – provider level
- Responsible person name: first
- Responsible person name: last
- Responsible person relationship to patient

Vaccination Event Data Elements

- Vaccination administration date
- Vaccine product
- Vaccine manufacturer
- Vaccination event record type
- Vaccine expiration date
- Vaccine funding source
- Dose level eligibility

- Vaccine event ID
- Contraindications/precautions
- Contraindication/precaution observation date
- Exemptions/refusals
- Exemption/refusal date

Additional Aspects of Data Quality
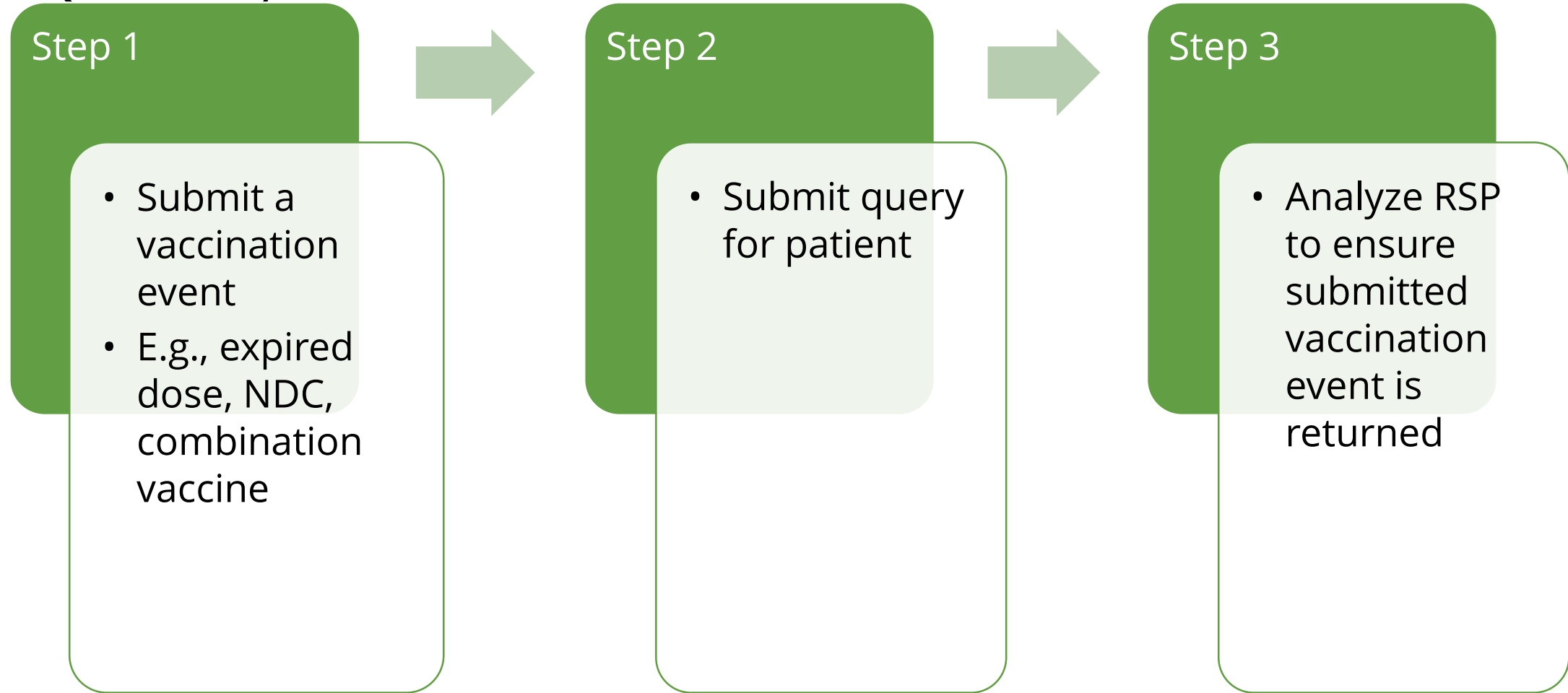
Example Measure

- The IIS returns critical information about a previously submitted vaccination event.

