



**AIRA**  
AMERICAN IMMUNIZATION  
REGISTRY ASSOCIATION

# AART User Group

Mini-Series

April 22, 2020

4:00 PM ET

# Agenda

- Welcome
- Goals of the AART Mini-series
- Background: CDS Assessment and Discovery
- Testing: How CDS Test Cases are Executed
- Reports: Using CDS Reports



# 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



# So What is AART?

AART is... the Aggregate Analysis Reporting Tool

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

Did you know...

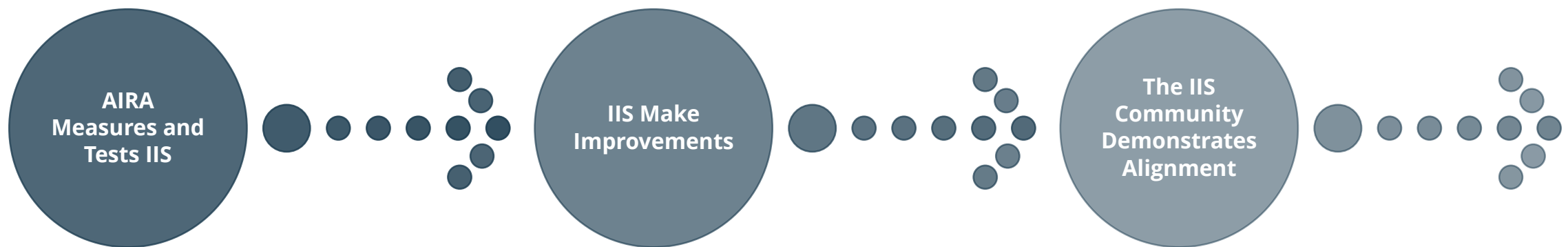
1. AART has been testing with IIS since 2015
2. There are over 6 million test cases in AART
3. You can view test results for your peer IIS at the content area level, and at the test case level



# Measurement and Improvement Initiative – What Is it?

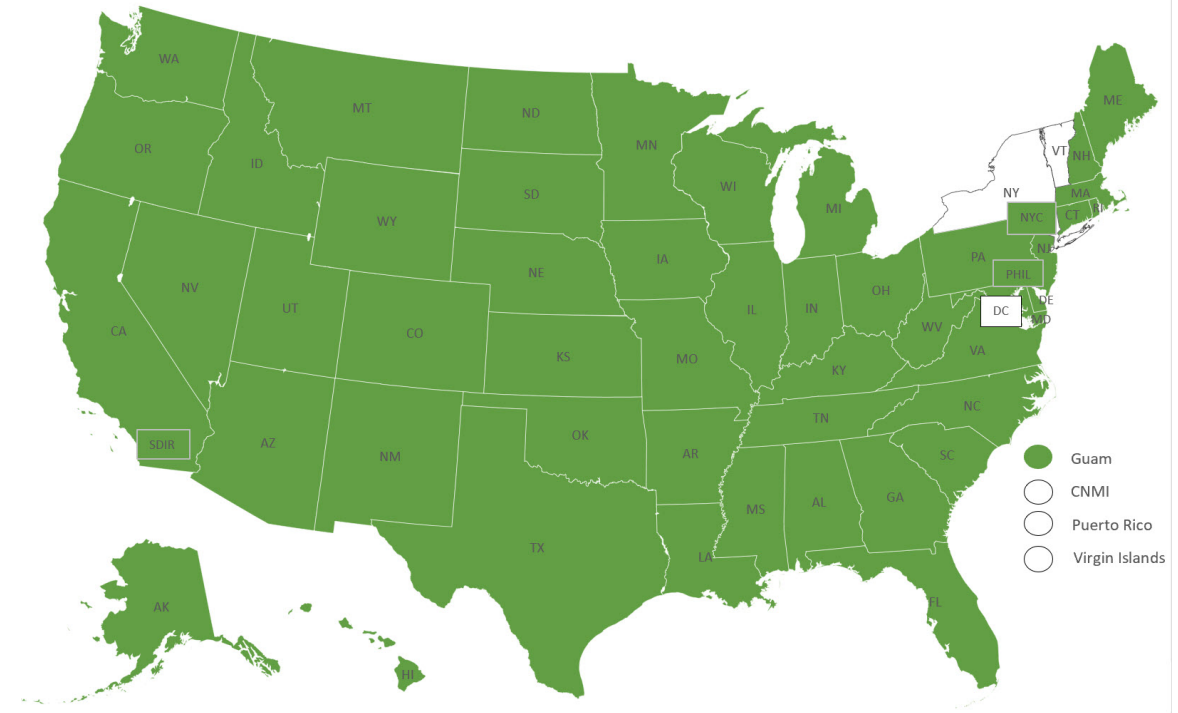


- The IIS Measurement and Improvement (M&I) Initiative began in 2015 as an effort to:
  - Test IIS alignment with standards
  - Provide IIS with information and assistance to improve



# 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 progress in all areas of quarterly measurement



# AART Clinics

- In person, @ AIRA National Meeting
  - ✓ Sign up soon for your spot for AIRA 2020
- Virtually, via online meeting tools
- Request a clinic or follow up clinic anytime!

## Announcements and Welcome!

Welcome to the new AART dashboard! A brief summary video of recent changes to AART can be found [here](#). Click [here](#) for more details. The dashboard below allows you to quickly navigate to the results for each of the stages of Measurement. Hover over text to see links to results below.

## AIRA Sandbox Dashboard

Assessment



Validation

Transport



Q3 2019

Submission and  
Acknowledgement



Q3 2019

Query and Response



Q3 2019

CDS



Q2 2019

[See Discovery Reports](#)

Transport - Complete



2019



Validated

Submission and Ack  
Basic



2019



Validated

Query and Response  
Basic



2019



Major Differences



# 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

Today!

