

Immunization Software Evaluation – Coordinating EHRs and IIS'

AIRA 2018 – Salt Lake City, Utah

Session 4D, Wednesday, August 15, 2018

11:00-12:00 PM



Today's Speakers:

Kafayat Adeniyi (Moderator)

Public Health Analyst, National Center for Immunization and
Respiratory, Diseases, Centers for Disease Control and Prevention

Sheryl Taylor, BSN, RN

IT Specialist, Information Technology Laboratory, National Institute
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Nathan Bunker

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Association (AIRA)

Eric Larson

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member HIMSS IIP Technical Advisory Panel

Floyd Eisenberg, MD MPH FACP

VP Quality and Regulatory, Chickasaw Health Consulting



Immunization Software Evaluation – Coordinating EHRs and IIS’ Agenda

- ❑ Introduction to Immunization Standardization and Testing
- ❑ National Institute for Standards and Testing (NIST) Tooling for Testing
- ❑ IIS Testing for Conformance
- ❑ HIMSS IIP Testing – Adding Clinical Workflow to Conformance
- ❑ Areas of Collaboration
- ❑ Wrap up and Questions

Learning Objectives

- ❑ Understand similarities and differences between the EHR software and the public health IIS recognition programs.
- ❑ Determine activities the clinical practice and IIS can leverage to enhance data quality and improve clinical decision-making based on information sharing.
- ❑ Gain insights on enhancing communication between the clinical care and public health communities.
- ❑ Understand the critical success factors that led both the IIP and the IIS Measurement and Improvement process to transition from concept to fully-operational, independent programs based on standard tooling.
- ❑ Learn how the programs can serve as models for advancing public health efforts to share data electronically with clinicians and improve clinical decision-making.

Immunization Software Testing Overview

- ❑ Highlight the similarities and differences in testing approaches and incentives for participation in the two voluntary recognition programs and the ONC Health IT Certification Program (CEHRT).
- ❑ The AIRA IIS Measurement and Improvement Initiative is moving forward with a phased implementation effort to evaluate conformance with interoperability standards.
- ❑ The HIMSS IIP is now a fully operational, independent, voluntary immunization-related software testing and recognition program.
- ❑ Both programs are based on CDC and Health Level 7 (HL7) implementation guides (IGs) for sharing data between systems, as well as IIS Functional Standards. And both are data centered, assuring the extent to which shared data are captured, stored and transmitted to conform with the standard IGs.
- ❑ NIST tools are used to perform evaluation for both programs. The IIP also includes clinical workflow and usability considerations that require a test script and a test evaluator to assess vendor capabilities (i.e., a product) based on national level requirements. The IIS testing is focused on installed implementations and has to account for national level and local requirements.

Immunization Software Evaluation – Coordinating EHRs and IISs

The NIST Experience

AIRA Conference 2018 Salt Lake City, Utah

National Institute of Standards and Technology

August 2018

Contact: sheryl.taylor@nist.gov

NIST Session Learning Objectives

At the conclusion of this session, attendees will be able to:

- Describe the NIST approach to development of HL7 v2 standards, tools, and testing
- Articulate Lessons Learned by NIST during the process
- Explain critical success factors for achieving interoperability
- Describe the key outcomes of the NIST effort
- Describe NIST's future plans for additional tools and testing for Health IT testing

NIST Health IT Certification and Testing Agenda

- Tools and Testing approaches for EHRs
- Experiences/Lessons Learned
- Key outcomes
- Results from testing efforts for EHRs

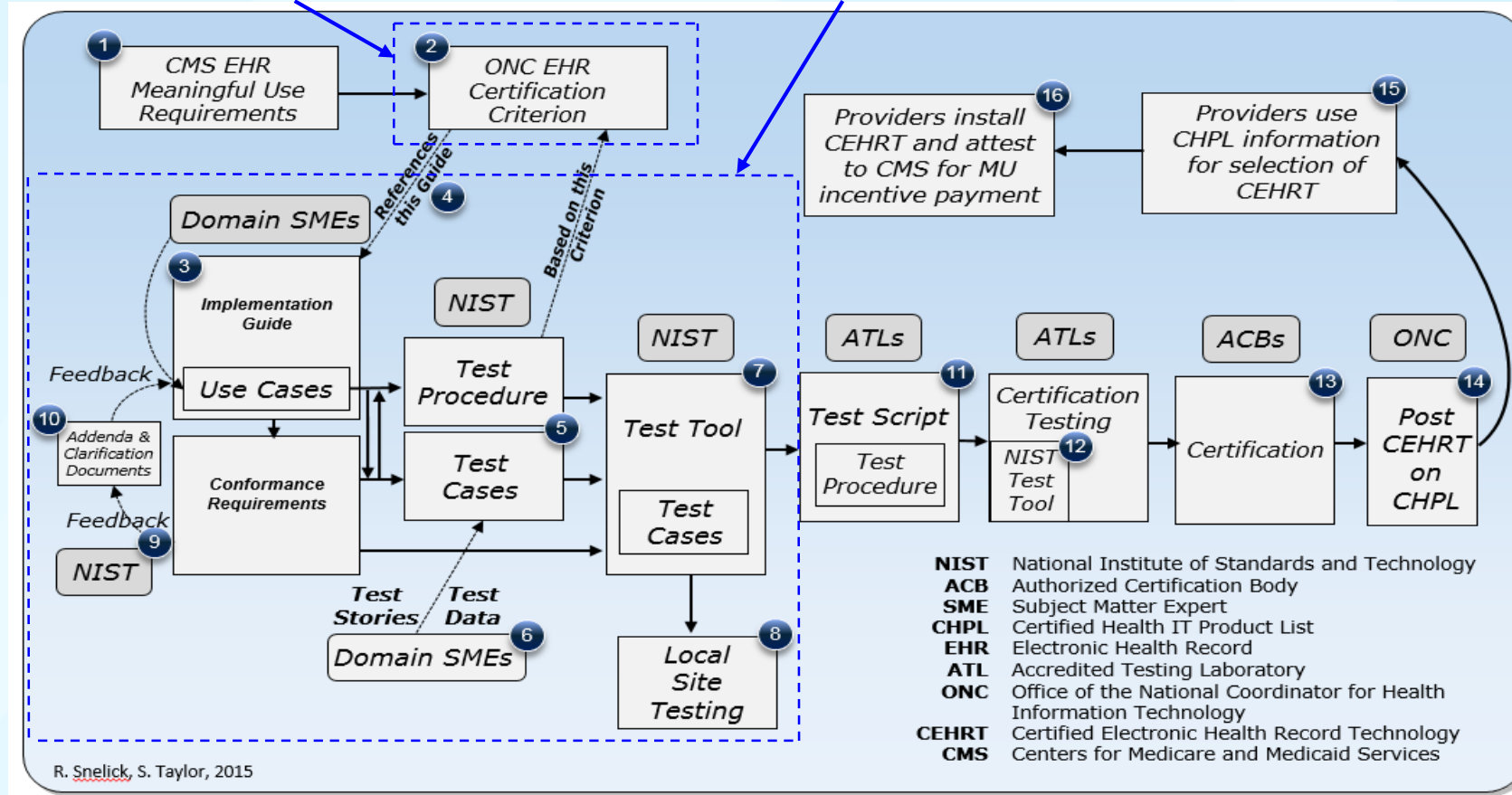
NIST Conformance and Interoperability Testing (HL7 V2)

- 10+ years developing conformance and interoperability test tools
 - IHE (PIX/PDQ V2 and V3, PCD, Vital Records)
 - CDC (**Immunization**, Vital Records, Case Reporting, etc.)
 - ISDS (Syndromic Surveillance)
 - **ONC-HIT Certification Program - related to CMS Promoting Interoperability Program (AKA Meaningful Use)**
 - General HL7 V2.x Validation Engine
- HL7 V2 Conformance Co-chair – Rob Snelick
 - Editor of HL7 V2.x Conformance Chapter
 - Works closely with HL7 V2 implementation guide authors to apply conformance concepts uniformly and correctly
- Testing Techniques developed to perform rigorous conformance testing
- Productivity Tools developed to support specification of requirements, test cases, and test data

NIST Experience in ONC Certification

Limited scope of NIST Certification Test Method

Development of Standards and Test Tools



- Shows process when a conformance test tool is part of the ONC criterion
- Is focused on NIST HL7v2 tools
- Indicates the multiphase and iterative process
- Process often requires clarification of requirements and addenda to the standards

ONC 2015 Edition Final Rule Criterion - Immunizations

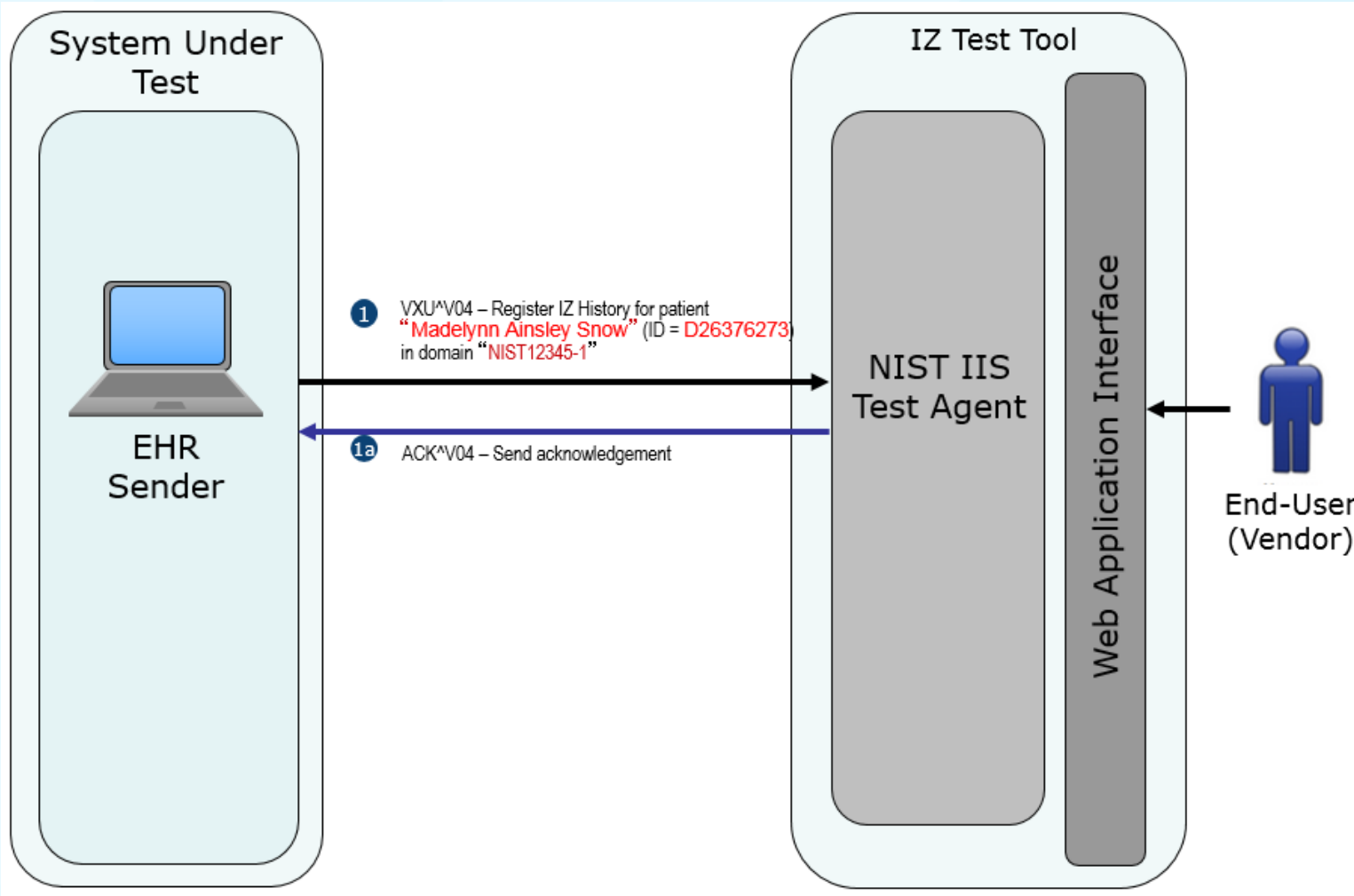
§170.315(f)(1) Transmission to immunization registries

- Evaluate capability for Health IT Module to
 - Electronically *create* **immunization information** for electronic transmission *using the Immunization Messaging Guide and associated Addendum*
 - Enable a user to *request, access, and display* a patient's **evaluated immunization history and forecast from an immunization registry** *using the Immunization Messaging Guide and associated Addendum*

Not included:

- Testing the Module's use of any transport standards
- Testing using Test Cases that cover the full extent of use cases specified in the Implementation Guide
- Complete, exhaustive testing of conformance to the Implementation Guide
- **Testing of receiving systems, such as immunization information systems (IIS)**