Test Case	Expectation
Submit vaccination event representing an expired dose was administered.	IIS returns the expired administration which includes the expiration date in the RSP.

Measuring Additional Aspects of Data Quality

Step 1
- Submit a vaccination event
- E.g., expired dose, NDC, combination vaccine

Step 2
- Submit query for patient

Step 3
- Analyze RSP to ensure submitted vaccination event is returned

Additional Aspects

- IIS has the ability to map between coding systems (NDC to CVX)

- IIS returns critical information about a previously submitted vaccination event

- IIS returns the consolidated immunization history following an update

Data at Rest

- The ultimate area to measure
- Challenges:
  - Measuring real data, as it is in the IIS database
  - Identifying data cannot be sent to AIRA or AART
  - Support multiple analysis of the underlying data
    - By age of patient
    - By type of vaccination
    - By which provider reported the data
  - Provide actionable data back to IIS

Data at Rest
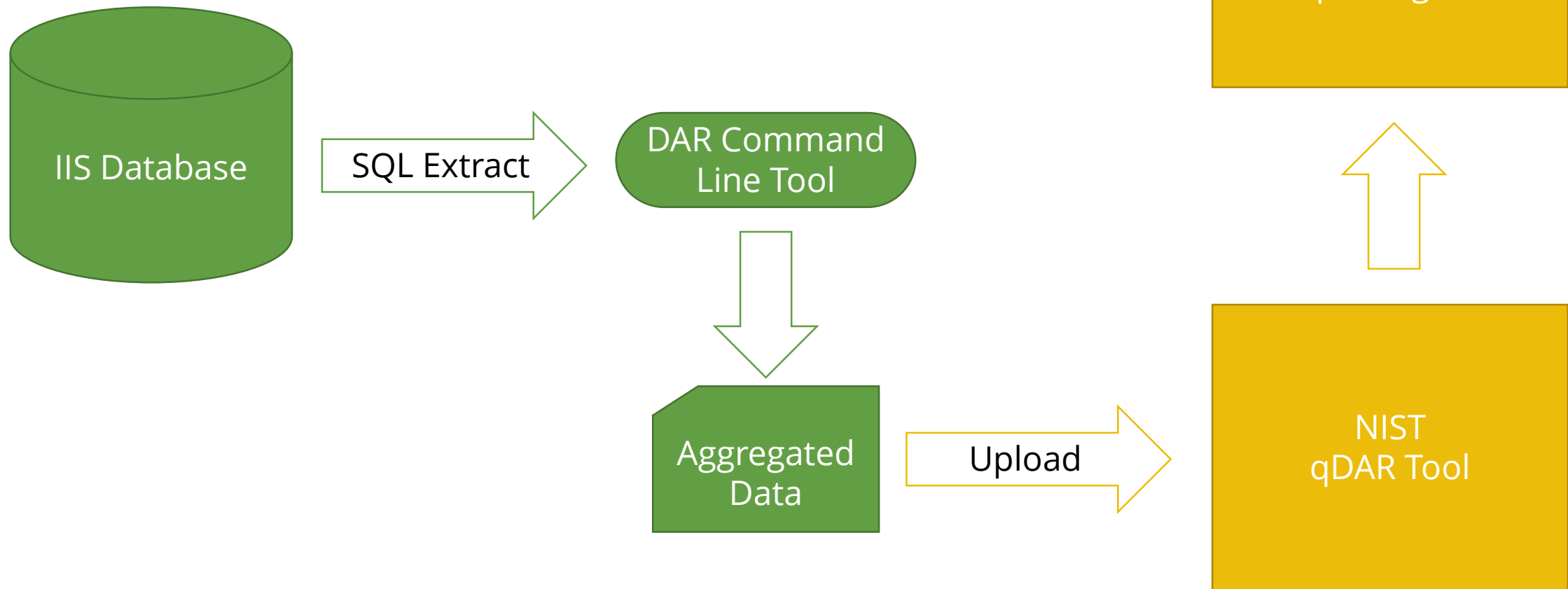
🥧 Analysis Report Updated On 06-02-2020 09:43   ⤢