Session 4: User Experience – HL7 Assessment

Session 5: User Experience – Clinical Decision Support

Session 6: *topic TBD*

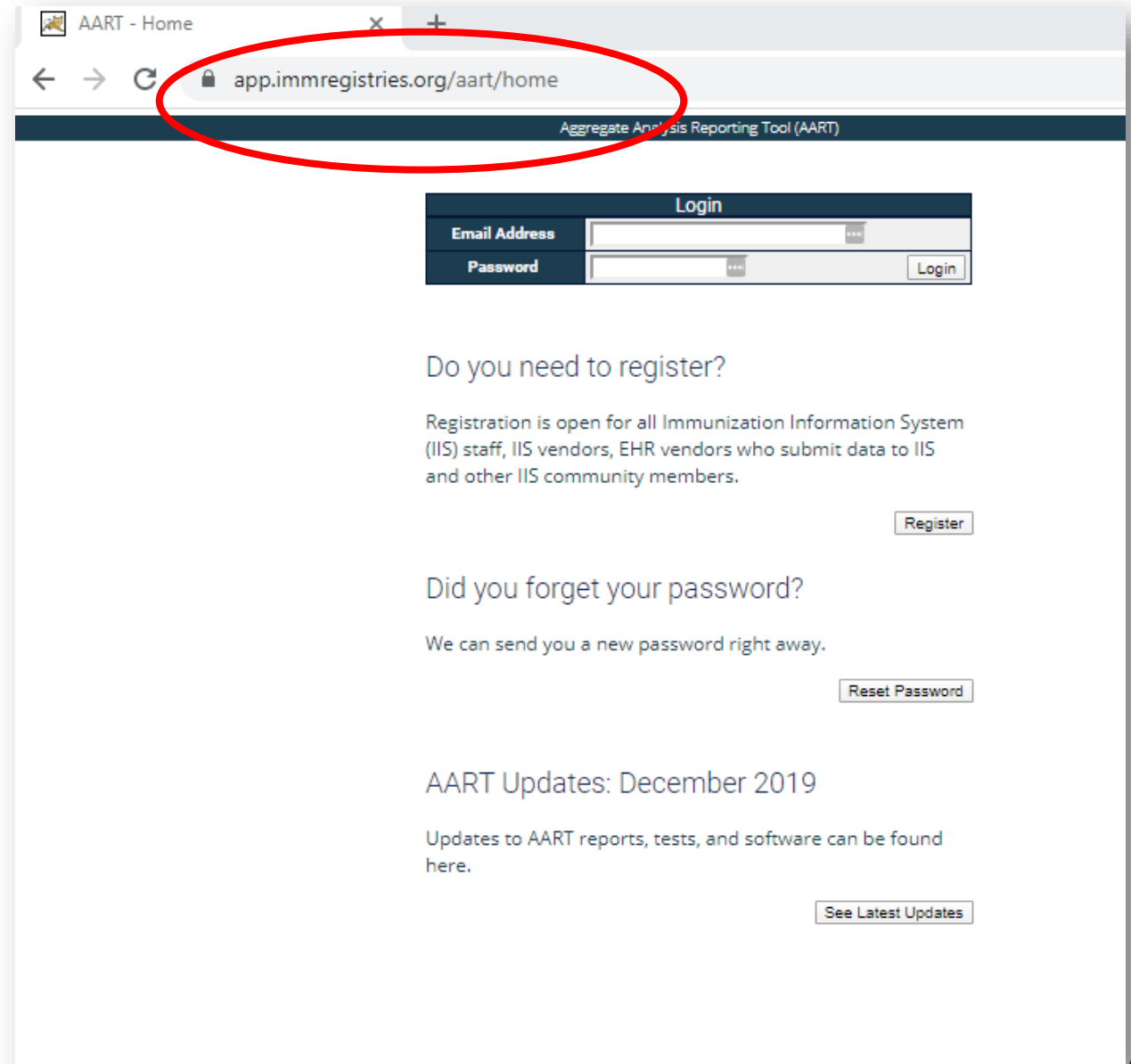




# AART Registration

- AART login page
- Register here
  - Forgot your password
- AART Updates

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

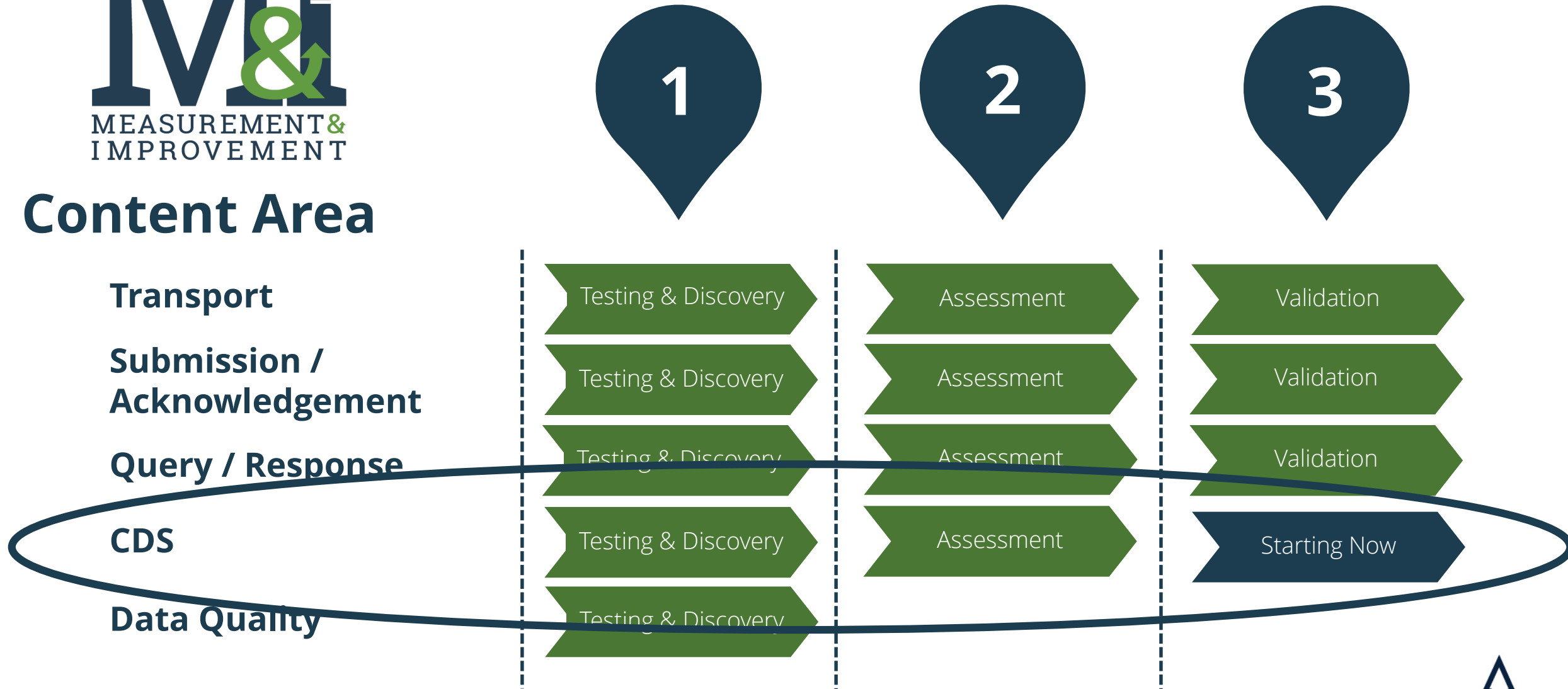


# Background

CDS Assessment and Discovery



## Content Area



# CDS Assessment

## Functional Standard 10

The IIS forecasts *pediatric, adolescent, and adult* immunizations in a manner consistent with Advisory Committee on Immunization Practices (ACIP) recommendations