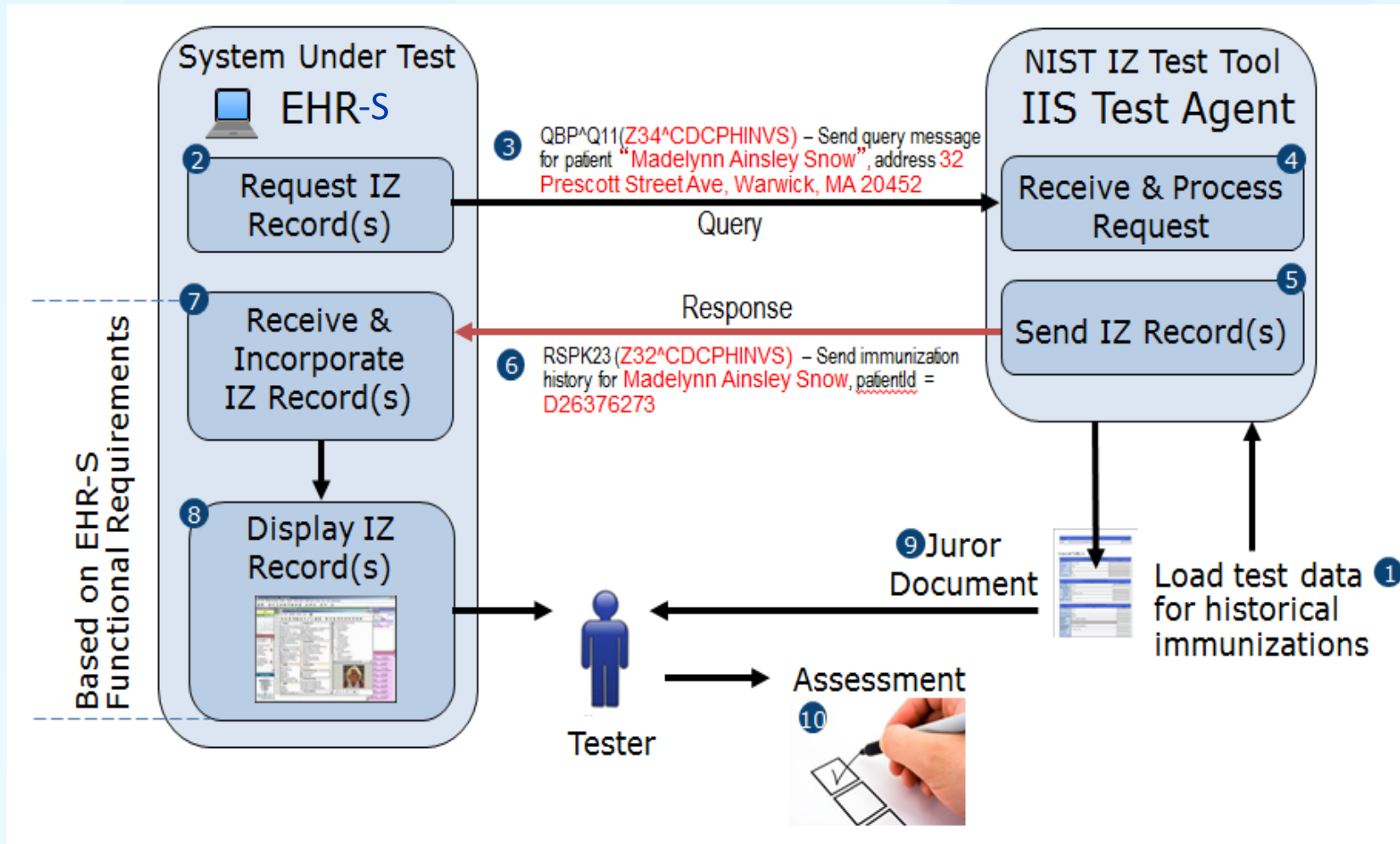
NIST Approach for EHR-S Certification Testing – VXU & ACK



Test the ability of an **EHR-S** (Sender) to

- create a valid immunization (IZ) history message (VXU^V04 / Z22) to the NIST "IIS" Test Agent (Receiver);
- receive and process an acknowledgement message (ACK^V04 / Z23) from the Test Agent.

NIST Approach for EHR-S Certification Testing – QBP & RSP

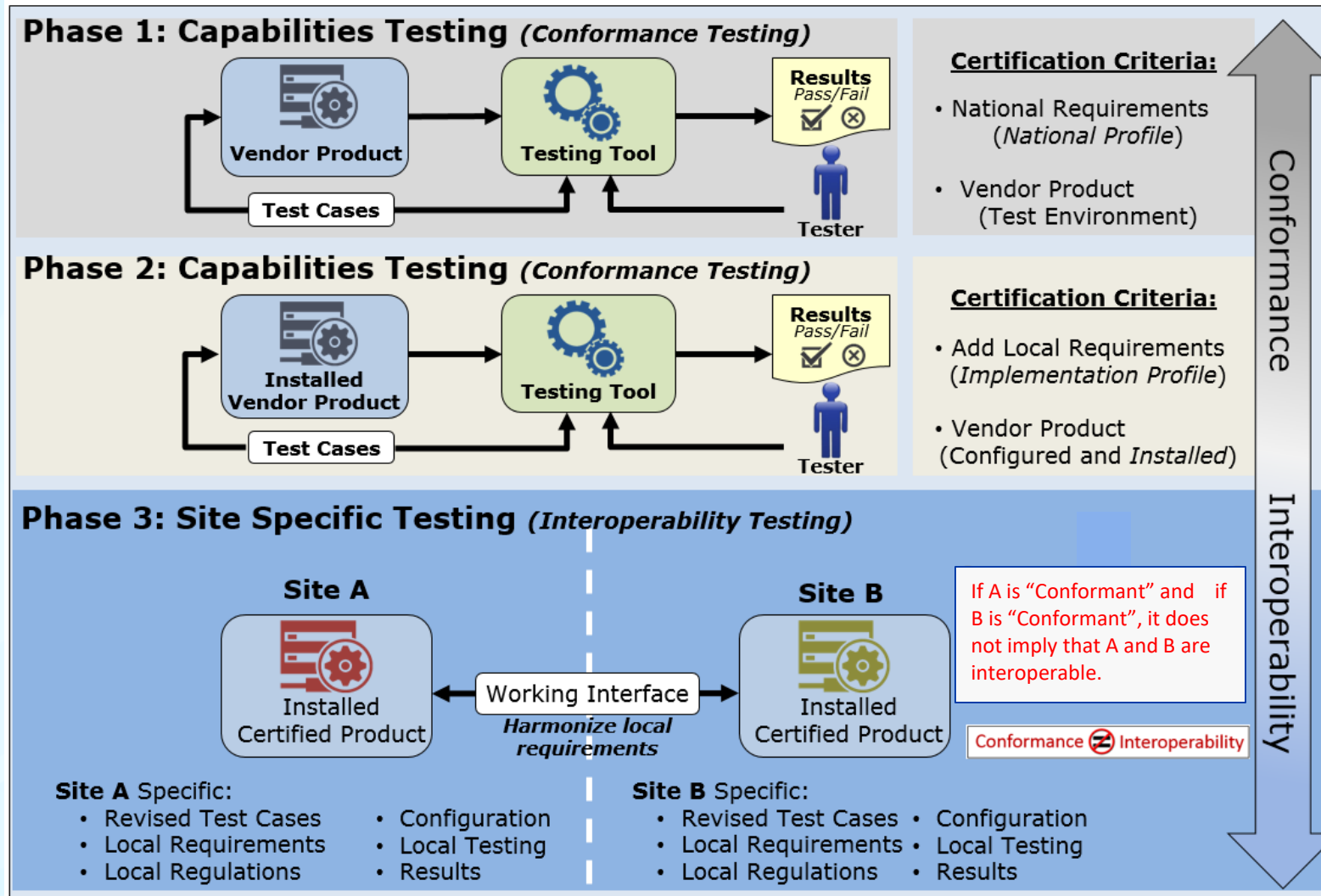


Test the ability of an **EHR-S** (Requester) to

- send a valid immunization (IZ) history query message to the NIST "IIS" Test Agent;
- receive and incorporate immunization history record(s) transmitted in the response message; and
- display the immunization history record(s) according to the EHR-S Functional Requirements-Immunization Information.

Tester uses Juror Document to assess conformance to Display requirements.

Testing Progression



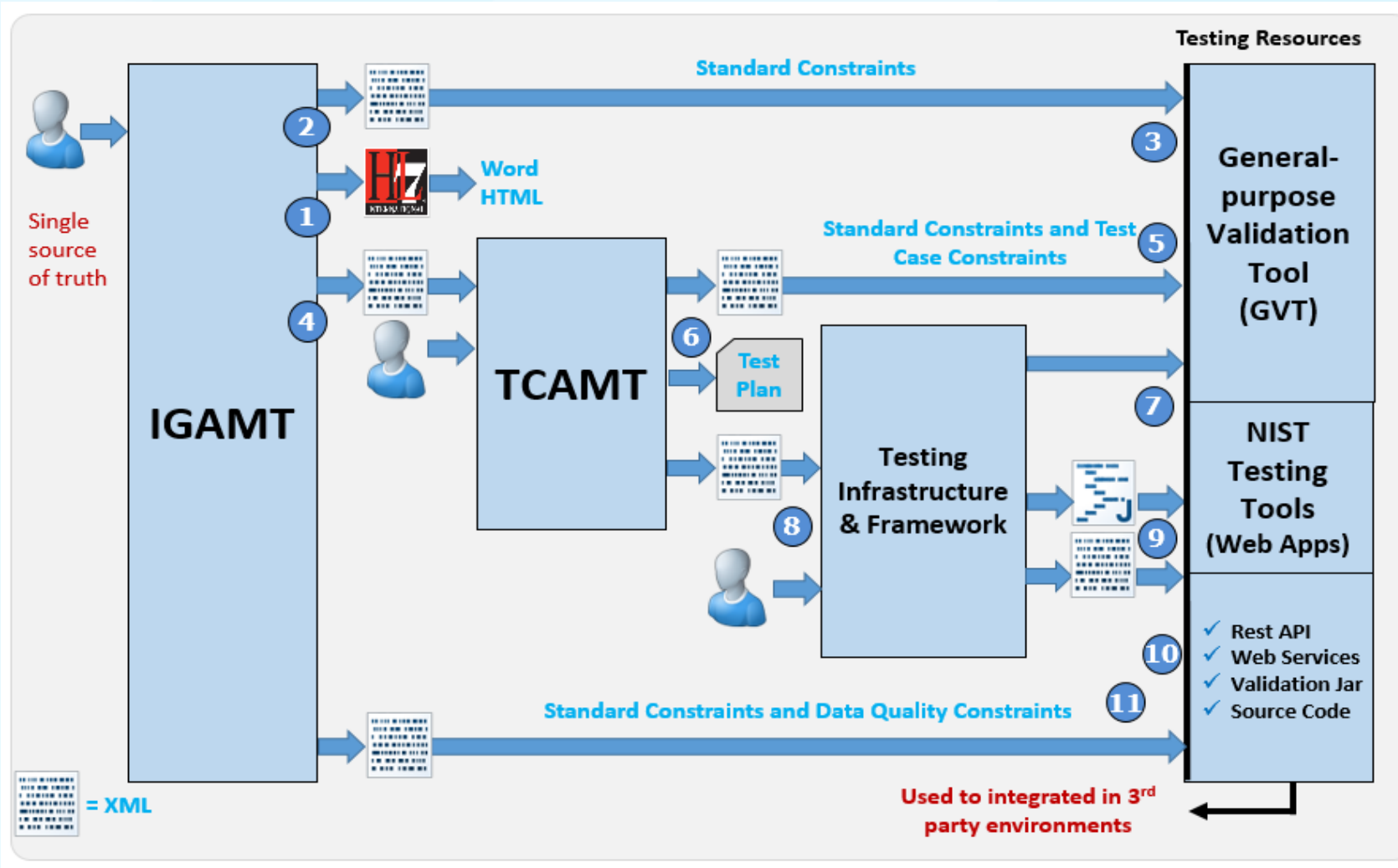
Understanding Results from NIST HL7 V2 Test Tools

| | | National Level | | State/Local Level | | State/Local Level | |
|--|---|------------------------|---------------------|------------------------|---------------------|------------------------|---------------------|
| Usage Requirement of Element | | RE | RE | R | R | R | R |
| Data Present in Element in Submitted Message | | Yes | No | Yes | No | Yes | No |
| Test Tool Mode | Context-free | Not Evaluated | Not Evaluated | Not Evaluated | Not Evaluated | Evaluated: No Error | Evaluated: Error |
| | Context-based (Test Data Provided) | Evaluated: No Error | Evaluated: Error | Evaluated: No Error | Evaluated: Error | Evaluated: No Error | Evaluated: Error |
| | Context-based (Test Data Not Provided) | Not Evaluated | Not Evaluated | Not Evaluated | Not Evaluated | Evaluated: No Error | Evaluated: Error |
| NIST Test Tool Actual Results | | | | | | User's Desired Results | |

| Usage | Data Provided | Conformity Assessment |
|-------|---------------|-----------------------|
| RE | Yes | Required |
| RE | No | Indifferent |