‹   Threshold All Fail Pass

🔻 filter

▾ 1. Patient
  ▾ 1.1. Completeness
      1.1.1. Patient First, Middle, Last Name
      1.1.2. Date of Birth
      1.1.3. Gender
    ▾ 1.1.4. Address
        1.1.4.1. Address by Component
    ▾ 1.1.5. Mother's First, Last, Maiden Name
        1.1.5.1. Mother's First Name
        1.1.5.2. Mother's Last Name
        1.1.5.3. Mother's Maiden Name
      1.1.6. Race
      1.1.7. Ethnicity
      1.1.8. Phone Number
      1.1.9. Email
  ▾ 1.2. Validity
      1.2.1. Stand-in DOB
      1.2.2. Other
    1.3. Timeliness
▾ 2. Vaccination
  ▾ 2.1. Completeness
      2.1.1. Product Type
      2.1.2. Administration Date
      2.1.3. Information Source
      2.1.4. Lot Number

🔻 Report Filter   → Publish To Facility   🗑 Reset   💾 Save

1.2.1. Stand-in DOB

Data Analysis   **Query**

🔍 Search

DETECTION ↑↓		Value			Threshold ↑↓	Bar
🔻 Search Filter ⌄		🔻 CMP ⌄	%	🗑	🔻 Value ⌄	☐ Show Percentages
MQE0565 - Patient birth date is on 15th day of month		2.5% (5.0 / 200)			No Threshold	▮
MQE0567 - Patient birth date is on last day of month		2% (4.0 / 200)			No Threshold	▮
MQE0566 - Patient birth date is on first day of month		3.5% (7.0 / 200)			No Threshold	▮

Showing 1 to 3 of 3 entries ⏮ ◀ **1** ▶ ⏭

➕ Comment

1.2.2. Other

Data Analysis   **Query**

🔍 Search

| DETECTION ↑↓		Value			Threshold ↑↓	Bar
🔻 Search Filter ⌄		🔻 CMP ⌄	%	🗑	🔻 Value ⌄	☐ Show Percentages

