



AIRA

AMERICAN IMMUNIZATION
REGISTRY ASSOCIATION

Immunization Information System (IIS) Measurement and Improvement

**Testing and Discovery,
Assessment, and Validation
Overview**

Updated December 2019

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Roster: Measurement for Assessment and Certification Advisory Workgroup (MACAW)

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Executive Summary

The American Immunization Registry Association's (AIRA) community-driven immunization information system (IIS) Measurement and Improvement Initiative was launched in mid-2015, with the goal of providing IIS with information and guidance to more fully align with the IIS Functional Standards. The project connects AIRA testing processes with IIS pre-production (or test) systems, and/or analyzes deidentified data, and shares results through the Aggregate Analysis Reporting Tool (AART). AIRA is continuing to test with a growing number of IIS interfaces, with over 80% of IIS programs currently participating. The data available are helping to guide individual IIS enhancements to align with standards. The project is overseen by the Measurement for Assessment and Certification Advisory Workgroup (MACAW) and the AIRA Board of Directors. The Initiative is demonstrating significant improvements in interoperability between IIS and electronic health record (EHR) systems across the community, as well as improvements in standards-based functionality.

Although earlier discussions and presentations described Voluntary Certification as the proposed third stage in the measurement process, MACAW has recommended and the AIRA Board has voted to approve **Validation** as the third stage of the Measurement and Improvement Initiative. This stage will recognize those IIS aligning with standards, while also acknowledging IIS progressing toward meeting standards. It will not, however, carry the same weight of formality as Voluntary Certification. Validation conveys the benefits of uniform measurement and standardization with an emphasis on progress and improvement.

Validation Defined:

Following the stages of Testing and Discovery and IIS Assessment, Validation is a summary step to acknowledge IIS that are progressing toward or achieving alignment with community-selected measures and tests. A Validation designation is automatically achieved when an IIS meets the designated measures and tests in a specific content area (e.g., Transport, Submission, Query, etc.), as specified in the AIRA developed AART application.

Validation Rationale:

MACAW and the AIRA Board agreed on the following problem statement: **There is a lack of available information regarding how fully IIS are meeting functional standards.** As part of the current Measurement and Improvement effort, this information is objectively captured through AIRA's independent testing process. The AIRA measurement process is regarded positively throughout the community, and some IIS are ready to share their own results publicly in a structured way. Stakeholders, such as immunization providers, EHR

vendors, and the Office of the National Coordinator (ONC) have voiced a need for this information.

Validation addresses this problem in several ways:

Making visible the data available through the objective, independent testing process.

With the Measurement and Improvement work that is already under way, there is abundant, validated data about how IIS are functioning. This step of measurement will enable individual IIS to share their progress toward meeting standards with the broader community.

Building confidence in IIS across other communities. Demonstrating publicly that IIS are meeting standards in a validated, meaningful way will improve our credibility. Improved credibility positions the IIS community to more effectively engage other immunization and health information technology (IT) partners to meet shared objectives and to advocate for resources needed to sustain systems and programs.

Prioritizing and accelerating essential improvements together. Particularly for these early content areas focused on interoperability, MACAW believes that prioritizing community-wide adoption of standards across both IIS and EHR systems will reduce costs and resources needed for onboarding and maintaining interfaces both now and in the future. Additionally, standardized interfaces and the implementation of consistent acknowledgment messages from IIS will also contribute to improving the quality of IIS data. AIRA will support improvements through offering broad and varied technical assistance options to the IIS community.

Background and Context for Measurement and Improvement

The IIS community has long recognized the need for formal objective measurement of individual IIS system and program functions. Early efforts toward IIS Certification were developed by the Technical Working Group in 2001-2002 but were never implemented beyond selected pilots, due to resource constraints and other factors. Then, as now, the community acknowledged the many potential benefits of validated measures; among them, developing a clear picture of the landscape of IIS, greater standardization and nationwide symmetry across systems allowing for more efficient interoperability, and increased credibility with stakeholders through validated adherence to standards and best practices. However, although much of the IIS community voiced support for Certification, concerns remained regarding the broader impact of the Certification effort, particularly for those IIS that would not be able to meet the measures due to local policy.