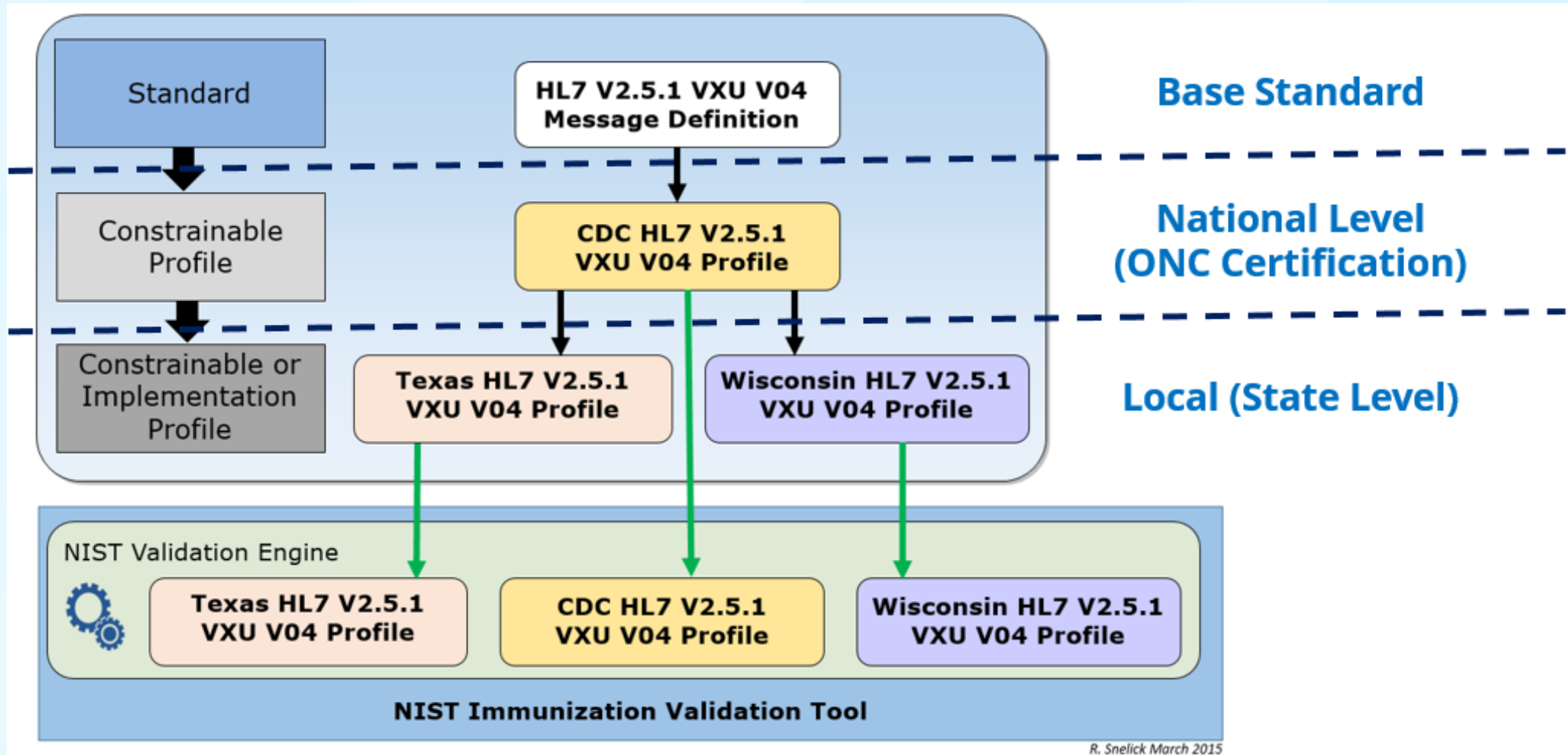
- NIST ONC nnnn Edition Certification Tools test to **national level** requirements (constrainable profiles)
- This testing specifically targets the capabilities of **HIT Vendor** products
- When the tool is used at site-installations, users must recognize the implications of testing **local requirements** using a tool designed to test national level requirements
- The table above illustrates one example of results the tool will report when validating a message implemented to meet local requirements that differ from national level requirements; the tool will report results based on what it knows (per the national level conformance profile), not on what a local user wants it to know
 - **Site-based operators can provide a revised local level conformance profile to the validation engine to obtain validation results in accordance with local requirements.**

NIST Integrated Platform

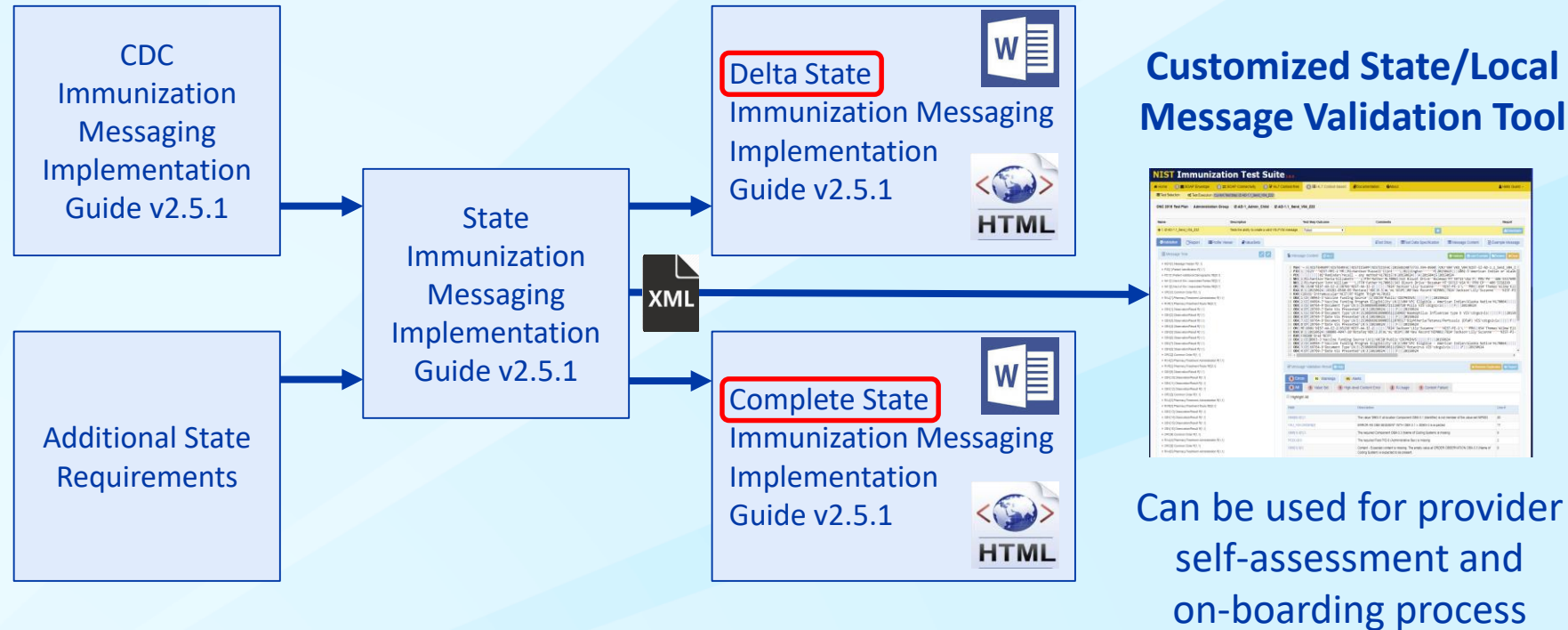


- Automatic process
- Built-in expertise
- Computable standards and testing artifacts
- Single point of change
- Investment in testing infrastructures (services)
- Tools to build tools
- Give control to the domain experts

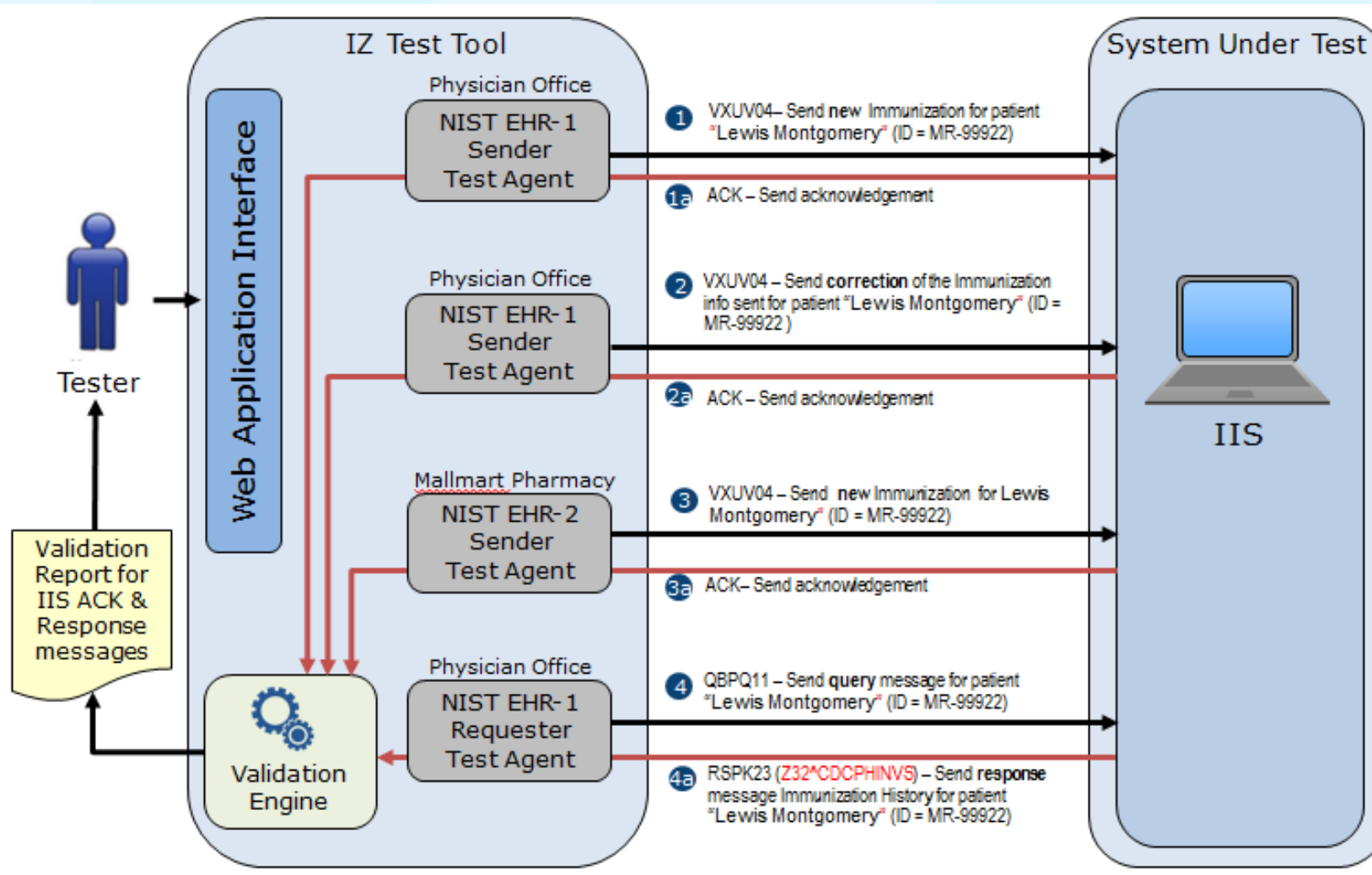
Local Implementation Guide and Test Tool



Goal: Create a Local IG and Test Tool



NIST Approach for IIS Interoperability and Functional Testing



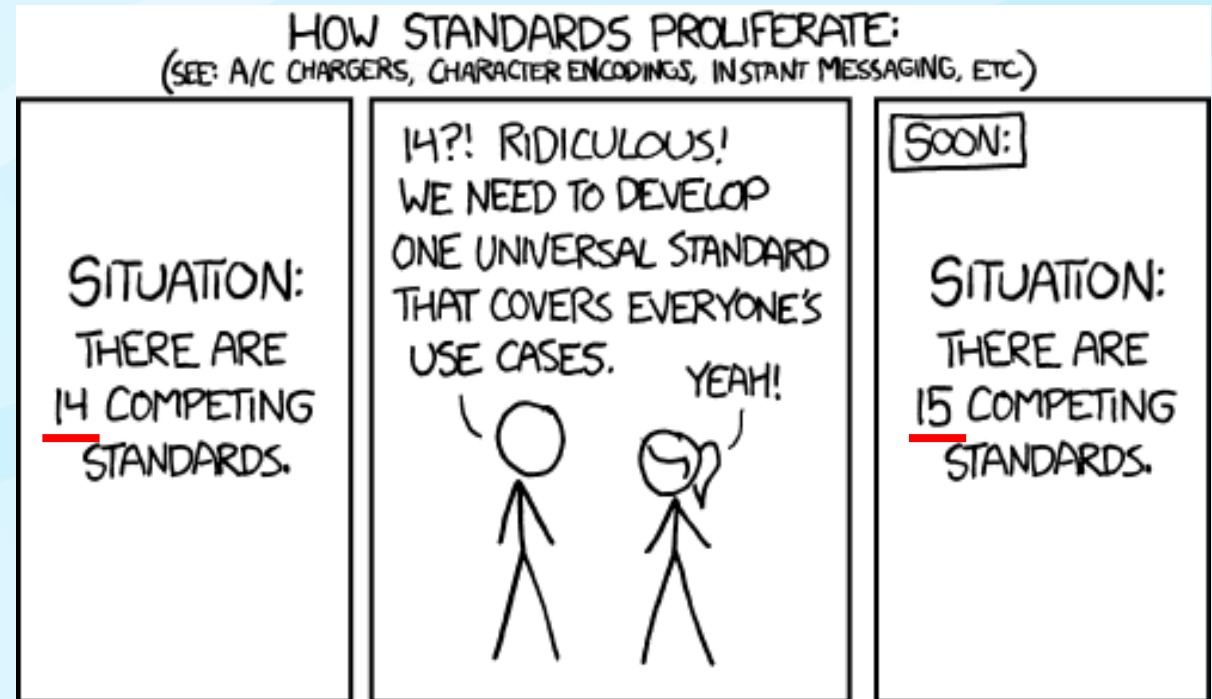
Testing IIS for

- a) SOAP capability;
- b) HL7 immunization messaging requirements;
- c) functional requirements.