Data at Rest

- NIST qDAR
  - Under current development by NIST
  - Will be deployed alongside AART
- AART Changes
  - New Discovery and Assessment reports
    - Overall results shown in AART
  - User access directly from AART to qDAR
    - Allow in-depth access to data details
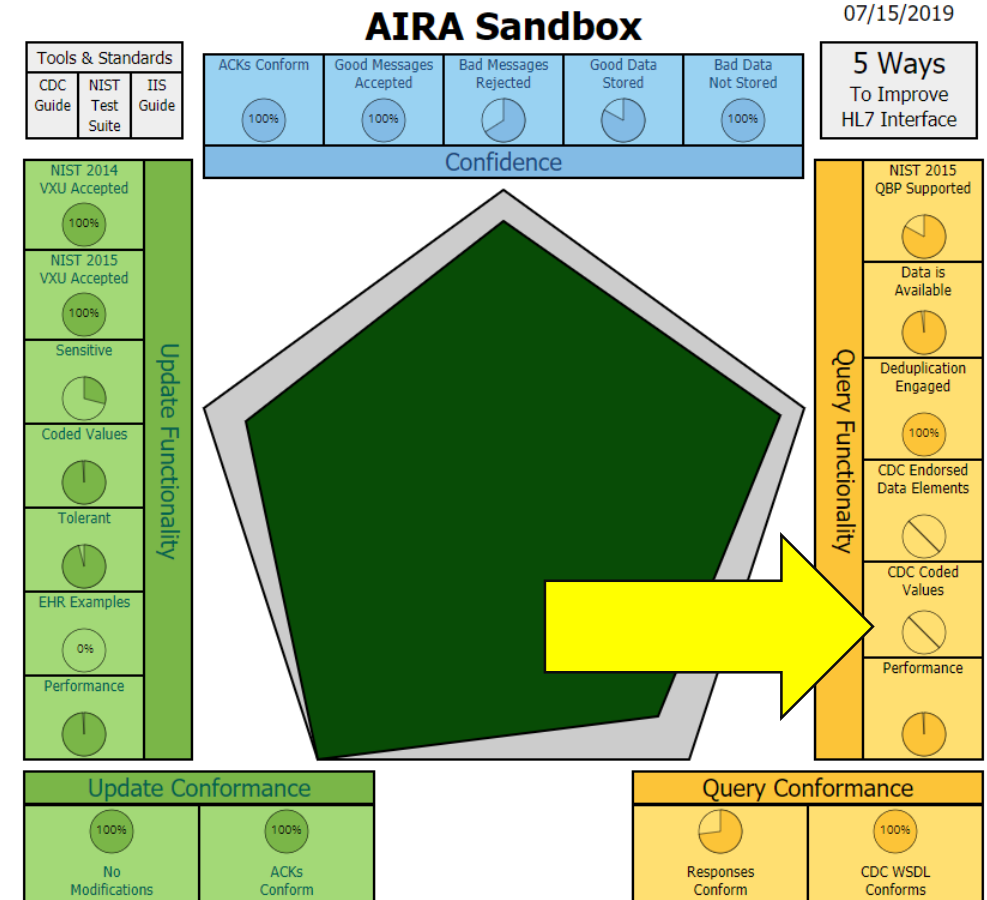   - Allow exploration of data at provider level