### Pediatric

#### Birth through 6 years

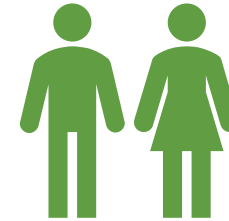
DTaP, HepA, HepB, Hib,  
MMR, Pneumo (PCV), Polio,  
Rotavirus, Varicella,  
Influenza



### Adolescent

#### 7 years through 18 years

HPV, Meningococcal,  
Tdap/Td, Influenza, HepB,  
MMR, Polio, Varicella



### Adult

#### 19 years and above

Tdap/Td, Zoster, Pneumo  
(PCV, PPSV), Influenza, HPV,  
Varicella, Meningococcal

- Routine age-based (including catch-up) recommendations will be tested
- Increased risk, immunities, and contraindications are out of scope at this time

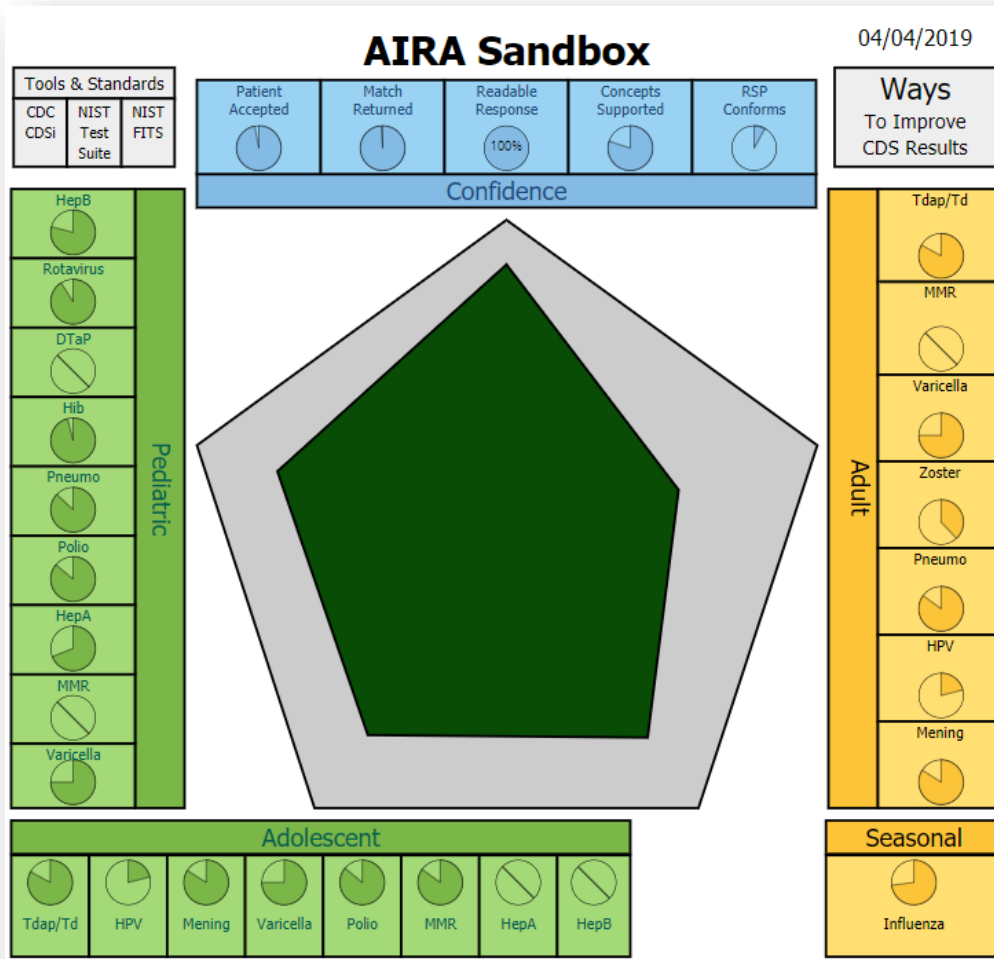


# CDS Assessment

| CDS Concept                                                           | Supported? | If supported, how closely aligned to ACIP? |
|-----------------------------------------------------------------------|------------|--------------------------------------------|
| <b>Evaluation Status</b><br><i>Is the dose valid?</i>                 | Yes        | Pediatric<br>Adolescent<br>Adult           |
| <b>Earliest Date</b><br><i>When could the next dose be given?</i>     | Yes        | Pediatric<br>Adolescent<br>Adult           |
| <b>Recommended Date</b><br><i>When should the next dose be given?</i> | Yes        | Pediatric<br>Adolescent<br>Adult           |



# CDS Discovery



- More test cases than Assessment
- More CDS Concepts
  - Evaluation Status
  - Series Status
  - Earliest Date
  - Recommended Date
  - Past Due Date



# Assessment vs. Discovery

## **Assessment**

- Community vetted measures
  - Measures and expectations are stable over time
- Used by:
  - Individual IIS
  - Vendors to help support IIS
  - AIRA to develop aggregate national report, identify trends, plan TA, etc.

## **Assessment**

- Much more fluid
  - Structure, tests, concepts can grow/shrink over time
- Used by:
  - Individual IIS
  - Vendors to help support IIS
  - AIRA to work on new concepts, testing methods, content areas



# Testing

How CDS Test Cases are Executed





# FITS

- Forecaster for Immunization Test Suite (FITS)
  - Stores all CDSi Test Cases
  - Can execute them against CDS engine
  - Open for registration and use

**NIST - Forecasting for Immunization Test Suite (FITS) 1.0**

Home Test Plans Validation Documentation About Issues Register Reset Password Login

Welcome to the NIST Forecasting for Immunization Test Suite (FITS)

### FITS Overview

FITS (Forecasting for Immunization Test Suite) is a web-based application for testing immunization CDS engines against ACIP recommendations. FITS creates and manages test cases, runs and validates the test cases, creates reports in standardized formats, and provides standardized (FHIR) and non-standardized (proprietary) interfaces to the CDS engines.

FITS can be used to validate immunization CDS engines independently of the system in which the CDS resides or is associated (e.g., an EHR or IIS). FITS will contain a set of test cases authored and maintained by the CDC CDSi project (<https://www.cdc.gov/vaccines/programs/iis/c>) that are available to be used to test CDS engines. Additionally, a user can create and persist their own test cases.

### Have a Question?

A Google Group **FITS** has been established for discussion/questions about the tool. No membership is required. A Google account is required for posting.