Tester uses Validation Report to assess conformance to messaging requirements and targeted functional requirements.

Lessons Learned: Challenges with Standards

- Inadequate investment
- Ambiguous
- Complex
- Not specific enough for use cases
- Too many
- Evolving
- Not Timely
- Not complete
- Not written to a desired state
- Lack of verification (Implementations and Testing)



Used with permission. <http://xkcd.com/927>

Lessons Learned: Realities of Testing

- Bound to the quality of the standards
- Tolerance for comprehensiveness
- Time
- Budgets
- Inadequate Investments
- What to Test?

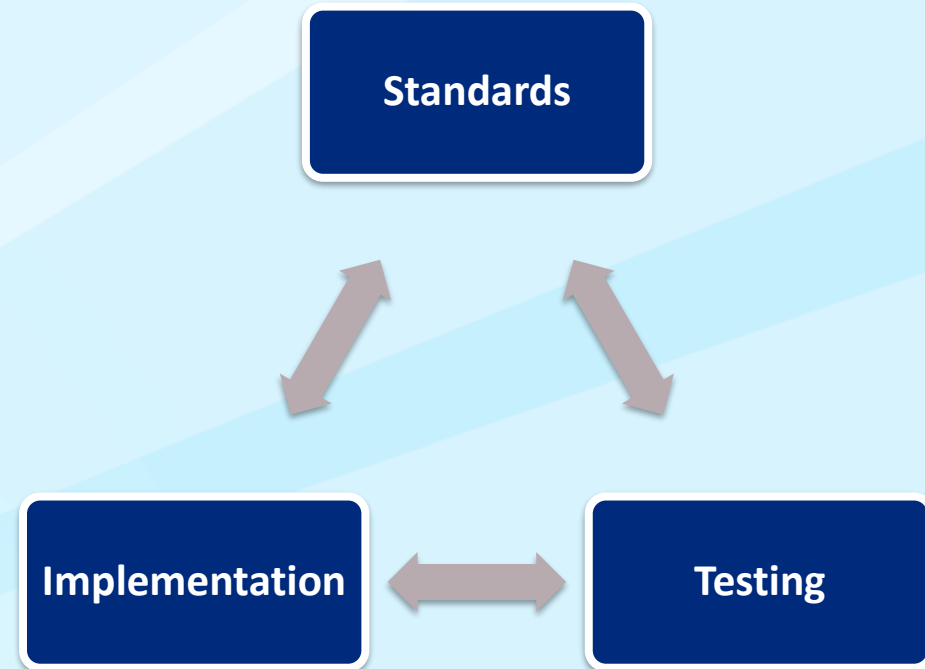
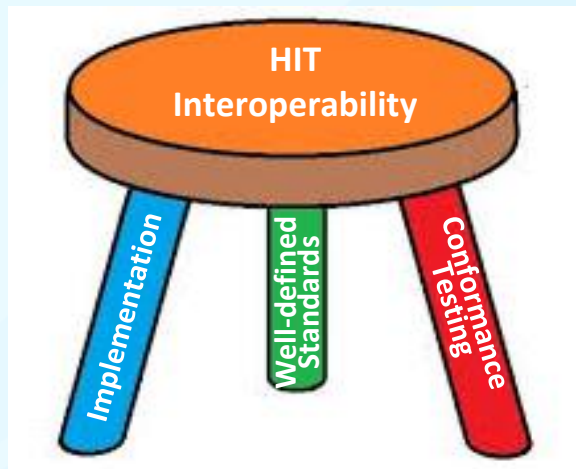


- Boundless instances
 - Adequate test coverage
 - What are the priorities?
- Test Cases
 - Realistic
 - Data
 - “Getting it right”



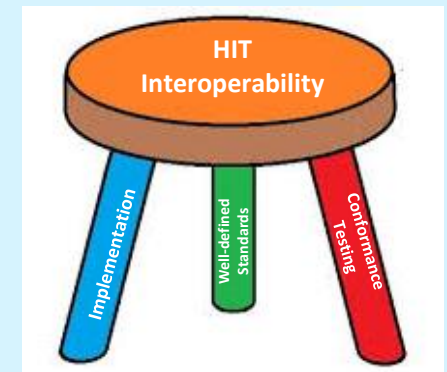
Lessons Learned: Integrated and Continuous Process

- Standards Development Lifecycle
- Foundations of Interoperability
 - Well-defined Standards
 - Testing
 - Implementation



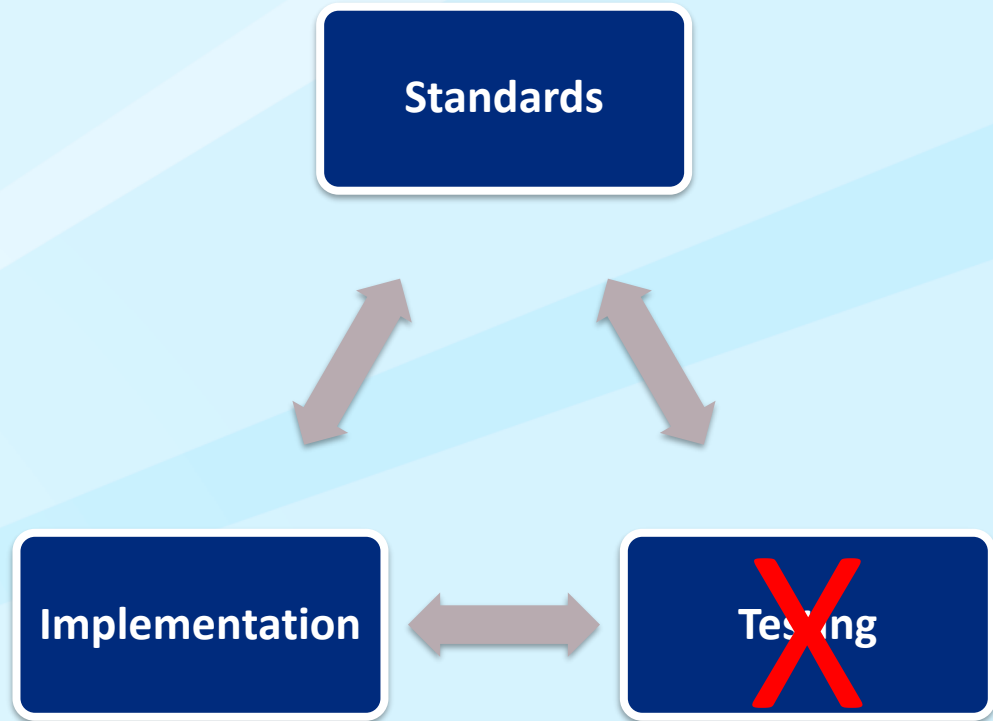
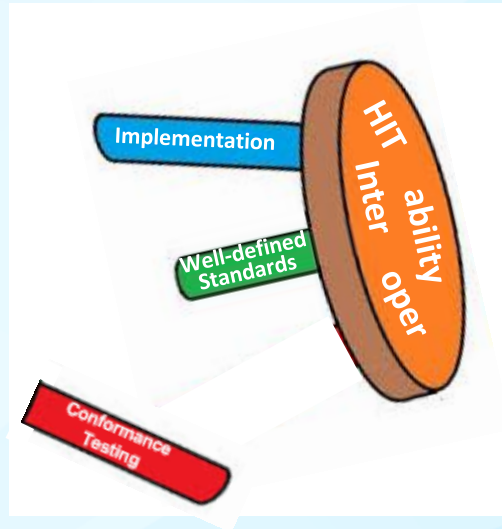
Lessons Learned: Success Depends On

- Well-defined Standards – precise and complete 
requirement specification
 - Conformance constructs
 - Profiling (Management and Use)
-  Testing standards and trial implementations
 - Conformance test tools 
 - Initial test implementations 
 - Reference
 - Pilot
- Standards Development Lifecycle
 - Feedback to authors, tool developers, and implementers
- Interoperability Testing



Lessons Learned: Failure Happens When

One or more components are omitted or are poorly executed



Key Outcomes: Specific Successes

- Awareness increased regarding
 - Standards
 - Testing
- Progress made
 - Focused efforts for standards improvement
 - Investments in tooling
 - Emphasis on real testing scenarios and data
- Results achieved
 - ONC Certification → Conformance (Capability) Testing
 - Automated methods for specifying requirements and disseminating best practices via implementation guides
 - Test Tools for use by
 - IISs in on-boarding process
 - Local jurisdictions
 - Other immunization certification programs
 - **No** Interoperability Testing or Functional Testing included in ONC certification testing

Accessing NIST Testing Tools & Resources

NIST HL7 V2 Resource Portal 1.0

Home **Tools** Publications Resources Source Code Links About

HL7 V2 Tools

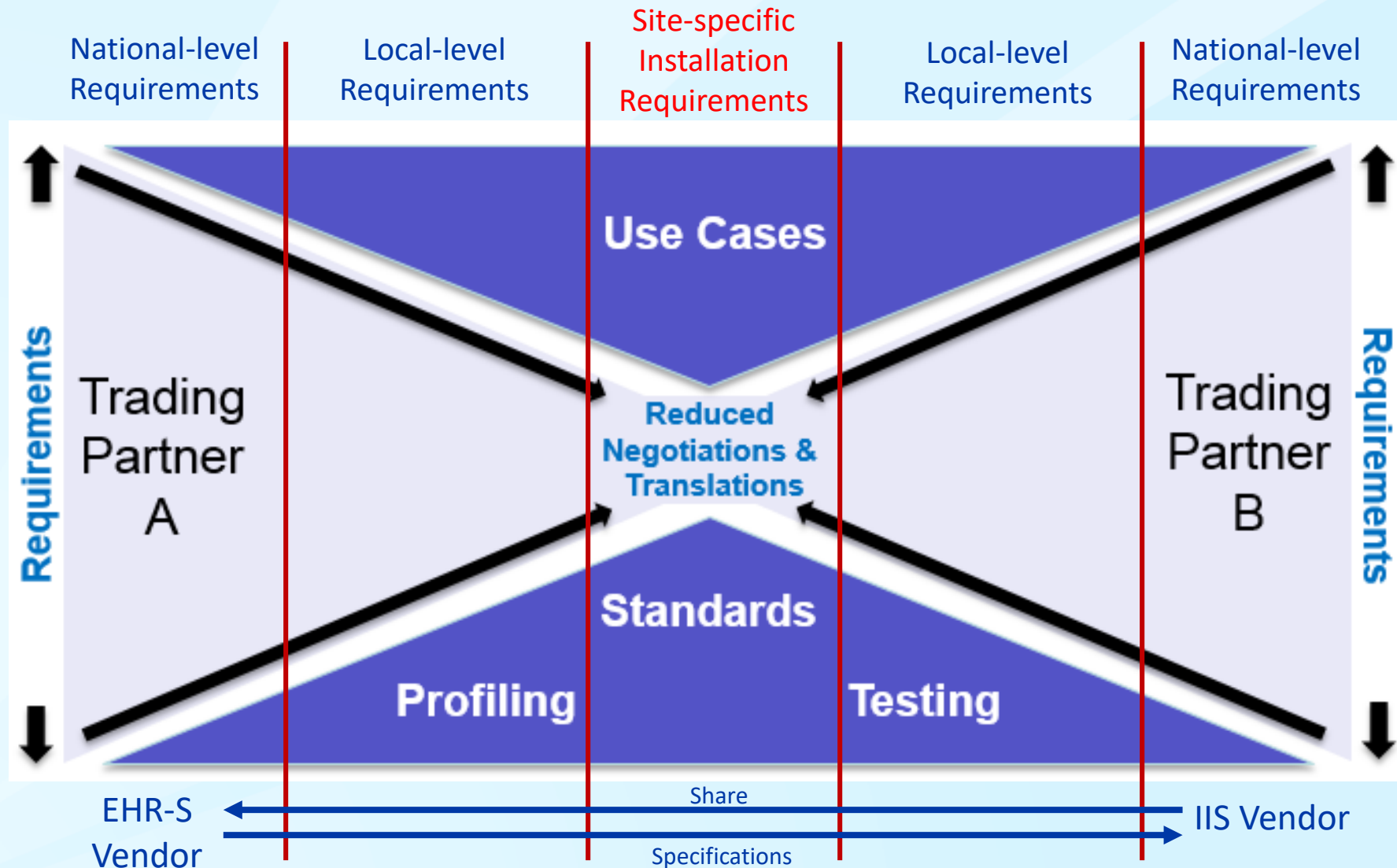
All Tools Show Archived: ☐

| | | | | | |
|---|--|--|---|---------------------------------------|---|
| HL7v2 Immunization Test Suite (2015 Edition) | HL7v2 Syndromic Surveillance Test Suite (2015 Edition) | Electronic Lab Reporting (2014 and 2015 Edition) | Immunization (2014 Edition) | Syndromic Surveillance (2014 Edition) | Laboratory Results Interface (2014 Edition) |
| NIST HL7 v2 Lab Test Suite: eDOS, LOI, LRI R2 (2015), ELR | IHE PCD Pre-Connectathon | IHE PCD Connectathon | RTMMS Rosetta Terminology Mapping Management System | IHE PIX and PDQ Pre-Connectathon | IHE PIX and PDQ Connectathon |
| Implementation Guide Authoring Tool (IGAMT) | Test Case Authoring and Management Tool (TCAMT) | HL7 V2 General Validation Tool | HL7 Web Services | | |

<http://hl7v2tools.nist.gov>

- Deployment
 - Web Applications
 - Web Services
 - Source Code
- Uses
 - Certification
 - Self-attestation
 - On-boarding

Results: Promoting Interoperability



NIST Health IT Certification and Testing Summary

- Tools and Testing approaches for EHRs
- Experiences/Lessons Learned
- Key outcomes
- Results from testing efforts for EHRs

Immunization Software Evaluation – IIS Conformance Testing

AIRA Conference 2018 Salt Lake City, Utah

American Information Registry Association

August 2018

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Eric Larson elarson@immregistries.org

Why are there
separate processes
for testing
EHRs and IIS?