CDC Code Set Changes

- Original Coded Values
  - Test case for every coded value
  - Expects IIS to accept message
  - Bulk of tests in Discovery
  - Does not verify storage
- New Coded Values Tests
  - Discover when IIS applies CDC Code Set changes
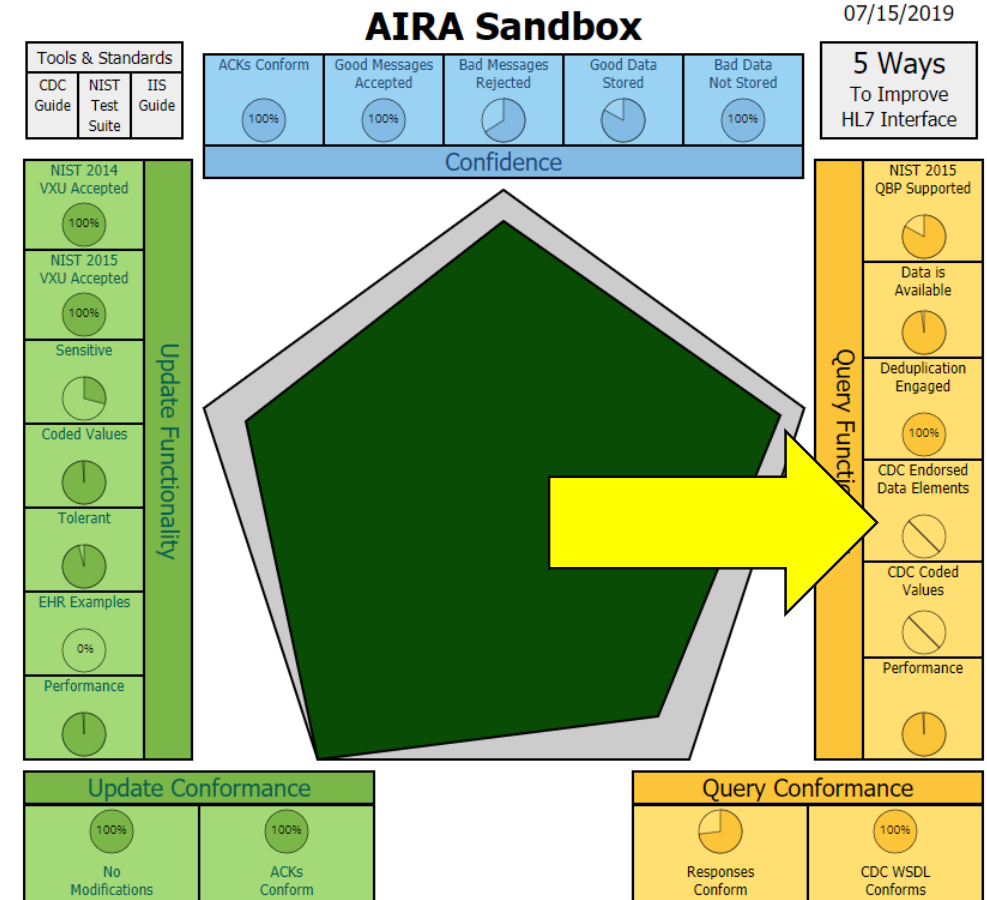 - Changes starting from 2019
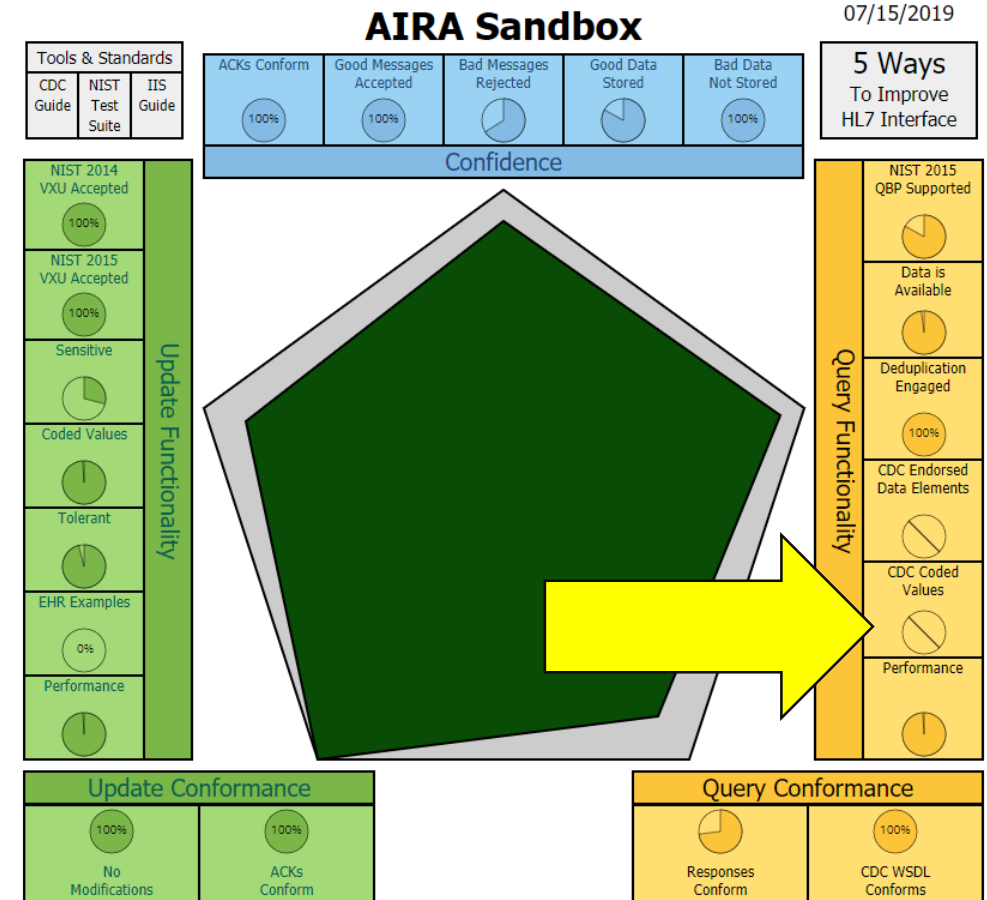
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  - Discover when IIS applies CDC Code Set changes
 - Changes starting from 2019