The IIS Measurement and Improvement Initiative was launched in 2015. Since then, the Initiative has been envisioned as a three-stage process:

- Testing and Discovery
- IIS Assessment
- Certification (now deferred, replaced with Validation)

A white paper released in April 2015 entitled [Summary and Environmental Scan of Assessment and Certification Models](#) explored existing models of Assessment and Certification, and offered recommendations that emphasized four key action steps, all of which have been implemented:

- 1) **Engaging the community to discuss Assessment and Certification.** These discussions have been continuing through roundtables at the AIRA National Meeting, Town Hall webinars, and other venues.
- 2) **Standing up a subject matter expert (SME) group to outline steps toward Assessment and Certification.** This was completed in 2015-2016.
- 3) **Standing up a planning/steering committee.** This was accomplished with the launch of MACAW in spring, 2016. MACAW was tasked with developing measures and tests and overseeing the measurement process.
- 4) **Providing technical assistance, consultation, and, where needed, exploring financial support to assist IIS in the measurement processes.** Technical assistance and consultation are available from the AIRA Technical Assistance Team who work in collaboration with the Centers for Disease Control and Prevention

(CDC). Financial support pathways are continuing to be discussed and needs assessed.

Testing and Discovery, the initial stage in IIS Measurement and Improvement, serves to gather preliminary and general information on community alignment with standards. Testing and Discovery precedes all subsequent stages and has been underway since mid-2015.

IIS Assessment, the second stage, involves more formal testing to measure individual IIS systems using IIS community-selected measures and tests. Results are shared via the AART application to help facilitate quality improvement. Technical assistance is provided to IIS programs, vendors, and implementors as needed to accelerate improvement. The measures and tests for IIS Assessment are recommended by MACAW and approved by the AIRA Board for each content area. IIS Assessment has been underway since May 2016 for Transport, and more recently for Submission/Acknowledgment, Query/Response, and Clinical Decision Support (CDS).

Conversations with the IIS community regarding Certification suggested that adding a Validation component as the next stage in the measurement process would be the best path forward. Through standing up the internally facing Testing and Discovery and IIS Assessment stages of measurement, AIRA and the IIS community have mapped out a phased, community-driven process of developing and vetting measures and tests. All measures and tests are developed by MACAW, vetted for comment with the full IIS community via a Town Hall meeting format, and reviewed and approved by the AIRA Board of Directors prior to implementation. Multiple baseline and remeasurement periods for IIS Assessment content areas (i.e., Transport, Submission/Acknowledgment and Query/Response) have now been published. While Certification is not being proposed currently based on the reasons referenced above, it may be revisited at a later date.

Methods for Testing and Developing Measures and Tests

AIRA technical staff are responsible for implementing and conducting all testing efforts within the Measurement and Improvement Initiative. Current test methodology involves connecting with IIS pre-production systems through a Web services interface, submitting test messages, and receiving back test results. Future content areas of measurement may involve new methods that are currently being evaluated by AIRA staff and MACAW.

The National Institute of Standards and Technology (NIST) is partnering with AIRA in the testing process to develop conformance test tools in support of this Initiative.

All measures and tests for this effort are directly related to the CDC IIS Functional Standards and Operational Guidance Statements. Current and future content areas and

measures are mapped to the recently published [Functional Standards, v4.0](#). In addition to the IIS Functional Standards, additional standards and guidance materials referenced include the [HL7 Implementation Guide 2.5.1, Release 1.5](#) and [Addendum, Transport and SOAP Web Services Recommendations, Clinical Decision Support Specifications, MIROW Best Practice Guides, IIS Functional Guide Series](#), and [IIS Data Quality Practices](#). Measures and tests are also informed by existing and previous measurement efforts, including [IIS Annual Report measures](#), [PROW standards](#), and [Technical Working Group archival documents](#).