Comparing What is Being Tested

EHR Systems

- Must have user interface
- Must initiate workflow steps
- Constructs VXU, QBP
- Reads ACK, RSP
- Displays immunization history and forecast from IIS to clinician
- Merges new data into EHR

IIS

- Doesn't need user interface
- Waits for updates and queries
- Reads VXU, QBP
- Constructs ACK, RSP
- Sends back deduplicated data with a correct forecast
- Critical background processes

EHR Testing

IIS Testing

NIST Test Resources



Why does testing IIS
and EHRs have to be
so complicated?







7 To 5 Avenue, Times Square & 34 St-Hudson Yards

↑ Exit 4 5 Grand Central Escalator upstairs 6 Terminal

To Main St-Flushing, Queens 7 Flushing Local all times

← Times Square & 34 St-Hudson Yds Main St-Flushing, Queens →

What is one thing
IIS can do
to help improve
their queries?

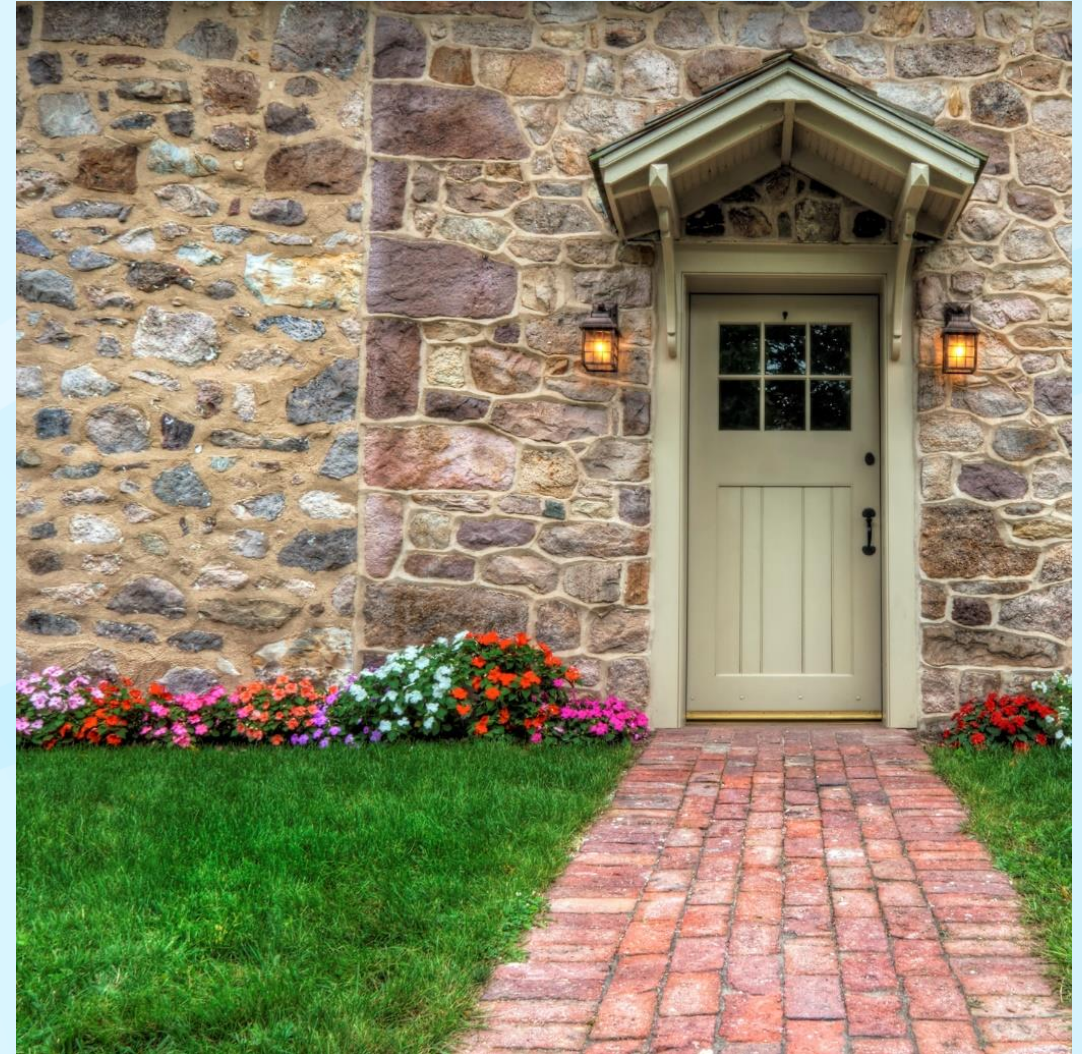
Why are
acknowledgement
messages so
important?





What should IIS do?

- Follow latest ACK guidance
 - Error – Correct and resubmit
 - Warning – Correct
 - Information
- Use NIST HL7 v2 conformance checker
- Read your AART Results
- Follow latest guidance:
 - LOINC Guidance
 - RSP Guidance
 - National Error code set





What can EHR systems do?

- The raw ACK message from the IIS is not designed for human readability
- EHR systems should
 - Not depend on clinicians to read or understand the ACK in its HL7 format
 - Display the ACK content in a more readable format
 - Make a clear difference between error, warning, and informational designations
 - Route to the user most likely to resolve the issue, when possible





Links to Resources

- ACK Guidance
 - <http://repository.immregistries.org/resource/guidance-for-hl7-acknowledgement-messages-to-support-interoperability/>
- National Error Codes
 - <http://repository.immregistries.org/resource/national-set-of-error-codes/>
- RSP Guidance
 - <http://repository.immregistries.org/resource/guidance-for-hl7-rsp-messages-to-support-interoperability/>
- LOINC Guidance
 - <http://repository.immregistries.org/resource/guidance-on-detailed-message-structure-and-the-use-of-specific-loinc-codes/>
- HL7 FAQ's
 - <http://repository.immregistries.org/resource/frequently-asked-questions-technical-assistance/>
 - <http://repository.immregistries.org/resource/frequently-asked-question-query-responses-and-patient-protection/>
- NIST Tooling
 - <https://hl7v2-iz-r1.5-testing.nist.gov/iztool/#/home>
- AART
 - <https://app.immregistries.org/aart/home>

HIMSS IIP and IIS Measurement and Improvement

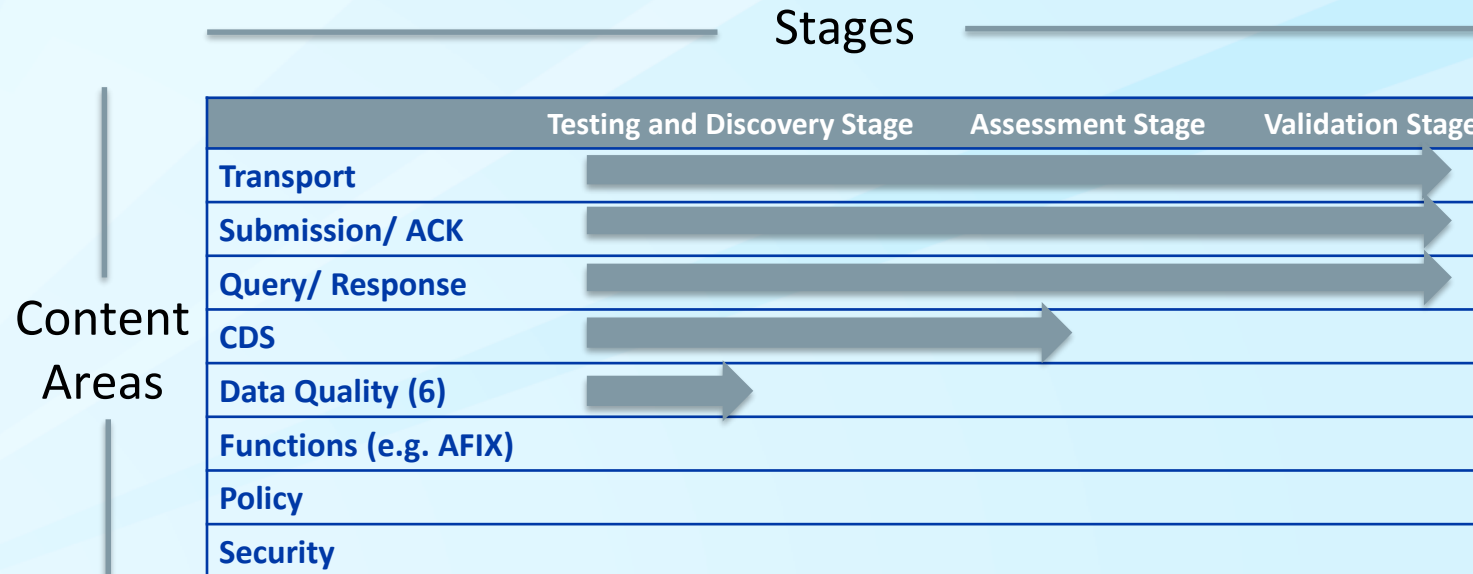
Closing the Interoperability Loop

- ❑ **As EHRs standardize and improve through adoption of 2015 CEHRT and HIMSS IIP engagement, IIS will benefit from improved data quality and interoperability**
- ❑ **In parallel, IIS are standardizing as well**
 - May include addressing local law and policy differences
- ❑ **AIRA's Measurement and Improvement Initiative began in 2015 with two goals:**
 - provide IIS with information to more fully align with IIS Functional Standards
 - Develop a summary of where IIS are as an overall network in meeting standards and best practices

HIMSS IIP and IIS Measurement and Improvement

Closing the Interoperability Loop

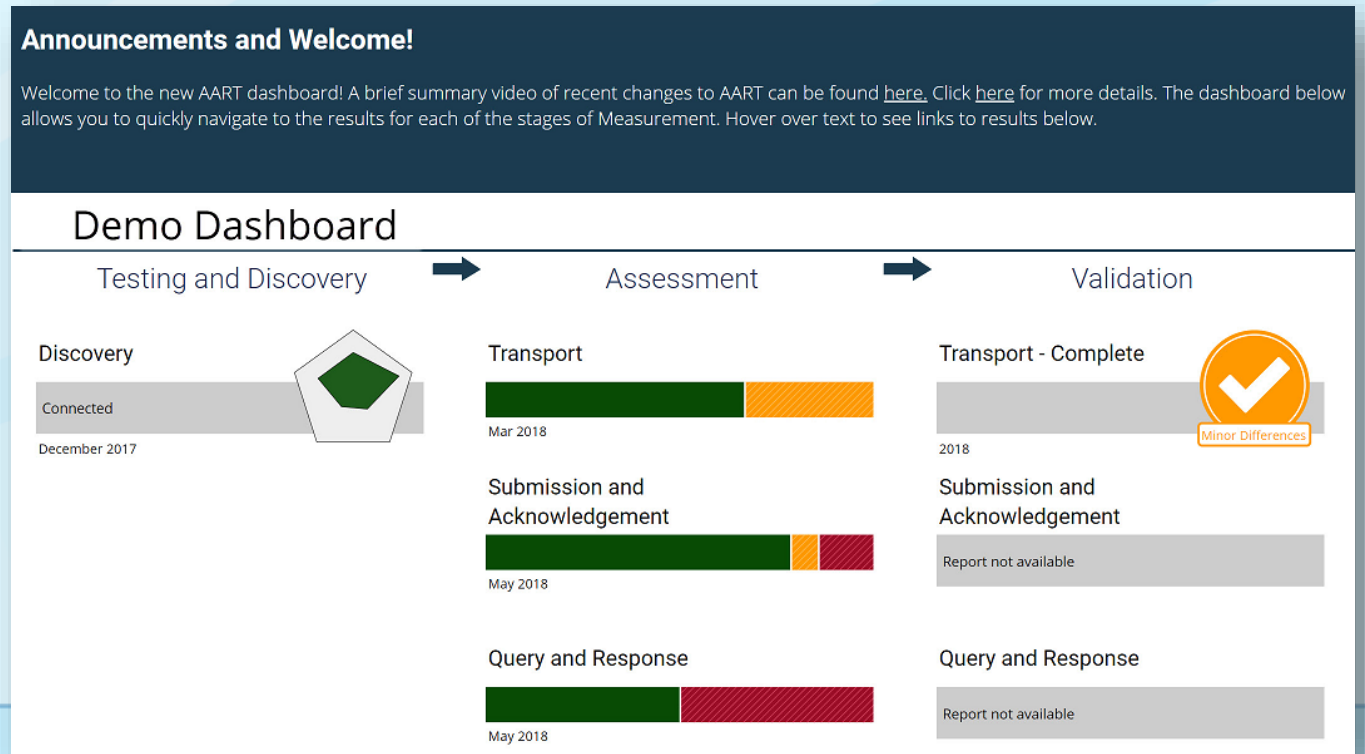
- ❑ The initiative has created a three-stage process for IIS to measure their alignment with current standards:
 - Testing and Discovery gathers preliminary information
 - IIS Assessment involves more formal testing
 - Validation is a summary stage to acknowledge and share results