CDC Endorsed Data Elements

- Content cross-over with Data Quality Incoming/Ongoing
- Explores if IIS can:
  - Receive message with data
 - Return data in query response

CDC Code Set Changes

- Original Coded Values
  - Test case for every coded value
  - Expects IIS to accept message
  - Bulk of tests in Discovery
  - Does not verify storage
- New Coded Values Tests
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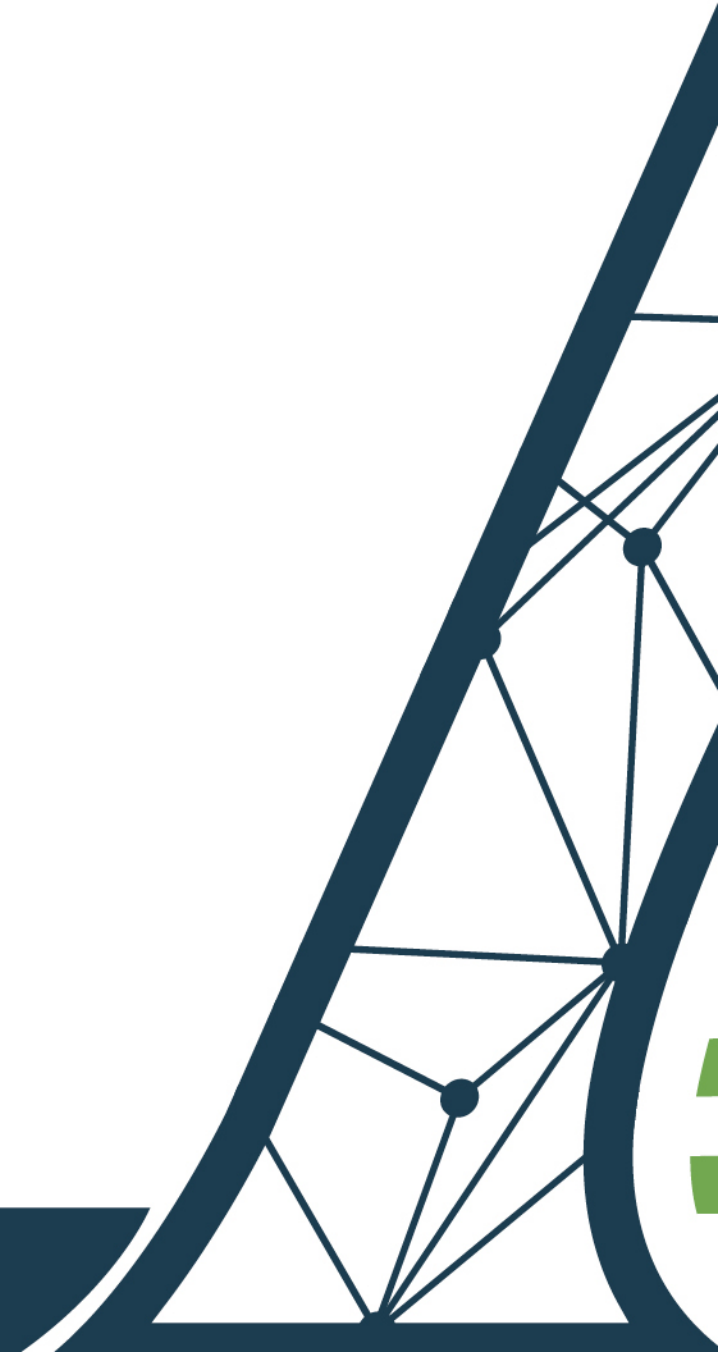 - Changes starting from 2019
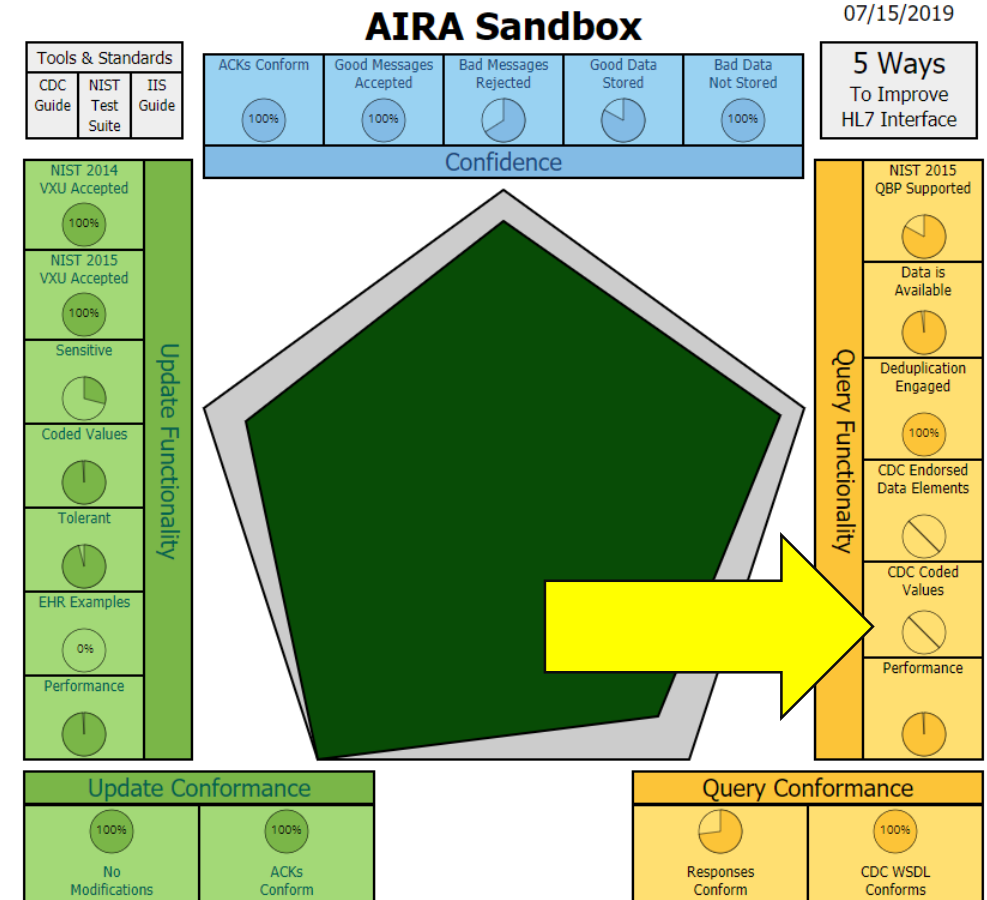
CDC Code Set Changes