- Site: <https://groups.google.com/forum/#!forum/immunization-testing>
- Email: [fits-immunization-testing@googlegroups.com](mailto:fits-immunization-testing@googlegroups.com)

### Supported Browsers

The following browsers are supported:

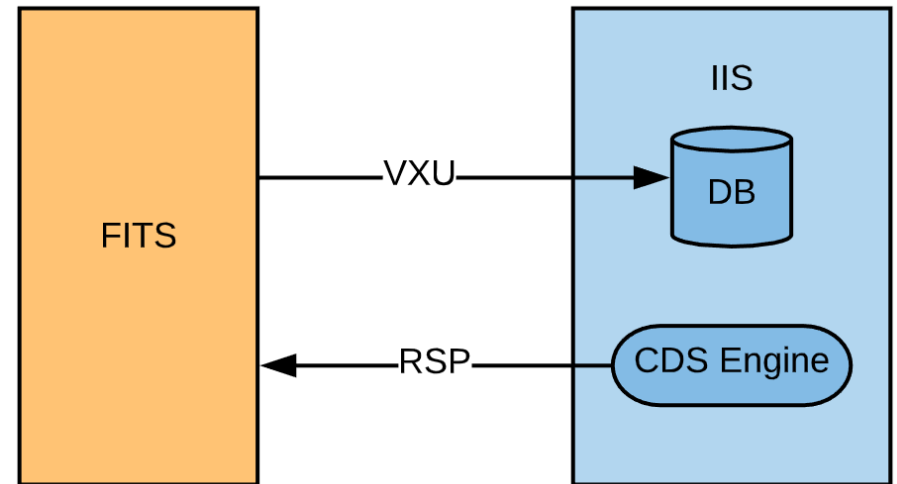
- Chrome (Recommended)
- Firefox
- Safari

<https://fits.nist.gov/fits/#/home>



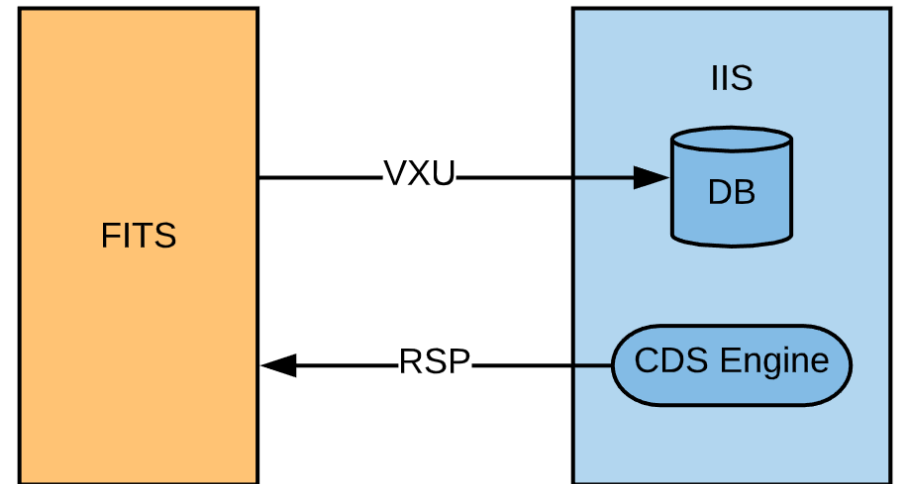
# FITS Connects Direct to CDS Engines

- FITS can connect direct CDS engines:
  - LSVF, STC, ICE, MA, FHIR, SWP MDS
- FITS can test CDS engines embedded in an IIS:
  - Using HL7 v2 updates and queries
- HL7 method selected for Measurement & Improvement



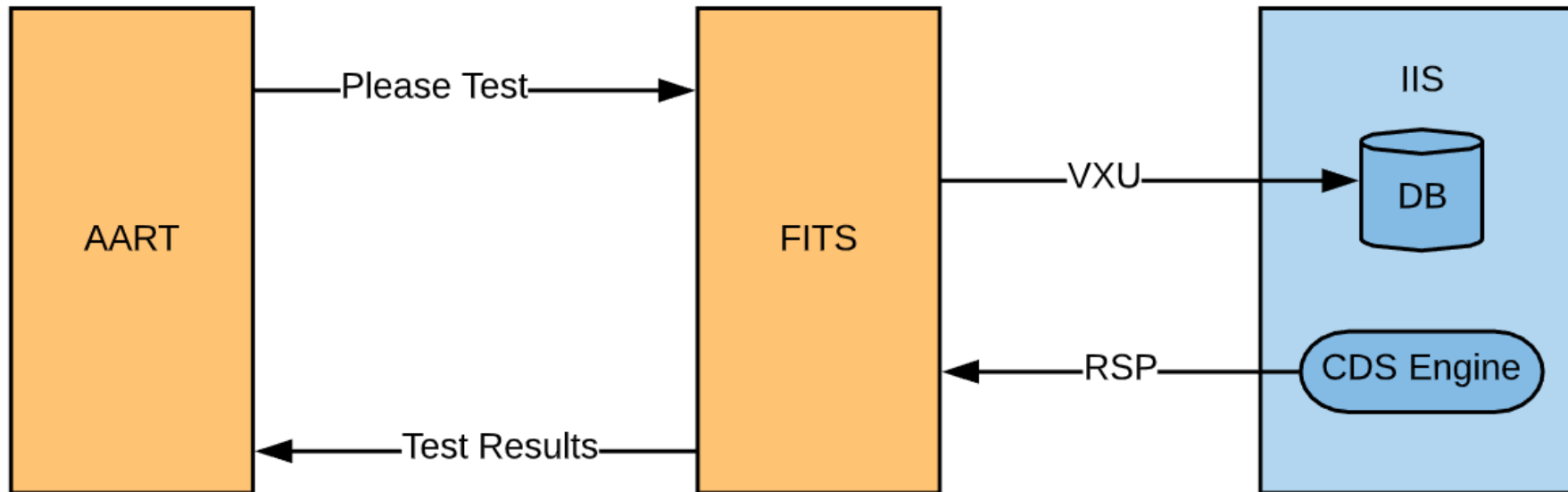
# FITS Connects Direct to CDS Engines

- For each test case FITS:
  - Sends VXU with vaccinations
    - New randomly generated patient info
    - Vaccinations are historical
    - Typhoid vaccination added if no other vaccinations are on record
  - Sends QBP
    - All patient demographics
  - Expects RSP match with forecast
    - Will re-query every 10 seconds for up to a minute or so looking for a match
    - Reads results from OBX segments