HIMSS IIP and IIS Measurement and Improvement

Closing the Interoperability Loop

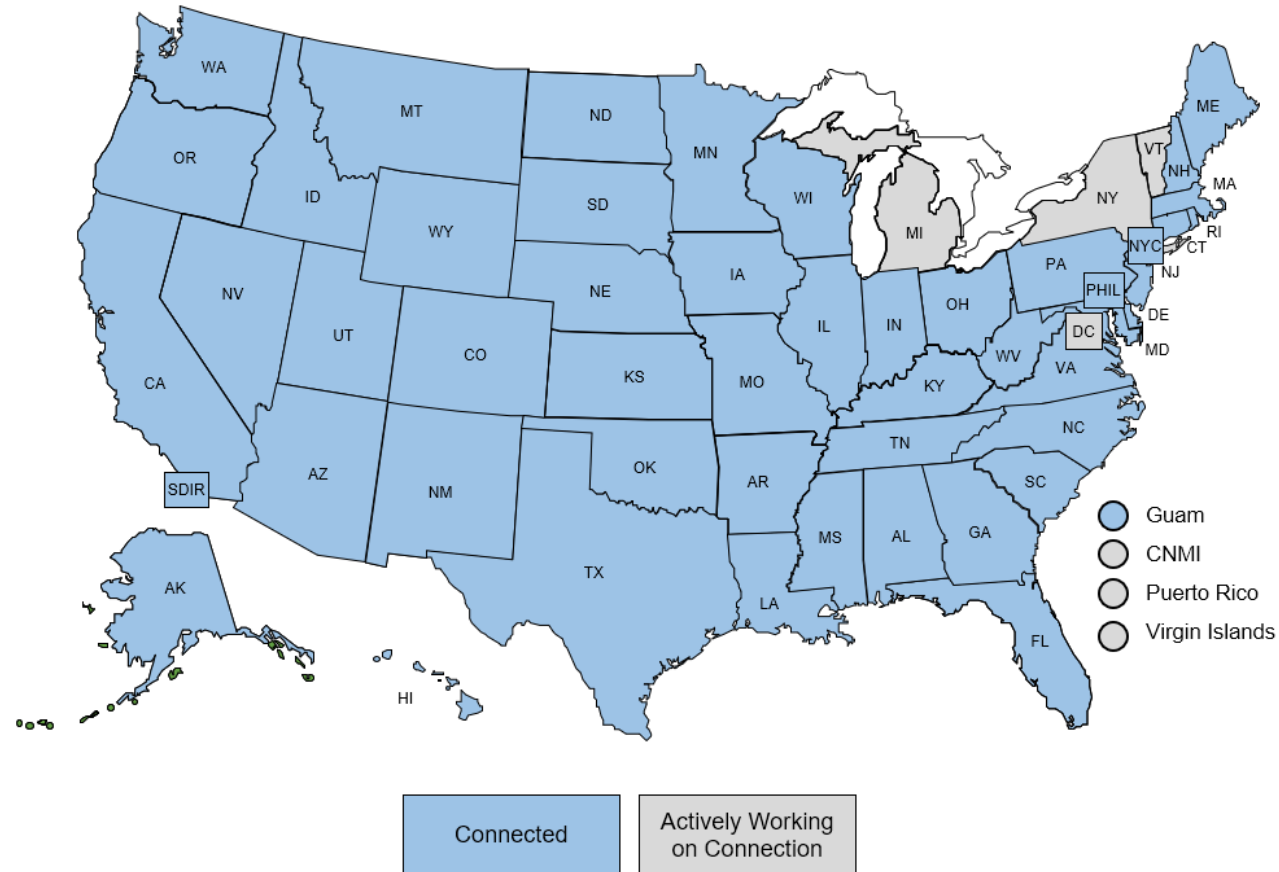
- ❑ AIRA analysts connect with IIS pre-production (test) systems and send thousands of test messages to IIS
- ❑ Results are shared with (and by) IIS via the Aggregate Analysis Reporting Tool (AART)



HIMSS IIP and IIS Measurement and Improvement

Closing the Interoperability Loop

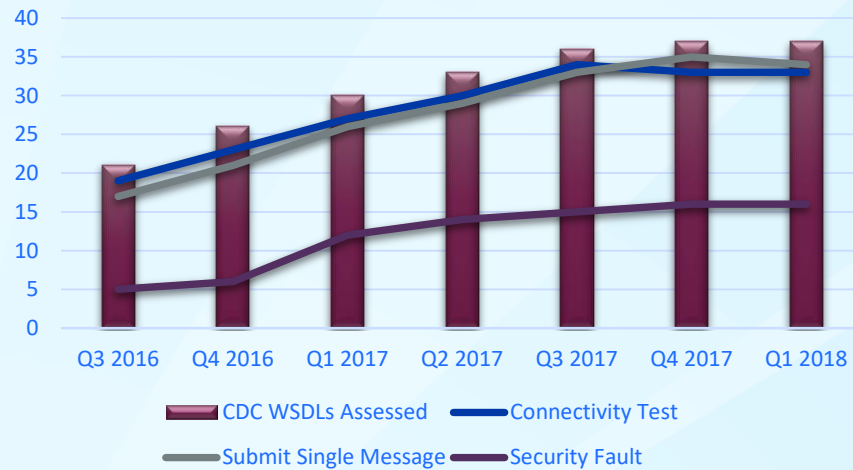
Sites Connected with Testing Process, Updated 8/10/2018



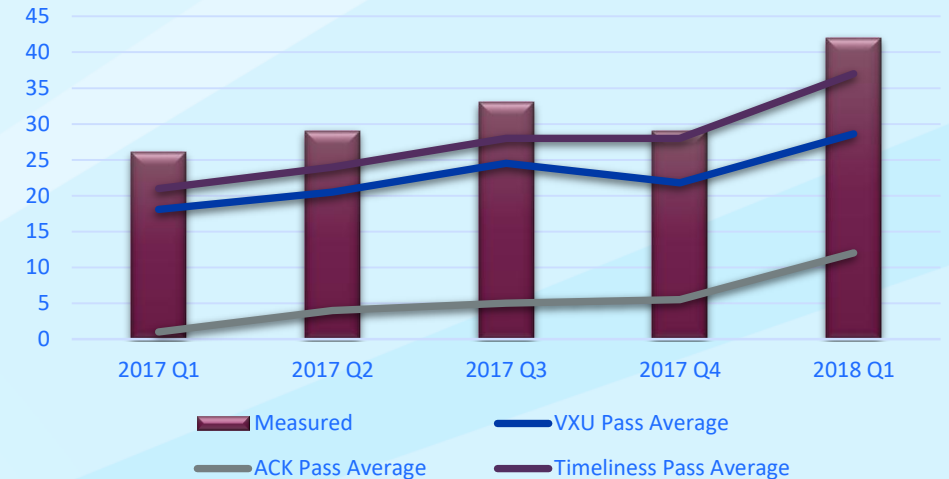
HIMSS IIP and IIS Measurement and Improvement

Closing the Interoperability Loop

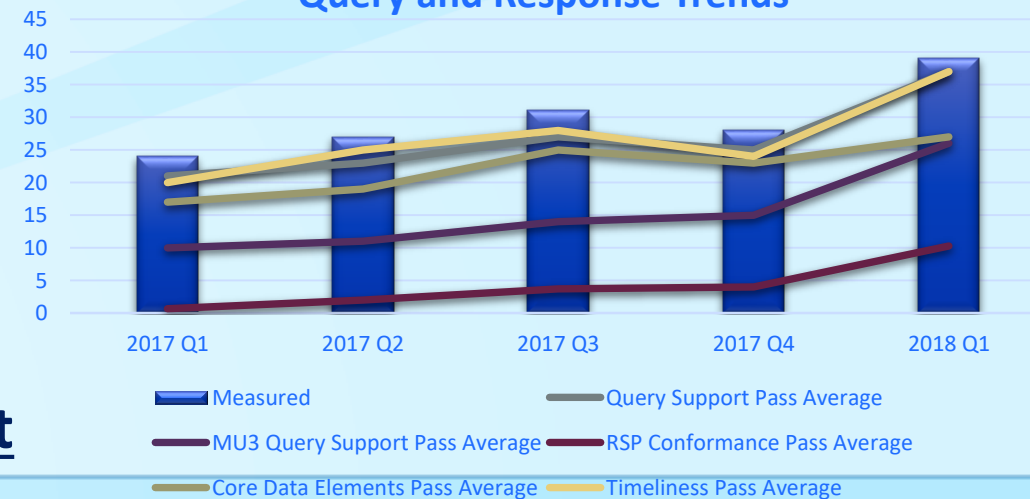
Transport Layer Trends



Submission and Acknowledgement Trends



Query and Response Trends



Available at:

www.immregistries.org/assessment

HIMSS IIP and IIS Measurement and Improvement

Closing the Interoperability Loop

- ❑ The acknowledgement (ACK) message is used by the IIS to inform the EHR of the success or failure of receiving the submitted data (VXU)
- ❑ These were historically poorly implemented by IIS
- ❑ These were historically not read by EHRs

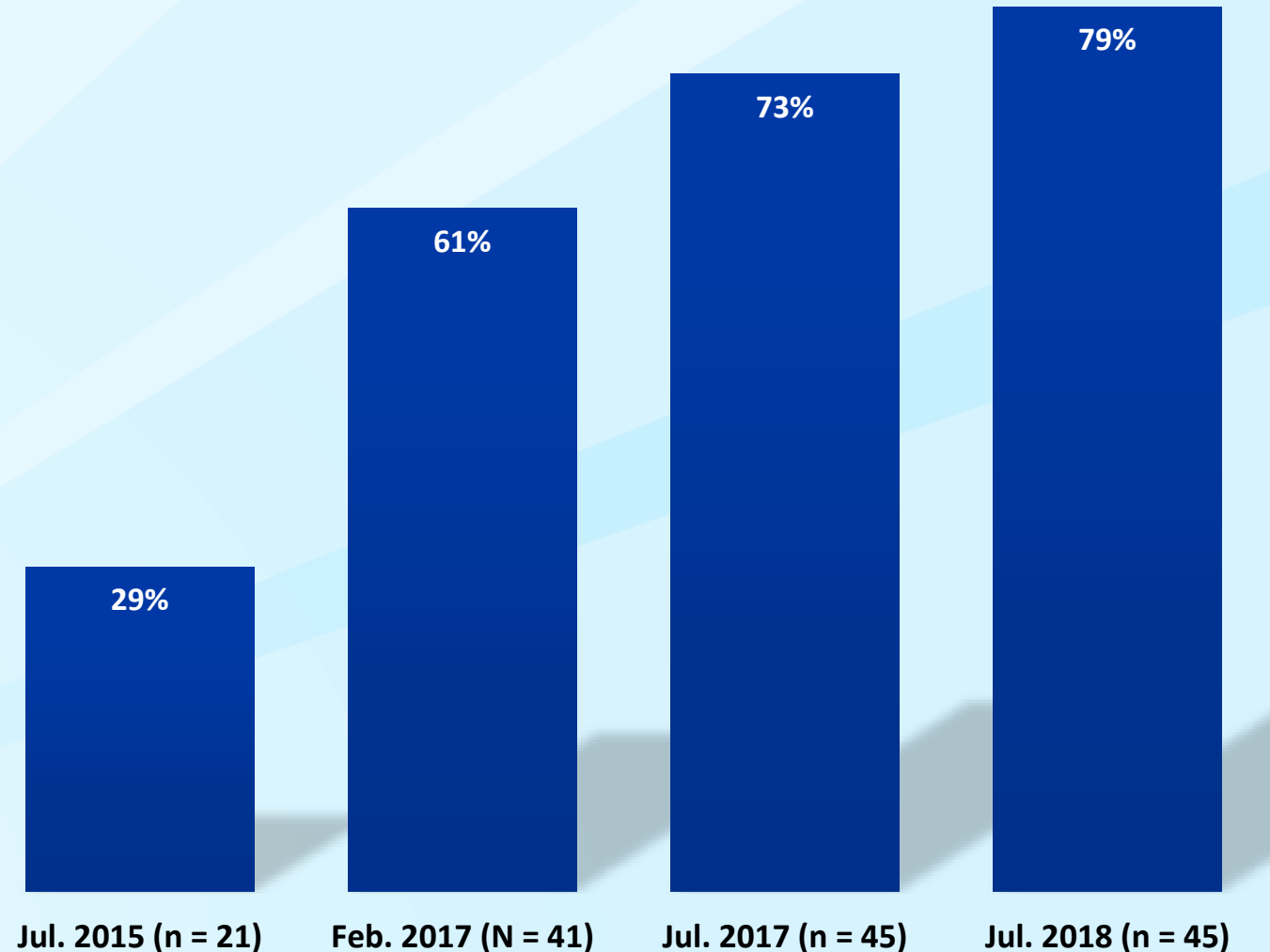
- ❑ In 2015, AIRA's Measurement and Improvement Project encouraged IIS to improve ACKs to align with the standard
 - SISC created an ACK Guidance document in 2015
 - SISC created a set of National Error Codes in 2017

HIMSS IIP and IIS Measurement and Improvement

Closing the Interoperability Loop

- The acknowledgement message (ACK) has improved greatly
- EHRs can now begin to build better capabilities to triage ACK messages
- Presented these findings to HIMSS IIP workgroup in July 2018
- IIP program is now planning to convene a workgroup to work on improved EHR capabilities which can be tested in future years