- New Coded Value Tests
  - IIS accepts code
  - IIS returns code in query response
  - Vaccine Deduplication supports code
  - CDS supports code
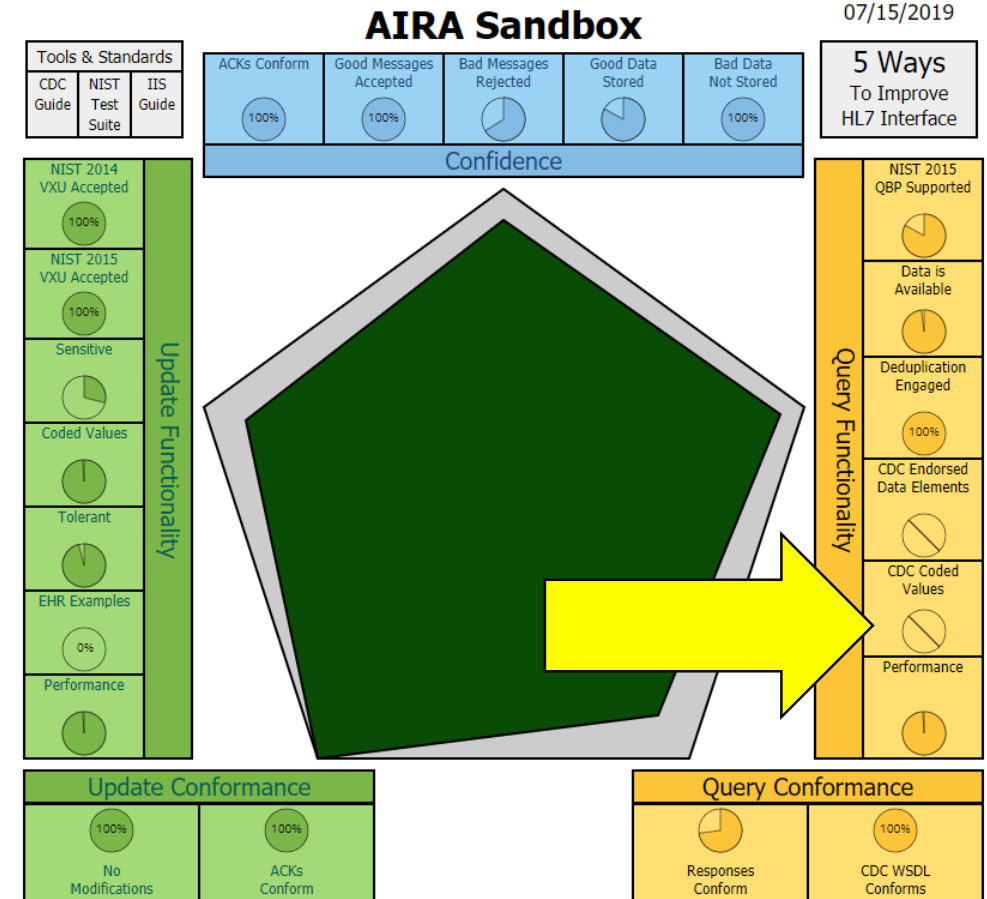
ACK Messages