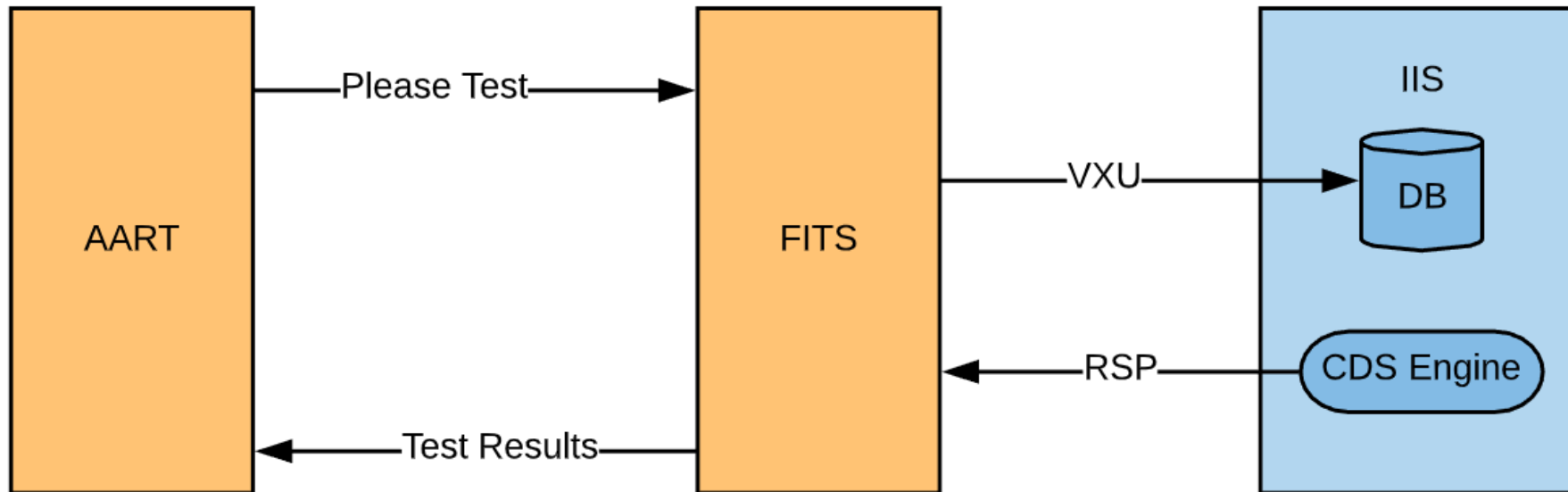
# AART Connects to FITS

- AART executes tests through a direct connection to FITS
  - This process is repeated for 870+ test cases!



# AART Connects to FITS

- AART must consolidate and filter the results
  - A single testing session with one IIS creates 10,000+ unique determinations



# Reports

Using CDS Reports



# AART

AART reports are a “Drill Down” model.  
The more you click, the more detail you get.

CDS

Q2 2019

| Concept           | Age Group                        | Result                     | Passed | Failed Group Count |
|-------------------|----------------------------------|----------------------------|--------|--------------------|
| Evaluation Status | Supports Evaluation Status       | Meets '1'                  | 100%   |                    |
|                   | Accuracy Peds Evaluation Status  | Meets '2'                  | 91%    |                    |
|                   | Accuracy Adol Evaluation Status  | Does Not Meet '3'          | 55%    | 2                  |
|                   | Accuracy Adult Evaluation Status | Does Not Meet '4'          | 23%    | 1                  |
| Earliest Date     | Supports Earliest Date           | Meets '5'                  | 100%   |                    |
|                   | Accuracy Peds Earliest Date      | Does Not Meet '6'          | 78%    | 2                  |
|                   | Accuracy Adol Earliest Date      | Does Not Meet '7'          | 55%    | 2                  |
|                   | Accuracy Adult Earliest Date     | Does Not Meet '8'          | 52%    | 1                  |
| Recommended Date  | Supports Recommended Date        | Meets '9'                  | 100%   |                    |
|                   | Accuracy Peds Recommended Date   | Unknown from Standard '10' | 64%    |                    |
|                   | Accuracy Adol Recommended Date   | Does Not Meet '11'         | 56%    | 2                  |
|                   | Accuracy Adult Recommended Date  | Does Not Meet '12'         | 23%    | 1                  |
| New or changed    |                                  | Not Measured               |        |                    |

## 6: Accuracy Peds Earliest Date

The Earliest Date returned by the IIS matches the CDC CDSI expected value for routine age-based pediatric recommendations.

Test Outcome

High measure threshold was not met and at least one applicable group threshold was not met

| Test Case Results |                                            |        |  |
|-------------------|--------------------------------------------|--------|--|
| Test Case         | Test Case Title                            | Passed |  |
| 6.1               | Accuracy Peds Earliest Date - DTaP         | 55%    |  |
| 6.2               | Accuracy Peds Earliest Date - HepA         | 44%    |  |
| 6.3               | Accuracy Peds Earliest Date - HepB         | 96%    |  |
| 6.4               | Accuracy Peds Earliest Date - Hib          | 100%   |  |
| 6.5               | Accuracy Peds Earliest Date - MMR          | 65%    |  |
| 6.6               | Accuracy Peds Earliest Date - Pneumococcal | 96%    |  |
| 6.7               | Accuracy Peds Earliest Date - Polio        | 86%    |  |
| 6.8               | Accuracy Peds Earliest Date - Rotavirus    | 91%    |  |
| 6.9               | Accuracy Peds Earliest Date - Varicella    | 60%    |  |
| 6.10              | Accuracy Peds Earliest Date - Flu          | 100%   |  |

## 6.5: Accuracy Peds Earliest Date - MMR

Test Outcome

IIS met 65% of the test cases which meets the 65% minimum threshold.

Results Meets '6.5' 65%

| FITS Test Id | FITS Description                                | Results       |
|--------------|-------------------------------------------------|---------------|
| 2013-0523    | #1 at 15 months                                 | Meets         |
| 2013-0540    | MMR # 1 at 12 months-5 days                     | Meets         |
| 2013-0541    | MMR # 1 at 12 months-4 days                     | Does Not Meet |
| 2013-0542    | MMR # 1 at 12 months                            | Does Not Meet |
| 2013-0543    | Newborn forecasting                             | Meets         |
| 2013-0545    | MMR and VZ given at age 12 months               | Does Not Meet |
| 2013-0547    | VZ to MMR interval 28-1 day = invalid MMR       | Meets         |
| 2013-0548    | VZ given at age 12 mo; MMR at age 12 mo+28 days | Meets         |
| 2013-0549    | Dose 1 MMRV at 12 m-5 days                      | Meets         |
| 2013-0550    | Dose 1 MMRV at 12 m-4 days                      | Does Not Meet |

## 2013-0545 MMR and VZ given at age 12 months

|                   |               |
|-------------------|---------------|
| Conforms Status   | Does Not Meet |
| Test Run Status   | Finished      |
| Evaluation Date   | 03/31/2019    |
| Birth Date        | 03/31/2018    |
| FITS Group Name   | MMR           |
| Measure Type      | Accuracy      |
| Measure Criterion | ED            |