% IIS Populating Required ACK fields



HIMSS IIP and IIS Measurement and Improvement

Closing the Interoperability Loop

- ❑ **Value of the HIMSS IIP program for the IIS community**
 - Improved data capture in EHRs
 - Improved quality of data exchanged
 - Increased use of immunization data
- ❑ **Collaboration efforts generated by working with the HIMSS IIP among clinicians, EHR vendors, and the IIS community**
 - Increased engagement across IIS/EHR industries
 - AIRA Standards and Interoperability Steering Committee
 - HL7 Organization/AIRA Co-Sponsored HL7 User Group
- ❑ **Efforts to standardize capabilities in the IIS community to coordinate / align with the HIMSS IIP program**

HIMSS IMMUNIZATION INTEGRATION PROGRAM - BACKGROUND

Health IT's Role in Improving Immunization Rates

The evidence shows that the **following interventions improve immunization rates**¹

- Standing orders, reminders and feedback for providers (clinical decision support)
- Immunization information systems (IIS or registries)
- Reminders to individuals



EHRs

- now adopted by about 90% of hospitals and physician offices
- can play a key role in supporting these interventions

Improvements in immunization information systems (i.e., registries) have been slowed by diversity of registries in states; barriers to interstate data sharing; and incomplete records, particularly for adult vaccinations.²



CDC focus:

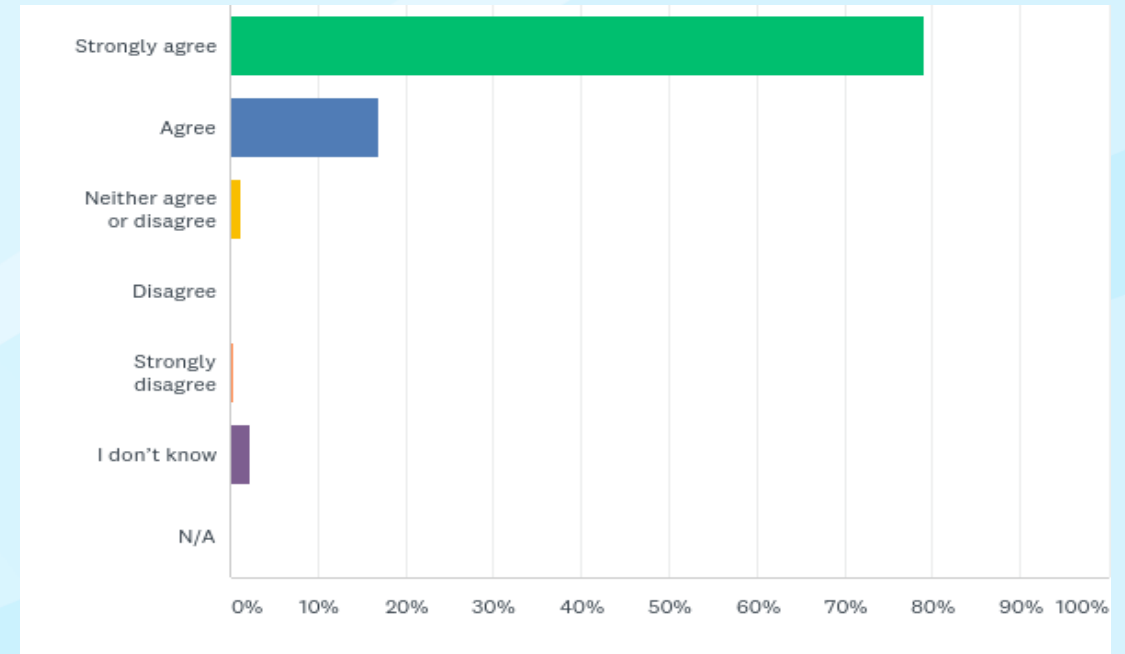
- increasing IIS interoperability with EHRs
- expanding physician use
- developing clinical decision support tools
- improving efficiency and accuracy of data entry.²

¹ Centers for Disease Control Prevention. *Reminder Systems and Strategies for Increasing Adult Vaccination Rates*. <https://www.cdc.gov/vaccines/hcp/adults/for-practice/reminder-sys.html>

² Schuchat A, Anderson LJ, Rodewald LE, Cox NJ, Hajjeh R, Pallansch MA, et al. Progress in Vaccine-Preventable and Respiratory Infectious Diseases—First 10 Years of the CDC National Center for Immunization and Respiratory Diseases, 2006–2015. *Emerg Infect Dis*. 2018;24(7):1178–1187. <https://dx.doi.org/10.3201/eid2407.171699>

Evaluation Survey Results 2017 General Perceptions of Value

79% of respondents
strongly agreed that
having immunization-related
capabilities within EHRs or other
clinical software will provide **value**



Survey Question. Having immunization-related capabilities within EHRs or other clinical software will provide value. (n=532)

Moving Forward: Aligning Standards, Certification and HIMSS IIP Recognition



Immunization Integration Program **complements** ONC Certification 2015 Edition (Bidirectional) **to improve**

- **Data Quality** (through usability, workflow, local decision support)
- **Standardization** expanding required element testing to include most common jurisdictional additional data elements (“optional” in the standards).

EHR Recognition Process Pilot

Phases 1 & 2:

2013-2015

Immunization-Related
Capabilities for Clinical
Software

Immunization-Centric
Guidance

Immunization-Related
Software Tests

Phase 3:

2016-2017

Implementation of Phase 2
efforts working with the
Health Information
Management Systems Society
(HIMSS) and International
Computer Security
Association (ICSA)

Phase 4:

2017-2018

Inaugural Year for EHR and
Other Clinical Software
Recognition in HIMSS
Immunization Integration
Program (IIP)

Transition to The Drummond
Group for Software Testing

ONC Designation as Alternate
Testing Program for
Immunization Interoperability

5 Vendors Achieve
Recognition

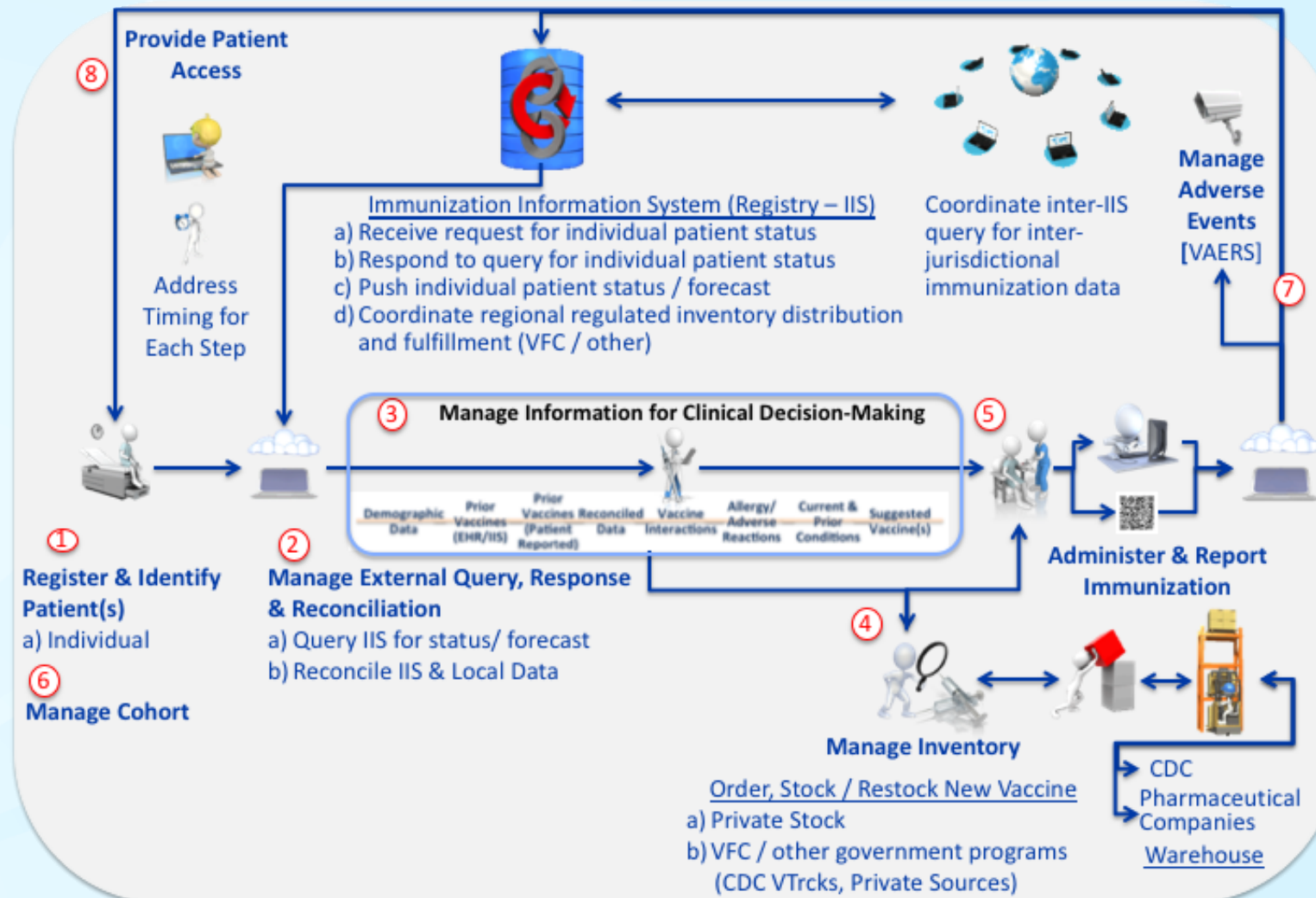
<http://www.himssinnovationcenter.org/immunization-integration-program>

HIMSS Immunization Integration Program

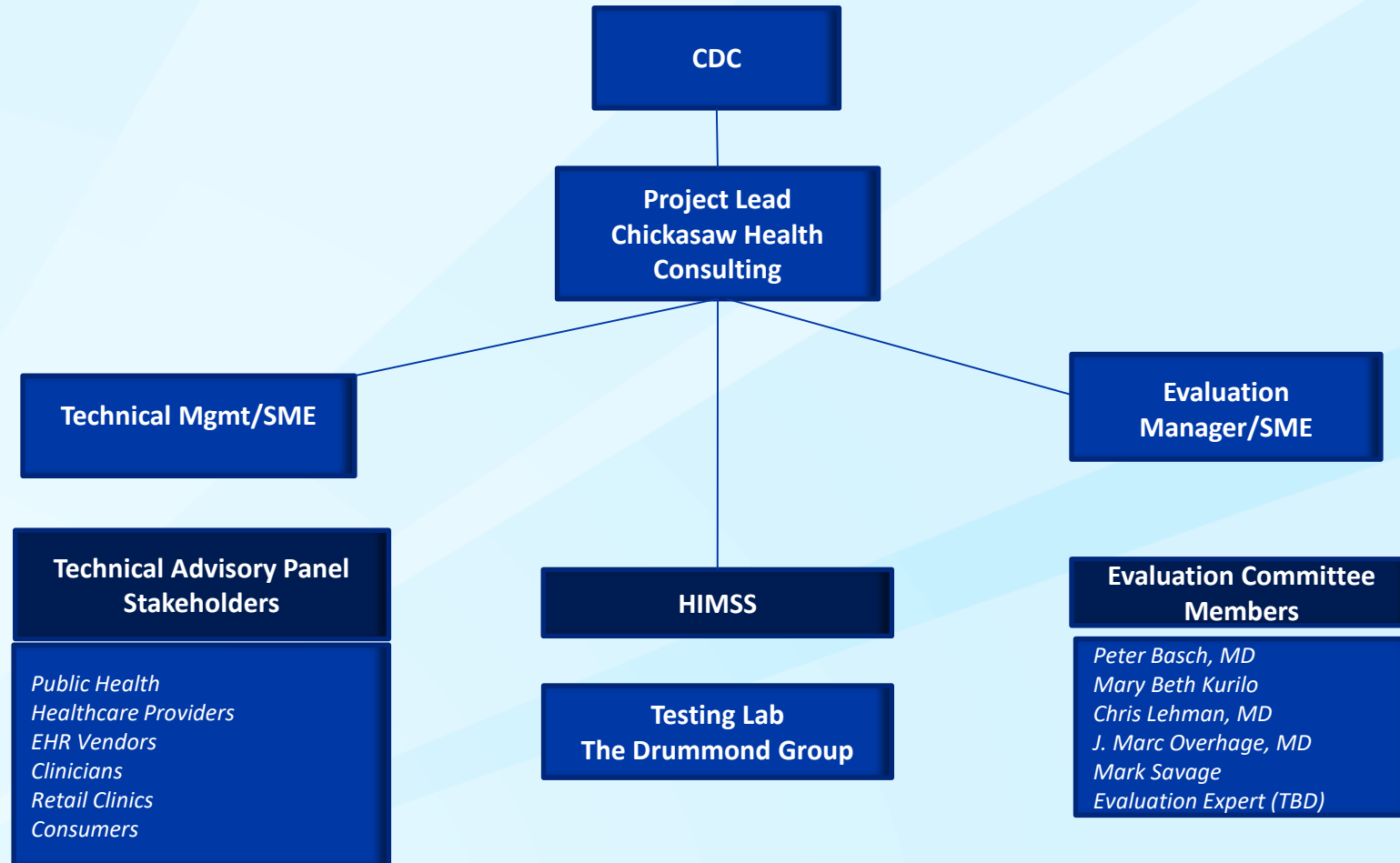
Current Activities

- Refresh and Publish Immunization-Related Capabilities, Guidance, and Test Scripts
- Enhance awareness of the importance of integrating immunization-related capabilities into health IT
- Engage more software developers in using these tools to assess compliance of their health IT
- Implement an independent process for validating immunization-related capabilities within health IT
- Gain input from users on their implementation experiences