Grammar Saves Lives

- In human communication:
  - Diminishes apperance of competency
  - Indicates a lack of attention to detail or level of seriousness
  - Can lead to confusion

- In computer communication:
  - May require additional work
  - Reduces usability of information

Grammar saves lives.

We're going to cook, kids.
We're going to cook kids.

someecards
user card

Grammar Saves Lives

- HL7 responses are the only visible part of the IIS for most users
- We expect our submitters to follow our published standards
- COVID-19 is shining a spot light on our current gaps

ACK Resources

- NIST Tooling: https://hl7v2-iz-r1.5-testing.nist.gov/iztool/#/cf
- HL7 Guide: https://www.cdc.gov/vaccines/programs/iis/technical-guidance/hl7.html
- ACK Guidance: https://repository.immregistries.org/resource/guidance-for-hl7-acknowledgement-messages-to-support-interoperability/

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Session 4: User Experience – HL7 Assessment **Completed**

Session 5: Validation and Future Areas To Be Tested **Completed**

Session 6: User Experience – Clinical Decision Support *Next Month!*

Join Us Next Month for our last session in the AART Miniseries!!

Wednesday, July 22nd

4:00 – 5:00 pm, ET

Please take a couple minutes to fill out a quick user survey (link will also be in the chat box):

https://www.surveymonkey.com/r/AARTUserGroup

Contact Information

If you have any questions or comments:

- Nathan Bunker nbunker@immregistries.org

Thank you!