## Evaluations

| Date       | Vaccine        | Expected | Actual | FITS Status |
|------------|----------------|----------|--------|-------------|
| 03/31/2019 | MMR (03)       | VALID    | VALID  | Pass        |
| 03/31/2019 | varicella (21) | VALID    | VALID  | Pass        |

## Forecasts

| MMR (03)         | Expected     | Actual     | FITS Status |
|------------------|--------------|------------|-------------|
| Series Status    | Not complete |            | Unknown     |
| Earliest Date    | 05/01/2019   | 04/28/2019 | Fail        |
| Recommended Date | 03/31/2022   | 03/31/2022 | Pass        |
| Past Due Date    | 04/27/2025   | 03/31/2025 | Warning     |



# Opening an Assessment Report

## AIRA Sandbox Dashboard

Assessment



Validation

Transport



1st half 2020

Submission and Acknowledgement



Q3 2019

Query and Response



Q3 2019

CDS



Q2 2019

See Discovery Reports

Transport - Complete



2020

Submission and Ack Basic



2019

Query and Response Basic



2019



| Concept           | Age Group                        | Result                      |      | Passed                 | Failed Group Count |
|-------------------|----------------------------------|-----------------------------|------|------------------------|--------------------|
| Evaluation Status | Supports Evaluation Status       | Meets '1'                   | 100% | <div><div></div></div> |                    |
|                   | Accuracy Peds Evaluation Status  | Meets '2'                   | 91%  | <div><div></div></div> |                    |
|                   | Accuracy Adol Evaluation Status  | Does Not Meet '3'           | 55%  | <div><div></div></div> | 2                  |
|                   | Accuracy Adult Evaluation Status | Does Not Meet '4'           | 23%  | <div><div></div></div> | 1                  |
| Earliest Date     | Supports Earliest Date           | Meets '5'                   | 100% | <div><div></div></div> |                    |
|                   | Accuracy Peds Earliest Date      | Does Not Meet '6'           | 78%  | <div><div></div></div> | 2                  |
|                   | Accuracy Adol Earliest Date      | Does Not Meet '7'           | 55%  | <div><div></div></div> | 2                  |
|                   | Accuracy Adult Earliest Date     | Does Not Meet '8'           | 52%  | <div><div></div></div> | 1                  |
| Recommended Date  | Supports Recommended Date        | Meets '9'                   | 100% | <div><div></div></div> |                    |
|                   | Accuracy Peds Recommended Date   | Deviates From Standard '10' | 84%  | <div><div></div></div> |                    |
|                   | Accuracy Adol Recommended Date   | Does Not Meet '11'          | 56%  | <div><div></div></div> | 2                  |
|                   | Accuracy Adult Recommended Date  | Does Not Meet '12'          | 28%  | <div><div></div></div> | 1                  |
| New or Changed    |                                  | Not Measured                |      |                        |                    |



# Looking at a Measure

| Concept           | Age Group                        | Result                      |      | Passed | Failed Group Count |
|-------------------|----------------------------------|-----------------------------|------|--------|--------------------|
| Evaluation Status | Supports Evaluation Status       | Meets '1'                   | 100% |        |                    |
|                   | Accuracy Peds Evaluation Status  | Meets '2'                   | 91%  |        |                    |
|                   | Accuracy Adol Evaluation Status  | Does Not Meet '3'           | 55%  |        | 2                  |
|                   | Accuracy Adult Evaluation Status | Does Not Meet '4'           | 23%  |        | 1                  |
| Earliest Date     | Supports Earliest Date           | Meets '5'                   | 100% |        |                    |
|                   | Accuracy Peds Earliest Date      | Does Not Meet '6'           | 78%  |        | 2                  |
|                   | Accuracy Adol Earliest Date      | Does Not Meet '7'           | 55%  |        | 2                  |
|                   | Accuracy Adult Earliest Date     | Does Not Meet '8'           | 52%  |        | 1                  |
| Recommended Date  | Supports Recommended Date        | Meets '9'                   | 100% |        |                    |
|                   | Accuracy Peds Recommended Date   | Deviates From Standard '10' | 84%  |        |                    |
|                   | Accuracy Adol Recommended Date   | Does Not Meet '11'          | 56%  |        | 2                  |
|                   | Accuracy Adult Recommended Date  | Does Not Meet '12'          | 28%  |        | 1                  |
| New or Changed    |                                  | Not Measured                |      |        |                    |

## 6: Accuracy Peds Earliest Date

The Earliest Date returned by the IIS matches the CDC CDSi expected value for routine age-based pediatric recommendations.

Test Outcome

High measure threshold was not met and at least one applicable group threshold was not met

| Test Case Results |                                            |      |        |  |
|-------------------|--------------------------------------------|------|--------|--|
| Test Case         | Test Case Title                            |      | Passed |  |
| 6.1               | Accuracy Peds Earliest Date - DTaP         | 55%  |        |  |
| 6.2               | Accuracy Peds Earliest Date - HepA         | 44%  |        |  |
| 6.3               | Accuracy Peds Earliest Date - HepB         | 96%  |        |  |
| 6.4               | Accuracy Peds Earliest Date - Hib          | 100% |        |  |
| 6.5               | Accuracy Peds Earliest Date - MMR          | 65%  |        |  |
| 6.6               | Accuracy Peds Earliest Date - Pneumococcal | 96%  |        |  |
| 6.7               | Accuracy Peds Earliest Date - Polio        | 86%  |        |  |
| 6.8               | Accuracy Peds Earliest Date - Rotavirus    | 91%  |        |  |
| 6.9               | Accuracy Peds Earliest Date - Varicella    | 60%  |        |  |
| 6.10              | Accuracy Peds Earliest Date - Flu          | 100% |        |  |



# Looking at Tests for a Measure

## 6: Accuracy Peds Earliest Date

The Earliest Date returned by the IIS matches the CDC CDSi expected value for routine age-based pediatric recommendations.