HIMSS IIP – Clinical Workflow Focus



HIMSS Immunization Integration Program - Coordination



Updated 4/30/2018

HIMSS IIP Technical Advisory Panel Members

Public Health Perspective:

- Eric Larson – American Immunization Registry Association (AIRA)
- Jenne McKibben – Alert IIS, Oregon Immunization Program

Healthcare Provider Organization and/or Medical Group

- Donna Mazyck, RN – National Association of School Nurses
- Stuart Weinberg, MD – Vanderbilt University Medical Center

EHR Vendor:

- Kristin Glaza – Strategist, Cerner
- Ron Shapiro – Vice President & CTO, Qvera

Clinicians [including pediatricians, family physicians, internists, nurses, pharmacists]

- Shaun Grannis, MD, – Regenstrief Institute
- Susan Kressly, MD – Kressly Pediatrics
- Jennifer Russo, RN – Barnabas Health
- Feliciano Yu, MD – St. Louis Children's

Retail Clinics

- Brandy Altstadter – Scientific Technologies Corporation

Consumers

- Donald Hackett – Precision Vaccines (consumer vaccine registry)

HIMSS Immunization Integration Program Testing

- Testing covers workflows focused on real-life scenarios, which clinicians and other stakeholders developed using specific immunization-related capabilities tested and available for review.
 - Workflow 1: Register and Identify a Patient
 - Workflow 2: Manage External Query, Response, and Reconciliation
 - Workflow 3: Manage Information For Clinical Decision Making
 - Workflow 4: Manage Inventory
 - Workflow 5: Administer and Report Immunization
 - Workflow 6: Manage Cohort of Patients
 - Workflow 7: Manage Adverse Event Reporting
 - Workflow 8: Provide Patient Access

Access requires log-on to the HIMSS Innovation Center, Immunization Integration Program

<http://www.himssinnovationcenter.org/immunization-integration-program>

HIMSS IIP Testing Application Process



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Immunization Integration Program

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Free Testing of Immunization-Capable Products

Free Testing of Your Immunization-Capable Product

The IIP invites vendors to test their immunization-capable products. There is no charge to participate. Tested products will be expected to have software capabilities that will help clinicians and other immunization providers improve immunization rates – resulting in better health outcomes, reduced healthcare costs, and higher clinician productivity. Testing will cover workflows focused on real-life scenarios that were developed by clinicians, subject matter experts, and other key stakeholders.

[Apply Now](#)

IMMUNIZATION INTEGRATION PROGRAM

[Learn More](#)



In collaboration with:



Immunization Integration Program Recognized Products

These industry-leading organizations have achieved the IIP seal of recognition on their immunization-capable products.

HIMSS IIP Testing Process

Vendor Application

- Vendor applies for IIP testing by clicking “Apply now” on HIMSS IIP page here: <http://www.himssinnovationcenter.org/immunization-integration-program/free-testing-immunization-products> and filling out the application form

Application Processed

- Application form processed, Vendor key contacts added to IIP Googlegroup for asking technical questions
- Key contacts sent welcome email, and invited to start using the HIMSS IIP tool

Preparations

- Vendors prepare for HIMSS IIP testing by working with the HIMSS IIP tool, ensuring messages are sending, receiving and being validated correctly, and checking juror documents or evaluation criteria to see what details must be captured
- Questions sent to IIP googlegroup for support
- Test dates selected and coordinated with Drummond Group as soon as vendor feels they can estimate when they will be ready to test. Suggestion is 6 weeks from enrolment to testing.

Testing

- Vendor and Drummond Group tester join each other on Gotomeeting.
- Vendor demonstrates actions required for all HIMSS IIP test scenarios, and sends messages to/from the HIMSS IIP tool while Drummond group tester gathers evidence, asks for pertinent information based on HIMSS IIP tool evaluation criteria and juror documents, and fills out test summary. If needed, retests are scheduled to correct deficiencies.

Recognition

- Once testing is successfully completed, vendor is provided with a Summary Report attesting to their successful completion of all required HIMSS IIP scenarios
- Vendor receives recognition from HIMSS passing HIMSS IIP testing!
- Vendor may use HIMSS Summary Report to apply for ONC Meaningful Use reciprocity if desired.

Test Plan Type: Public Test Plan: HIMSS Immunization Integration Program CDC Ti

Test Cases

- HIMSS Immunization Integration Program
 - Initial Data Load
 - Juana Mariana Vazquez Initial Data
 - Juan Marcel Marina Initial Data Load
 - Juana Mariela Gonzales Initial Data
 - Juana Maria Gonzales Initial Data
 - Enter Inventory
 - Juana Mariana Vazquez Visit
 - Query the Registry for Juana Mariana Vazquez
 - Juana Mariana Vazquez, Enter Or
 - Juana Mariana Vazquez Transmit
 - Juana Mariana Vazquez Display In
 - Juana Mariana Vazquez Provide F
 - Juan Marcel Marina Visit
 - Juana Mariela Gonzales Visit
 - Juana Maria Gonzales Visit
 - Cohort Report
 - Review Inventory

TestCase: Query the Registry for Juana Mariana Vazquez

Test Story

FULL Description Comments Pre C
Evaluation Criteria Notes for Testers

Description

The EMR generates a Z44 query to the Immunization Registry for Juana Mariana Vazquez.

Querying the registry will consist of the vendor creating a query. The response will be processed as part of the 'Display, Update, or Delete' operation.

Using the Z42 Response to Immunization Registry Query for reconciliation and update. The vendor will receive information to reconcile, and import the information returned by the registry as part of the tool. This test will also look at the system's new forecast after reconciling the information.

Comments

No Comments

FULL Description Comments Pre Condition
Post Condition Test Objectives Evaluation Criteria
Notes for Testers

Evaluation Criteria

The following patient information is provided on the cohort report:

| | |
|---|-----------------------|
| Patient Name | Juana Mariana Vazquez |
| Preferred Contact Method | Phone |
| Contact information using preferred contact (email, text, phone, mailing address) | (203) 555-1212 |
| Patient Identifier Number | Vendor Supplied |
| Patient Identifier Type Code | Vendor Supplied |
| Date/Time of Birth | 11/1/2012 11:05am |
| Sex | Female |
| Vaccine Group | IPV |
| Due Date | 10/31/2016 |
| Overdue Date | 10/31/2018 |
| Dose # | 4 |
| Dose in Series | 4 |
| Link to full record | Vendor Supplied |

ONC-Approved Alternate Test Method Submission

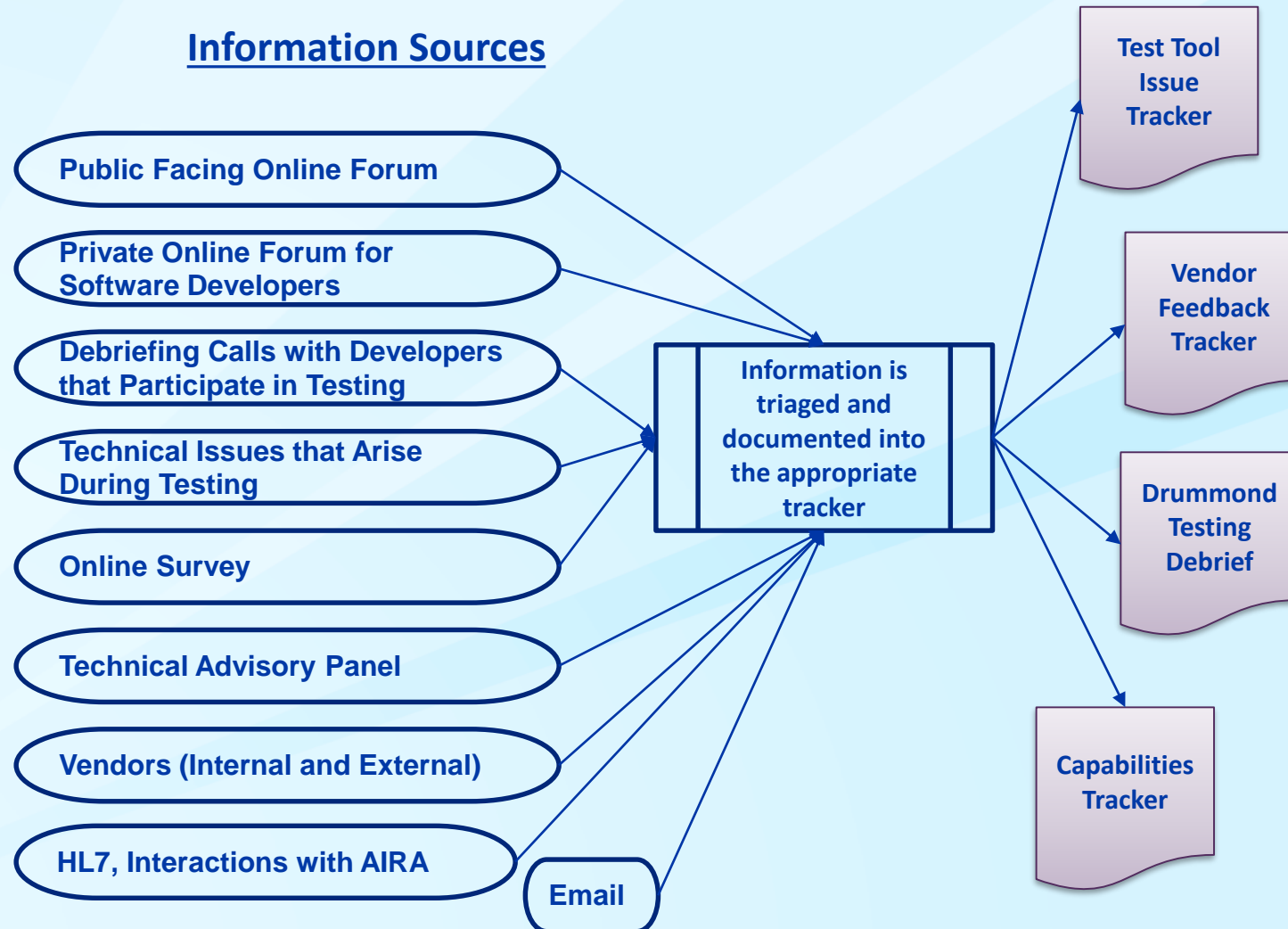


ONC-Approved Alternate Test Method Submission and Workflow Process:

<https://www.healthit.gov/topic/certification-ehrs/onc-approved-alternative-test-method>

Program Updates Process

Information Sources



Recognized Organizations' Products

- **Cerner Corporation**
 - Cerner FirstNet and PowerChart
- **Electronic Services Technologies**
 - The Physicans – Practitioners Office Assistant
- **Glenwood Systems**
 - GlaceEMR
- **HealthCareXchange, LLC**
 - TheVaccinator
- **Qvera**
 - Qvera Interface Engine

Testing Process Recommendations from a Recognized Vendor

Preparation Requirements

- ❑ **Make sure you have a dedicated and stable testing environment that you can work out of for a couple of months.**
 - The IIP is not a one-day test where you walk away with your recognition seal. It's a thoughtful process that takes time.
- ❑ **Have the right people involved to cover clinical workflow, interfaces and regulatory.**
- ❑ **Make time with the appropriate resources in your organization to prepare and run through test cases internally several times.**
- ❑ **Anticipate that you're going to identify areas for improvement.**

From Recognized Vendors – Why Participate?

- ❑ Clients love all aspects of the immunization capabilities. They have come a long way over the last few years.
- ❑ Clients have been chomping at the bit for the new code, faster than the usual rate of adoption for other new features. Usually when we see that it is typically for pediatrics, where there is a specific want and need for public health. University hospitals as well, and the health system is also starting to jump in.
- ❑ Now that we are feeling more confident in our immunization capabilities we will want to market it. Having HIMSS behind us, this will give us a lot of credibility! The major players dominate the landscape, and this program for me has the potential to make it a more level playing field for smaller vendors.

From Recognized Vendors – Why Participate?

- ❑ I really liked the test site – it works really well and provides great information on what the issues are. For example, when you get the validation results, it shows you the elements that have issues and you can go in and look at it and diagnose what is wrong and correct it in your application. That is really helpful. Any testing is a long process, and if you have that, it is really helpful.
- ❑ Being successful in the HIMSS IIP certification means that you are in an elite class. It tells the community that you have gone the extra mile to make your application better.

Areas for Improved Collaboration Among IIS', EHR Vendors and Implementers

- ❑ **Discussion Topics for HIMSS Immunization Integration Program (IIP) Technical Advisory Panel – July 2018**
 - Managing non-potent vaccines
 - Determining active Vs inactive patients in EHRs
 - Managing immunization message acknowledgements (ACK)
 - Maintaining current terminology (code set) content
 - Managing mass immunization events
 - Comprehensiveness of HIMSS IIP outreach
- ❑ **HIMSS IIP Interactions with AIRA**
 - Coordination through CDC NCIRD
 - HL7 Meetings
 - AIRA Standards and Interoperability Steering Committee (SISC)
 - AIRA membership on HIMSS IIP Technical Advisory Panel

IMMUNIZATION SOFTWARE EVALUATION – COORDINATING EHRS AND IIS'



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