### Test Outcome

High measure threshold was not met and at least one applicable group threshold was not met

| Test Case Results |                                            |      |                        |
|-------------------|--------------------------------------------|------|------------------------|
| Test Case         | Test Case Title                            |      | Passed                 |
| 6.1               | Accuracy Peds Earliest Date - DTaP         | 55%  | <div><div></div></div> |
| 6.2               | Accuracy Peds Earliest Date - HepA         | 44%  | <div><div></div></div> |
| 6.3               | Accuracy Peds Earliest Date - HepB         | 96%  | <div><div></div></div> |
| 6.4               | Accuracy Peds Earliest Date - Hib          | 100% | <div><div></div></div> |
| 6.5               | Accuracy Peds Earliest Date - MMR          | 65%  | <div><div></div></div> |
| 6.6               | Accuracy Peds Earliest Date - Pneumococcal | 96%  | <div><div></div></div> |
| 6.7               | Accuracy Peds Earliest Date - Polio        | 86%  | <div><div></div></div> |
| 6.8               | Accuracy Peds Earliest Date - Rotavirus    | 91%  | <div><div></div></div> |
| 6.9               | Accuracy Peds Earliest Date - Varicella    | 60%  | <div><div></div></div> |
| 6.10              | Accuracy Peds Earliest Date - Flu          | 100% | <div><div></div></div> |

## 6.5: Accuracy Peds Earliest Date - MMR

### Test Outcome

IIS met 65% of the test cases which meets the 65% minimum threshold.



| FITS Test Id | FITS Description                                | Results       |
|--------------|-------------------------------------------------|---------------|
| 2013-0523    | #1 at 15 months                                 | Meets         |
| 2013-0540    | MMR # 1 at 12 months-5 days                     | Meets         |
| 2013-0541    | MMR # 1 at 12 months-4 days                     | Does Not Meet |
| 2013-0542    | MMR # 1 at 12 months                            | Does Not Meet |
| 2013-0543    | Newborn forecasting                             | Meets         |
| 2013-0545    | MMR and VZ given at age 12 months               | Does Not Meet |
| 2013-0547    | VZ to MMR interval 28-1 day = invalid MMR       | Meets         |
| 2013-0548    | VZ given at age 12 mo; MMR at age 12 mo+28 days | Meets         |
| 2013-0549    | Dose 1 MMRV at 12 m-5 days                      | Meets         |
| 2013-0550    | Dose 1 MMRV at 12 m-4 days                      | Does Not Meet |



# Looking at Test Case Details

## 6.5: Accuracy Peds Earliest Date - MMR

### Test Outcome

IIS met 65% of the test cases which meets the 65% minimum threshold.



| FITS Test Id | FITS Description                                | Results       |
|--------------|-------------------------------------------------|---------------|
| 2013-0523    | #1 at 15 months                                 | Meets         |
| 2013-0540    | MMR # 1 at 12 months-5 days                     | Meets         |
| 2013-0541    | MMR # 1 at 12 months-4 days                     | Does Not Meet |
| 2013-0542    | MMR # 1 at 12 months                            | Does Not Meet |
| 2013-0543    | Newborn forecasting                             | Meets         |
| 2013-0545    | MMR and VZ given at age 12 months               | Does Not Meet |
| 2013-0547    | VZ to MMR interval 28-1 day = invalid MMR       | Meets         |
| 2013-0548    | VZ given at age 12 mo; MMR at age 12 mo+28 days | Meets         |
| 2013-0549    | Dose 1 MMRV at 12 m-5 days                      | Meets         |
| 2013-0550    | Dose 1 MMRV at 12 m-4 days                      | Does Not Meet |

## 2013-0545 MMR and VZ given at age 12 months

|                   |               |
|-------------------|---------------|
| Conforms Status   | Does Not Meet |
| Test Run Status   | Finished      |
| Evaluation Date   | 03/31/2019    |
| Birth Date        | 03/31/2018    |
| FITS Group Name   | MMR           |
| Measure Type      | Accuracy      |
| Measure Criterion | ED            |

### Evaluations

| Date       | Vaccine        | Expected | Actual | FITS Status |
|------------|----------------|----------|--------|-------------|
| 03/31/2019 | MMR (03)       | VALID    | VALID  | Pass        |
| 03/31/2019 | varicella (21) | VALID    | VALID  | Pass        |

### Forecasts

| MMR (03)         | Expected     | Actual     | FITS Status |
|------------------|--------------|------------|-------------|
| Series Status    | Not complete |            | Unknown     |
| Earliest Date    | 05/01/2019   | 04/28/2019 | Fail        |
| Recommended Date | 03/31/2022   | 03/31/2022 | Pass        |
| Past Due Date    | 04/27/2025   | 03/31/2025 | Warning     |



# Secondary Method for viewing results

- Interactive CDS Results Explorer
- Unique to CDS (not available for other content areas)
- Allows for viewing pre-filtered failed tests for triage
- Able to copy/paste into Excel for further analysis/workflow



# Navigating to the Results Explorer

## AIRA Sandbox Dashboard

Assessment



Validation

Transport



1st half 2020

Submission and Acknowledgement



Q3 2019

Query and Response



Q3 2019

CDS



Q2 2019

See Discovery Reports

Transport - Complete



2020

Submission and Acknowledgement Basic



2019

Query and Response Basic



2019

CDS



2020



Validated



Validated



Major Differences



AVAILABLE 2020

## Explore Results

See the results quickly with this interactive test case explorer.

## Interactive CDS Results Explorer

## CDS Results Summary

The following table summarizes the overall results of the 12 CDS Assessment Measures.

| Concept           | Age Group                        | Result            | Passed | Failed Group Count |
|-------------------|----------------------------------|-------------------|--------|--------------------|
| Evaluation Status | Supports Evaluation Status       | Meets '1'         | 100%   |                    |
|                   | Accuracy Peds Evaluation Status  | Meets '2'         | 91%    |                    |
|                   | Accuracy Adol Evaluation Status  | Does Not Meet '3' | 55%    | 2                  |
|                   | Accuracy Adult Evaluation Status | Does Not Meet '4' | 23%    | 1                  |
|                   | Supports Earliest Date           | Meets '5'         | 100%   |                    |

# Interactive Results Explorer

| Concept           | Age Group                        | Result                      |      | Passed | DTAP | FLU | HIB | HPV | HepA | HepB | MCV | MMR | PCV | POL | ROTA | VAR | ZOSTER |
|-------------------|----------------------------------|-----------------------------|------|--------|------|-----|-----|-----|------|------|-----|-----|-----|-----|------|-----|--------|
| Evaluation Status | Supports Evaluation Status       | Meets '1'                   | 100% |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Peds Evaluation Status  | Meets '2'                   | 91%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Adol Evaluation Status  | Does Not Meet '3'           | 55%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Adult Evaluation Status | Does Not Meet '4'           | 23%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
| Earliest Date     | Supports Earliest Date           | Meets '5'                   | 100% |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Peds Earliest Date      | Does Not Meet '6'           | 78%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Adol Earliest Date      | Does Not Meet '7'           | 55%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Adult Earliest Date     | Does Not Meet '8'           | 52%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
| Recommended Date  | Supports Recommended Date        | Meets '9'                   | 100% |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Peds Recommended Date   | Deviates From Standard '10' | 84%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Adol Recommended Date   | Does Not Meet '11'          | 56%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
|                   | Accuracy Adult Recommended Date  | Does Not Meet '12'          | 28%  |        |      |     |     |     |      |      |     |     |     |     |      |     |        |
| New or Changed    |                                  | Not Measured                |      |        |      |     |     |     |      |      |     |     |     |     |      |     |        |





# Pre-Filtered to Show Failed Test Cases

| Measure                         | Meets | Deviates | Not Meet | Not Measured | Total |
|---------------------------------|-------|----------|----------|--------------|-------|
| M6: Accuracy Peds Earliest Date | 13    | 0        | 7        | 0            | 20    |

Compare with other IIS

Tests Included - For Vaccine Group: MMR

| FITS Id    | FITS Name                                      | Conforms Status | Comparing | Expected   | Actual     |
|------------|------------------------------------------------|-----------------|-----------|------------|------------|
| 2013-0541  | MMR # 1 at 12 months-4 days                    | Does Not Meet   | ED        | 05/04/2019 | 04/28/2019 |
| 2013-0542  | MMR # 1 at 12 months                           | Does Not Meet   | ED        | 05/01/2019 | 04/28/2019 |
| 2013-0545  | MMR and VZ given at age 12 months              | Does Not Meet   | ED        | 05/01/2019 | 04/28/2019 |
| 2013-0550  | Dose 1 MMRV at 12 m-4 days                     | Does Not Meet   | ED        | 05/04/2019 | 04/28/2019 |
| 2013-0556  | MMR to MMRV interval 24 days=not valid MMR # 2 | Does Not Meet   | ED        | 04/28/2019 | -          |
| 2013-0570  | Dose 2 at age 13 mo -5 days                    | Does Not Meet   | ED        | 04/28/2019 | -          |
| AART-MMR-2 | Dose 1 at 12 months                            | Does Not Meet   | ED        | 05/01/2019 | 04/28/2019 |

## 2013-0545 MMR and VZ given at age 12 months

|                   |               |
|-------------------|---------------|
| Conforms Status   | Does Not Meet |
| Test Run Status   | Finished      |
| Evaluation Date   | 03/31/2019    |
| Birth Date        | 03/31/2018    |
| FITS Group Name   | MMR           |
| Measure Type      | Accuracy      |
| Measure Criterion | ED            |

### Evaluations

| Date       | Vaccine        | Expected | Actual | FITS Status |
|------------|----------------|----------|--------|-------------|
| 03/31/2019 | MMR (03)       | VALID    | VALID  | Pass        |
| 03/31/2019 | varicella (21) | VALID    | VALID  | Pass        |

### Forecasts

| MMR (03)         | Expected     | Actual     | FITS Status |
|------------------|--------------|------------|-------------|
| Series Status    | Not complete |            | Unknown     |
| Earliest Date    | 05/01/2019   | 04/28/2019 | Fail        |
| Recommended Date | 03/31/2022   | 03/31/2022 | Pass        |
| Past Due Date    | 04/27/2025   | 03/31/2025 | Warning     |



# Extract to Excel

| Measure                         | Meets | Deviates | Not Meet | Not Measured | Total |
|---------------------------------|-------|----------|----------|--------------|-------|
| M6: Accuracy Peds Earliest Date | 13    | 0        | 7        | 0            | 20    |

Compare with other IIS

Tests Included - For Vaccine Group: MMR

| FITS Id    | FITS Name                                      | Conforms Status | Comparing | Expected   | Actual     |
|------------|------------------------------------------------|-----------------|-----------|------------|------------|
| 2013-0541  | MMR # 1 at 12 months-4 days                    | Does Not Meet   | ED        | 05/04/2019 | 04/28/2019 |
| 2013-0542  | MMR # 1 at 12 months                           | Does Not Meet   | ED        | 05/01/2019 | 04/28/2019 |
| 2013-0545  | MMR and VZ given at age 12 months              | Does Not Meet   | ED        | 05/01/2019 | 04/28/2019 |
| 2013-0550  | Dose 1 MMRV at 12 m-4 days                     | Does Not Meet   | ED        | 05/04/2019 | 04/28/2019 |
| 2013-0556  | MMR to MMRV interval 24 days=not valid MMR # 2 | Does Not Meet   | ED        | 04/28/2019 | -          |
| 2013-0570  | Dose 2 at age 13 mo -5 days                    | Does Not Meet   | ED        | 04/28/2019 | -          |
| AART-MMR-2 | Dose 1 at 12 months                            | Does Not Meet   | ED        | 05/01/2019 | 04/28/2019 |

1. Highlight all Cells
2. Copy
3. Paste into Excel



|   | A                         | B                                                              | C                             | D                  | E                         | F                         |
|---|---------------------------|----------------------------------------------------------------|-------------------------------|--------------------|---------------------------|---------------------------|
| 1 | FITS Id                   | FITS Name                                                      | Conforms Status               | Comparing          | Expected                  | Actual                    |
| 2 | <a href="#">2013-0541</a> | <a href="#">MMR # 1 at 12 months-4 days</a>                    | <a href="#">Does Not Meet</a> | <a href="#">ED</a> | <a href="#">5/4/2019</a>  | <a href="#">4/28/2019</a> |
| 3 | <a href="#">2013-0542</a> | <a href="#">MMR # 1 at 12 months</a>                           | <a href="#">Does Not Meet</a> | <a href="#">ED</a> | <a href="#">5/1/2019</a>  | <a href="#">4/28/2019</a> |
| 4 | <a href="#">2013-0545</a> | <a href="#">MMR and VZ given at age 12 months</a>              | <a href="#">Does Not Meet</a> | <a href="#">ED</a> | <a href="#">5/1/2019</a>  | <a href="#">4/28/2019</a> |
| 5 | <a href="#">2013-0550</a> | <a href="#">Dose 1 MMRV at 12 m-4 days</a>                     | <a href="#">Does Not Meet</a> | <a href="#">ED</a> | <a href="#">5/4/2019</a>  | <a href="#">4/28/2019</a> |
| 6 | <a href="#">2013-0556</a> | <a href="#">MMR to MMRV interval 24 days=not valid MMR # 2</a> | <a href="#">Does Not Meet</a> | <a href="#">ED</a> | <a href="#">4/28/2019</a> | -                         |
| 7 | <a href="#">2013-0570</a> | <a href="#">Dose 2 at age 13 mo -5 days</a>                    | <a href="#">Does Not Meet</a> | <a href="#">ED</a> | <a href="#">4/28/2019</a> | -                         |





# CDS Discovery

- Very similar look/feel to HL7 Discovery (Pentagon Report)
- Same “Drill Down” Approach
- Sides of Pentagon are:
  - Pediatric
  - Adolescent
  - Adult
  - Seasonal (only ran in Q4 and Q1 each year)
  - Confidence (measures general understanding of interface)



# Join Us Next Month!

- Wednesday, April 22
  - 4:00 – 5:00 pm, ET



# Contact Information

If you have any questions or comments:

- Nathan Bunker [nbunker@immregistries.org](mailto:nbunker@immregistries.org)

Thank you!