All measures and tests throughout the Measurement and Improvement effort have been and will continue to be developed by MACAW, vetted for comment with the full IIS community via a Town Hall meeting webinar format, and reviewed and approved by the AIRA Board of Directors prior to implementation.

Status of Measurement and Improvement to Date

Fifty-eight IIS (comprising all 50 states, plus the Commonwealth of the Northern Mariana Islands, the District of Columbia, Guam, New York City, Philadelphia, Puerto Rico, San Diego, and the Virgin Islands¹) were encouraged to be measured in the IIS Measurement and Improvement Initiative. Chicago and San Antonio were not targeted for testing as they were currently using or planning to soon use their statewide IIS platform. All 58 IIS have agreed to be measured. As of quarter 4, 2019, 49 IIS are being measured in at least one content area. Sites that are not yet connected and being measured are troubleshooting challenging connection issues due to system transitions or other technical challenges, including HIE involvement, firewall issues, or other barriers to connecting to pre-production systems. IIS choose to be measured in individual content areas and choose among which user groups the results will be shared (e.g., IIS/Imm Programs, IIS Vendors, CDC/NIST, or EHR Vendors).

The finalized and approved measures and tests, as well as baseline and remeasurement reports for Transport, Submission/Acknowledgment, Query/Response, and Clinical Decision Support (CDS) are all available on [AIRA's website](#).

¹ Note that four of the Pacific Islands were not initially targeted for measurement due to limited transport technology. As capabilities and ability to be measured expand, additional Pacific Islands are being included in this report.

Planned Stages and Content Areas of Measurement, Defined

The stages and content areas of measurement were developed by the MACAW Workgroup. Since the Measurement and Improvement Initiative is phased, new measures for future content areas, as well as potential new methods for measurement, will be introduced and vetted through the same consistent community-driven process. The order may be subject to change.

A “stage” is defined as distinct level of testing in the Measurement and Improvement process. The stages of measurement are defined as follows:

Stage	Definition
Testing and Discovery Stage	An initial step in testing IIS systems to gather preliminary and general information on community alignment with standards. Testing and Discovery precedes all subsequent stages.
Assessment Stage	A more formal testing step to measure IIS systems using IIS community-selected measures and tests, sharing those results for quality improvement, and providing technical assistance to accelerate improvement. This is the second of three stages.
Validation Stage	A summary testing step to acknowledge IIS that are progressing toward or achieving alignment with community-selected measures and tests. A “Validation” designation is automatically achieved when an IIS meets the designated measures and tests in a specific content area (e.g., Transport, Submission/Acknowledgment, Query/Response, etc.), but interim steps toward Validation are also recognized. Validation statuses include Validated, Validated with Minor Differences, Major Differences, Not Measured, and Opted Out. This is the third and final stage of measurement for each content area at this time.

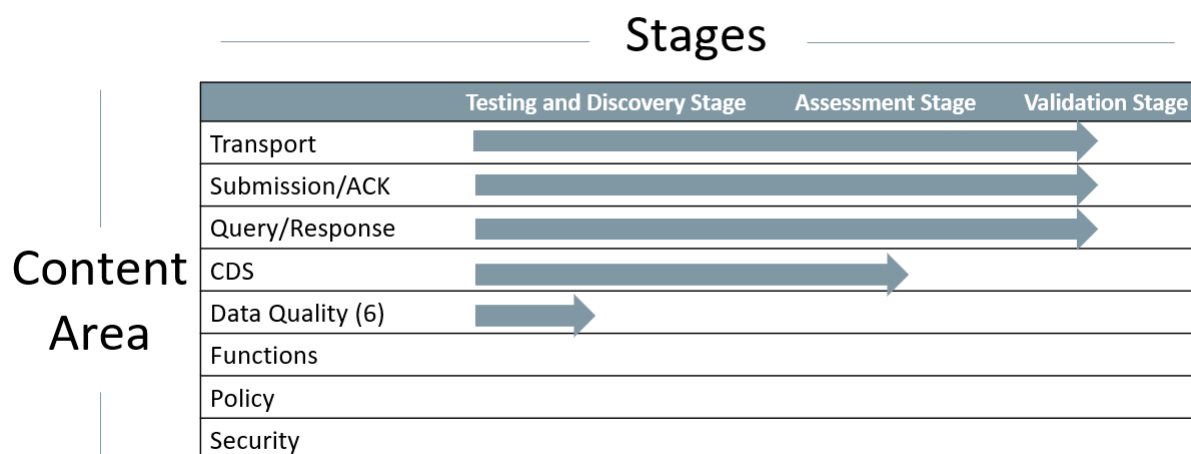
A content area is defined as a topic for measuring IIS functionality and capability within a specific functional area, made up of distinct measures and tests. Measures and tests will become more formalized as they progress into different stages. The table below includes planned content areas of Assessment, current as of September 2019. The order may be subject to change:

Planned Content Area	Definitions
Transport Messaging	Assessing alignment with standard protocols of SOAP/Web Services and specifications for the CDC WSDL for communications over a computer network.
Submission/ Acknowledgment Messaging	Assessing alignment with the HL7 2.5.1 release 1.5 Implementation Guide and addendum for Immunization Messaging for submission and acknowledgment.
Query/ Response Messaging	Assessing alignment with the HL7 2.5.1 release 1.5 Implementation Guide and addendum for Immunization Messaging for query and response.
Clinical Decision Support	Assessing alignment with specifications for Clinical Decision Support for Immunizations, based on the Advisory Committee for Immunization Practices.
Data Quality – Incoming/ Ongoing	Assessing alignment with guidance and best practices from MIROW and AIRA Data Validation guides for testing new incoming and ongoing incoming patient and immunization data via HL7 and User Interface entry for completeness, accuracy and timeliness; include aspect of ‘data clarity’ to leverage acknowledgments as tool in support of data quality.
Data Quality – Data at Rest	Assessing alignment with guidance and best practices from MIROW and AIRA Data Validation guides for testing existing IIS patient and immunization data for completeness and accuracy.
Data Quality – Patient and Vaccine Saturation	Assessing completeness for demographic and vaccination records for a patient population within a jurisdiction.
Data Quality – Provider Participation	Assessing completeness for enrollment and submission of provider organizations within a jurisdiction.
Data Quality – Patient Deduplication	Assessing the ability to detect unique and redundant patient records and resolve appropriately in accordance with standards and best practices.

Data Quality – Vaccine Deduplication	Assessing the ability to detect unique and redundant immunization records and resolve appropriately in accordance with standards and best practices.
Functions	Assessing the availability of specific functionality or capacity within the program or the system, and its adherence to published standards or guidance (e.g., Quality Improvement).
Policy	Assessing the existence of policies and procedures that the program, or an individual in the program, is responsible for (e.g., a written Disaster Recovery Plan).
Security	Assessing the existence of business rules or automated procedures that have been implemented to maintain the security of the system (e.g., ensuring data is backed-up on a periodic basis).

Stages and content areas combine to provide a high-level roadmap for Measurement and Improvement:

Stages of Measurement



Validation Introduction and Rollout

As detailed above, Validation is a summary testing step to acknowledge IIS that are progressing toward or achieving alignment with community-selected measures and tests. A “Validation” designation is automatically achieved when an IIS meets the designated measures and tests in a specific content area (e.g., Transport,

Submission/Acknowledgment, Query/Response, etc.), but interim steps/statuses toward Validation are also recognized. Validation statuses include: Validated, Validated with Minor Differences, Major Differences, Not Measured, and Opted Out.

The measures, tests and timing for Validation, including which measures are to be met for each level and status of Validation, will be recommended by MACAW and approved by the AIRA Board prior to rollout for each content area.

The statuses for Validation are defined as follows:

- **Validated:** The IIS has achieved full alignment with community-selected measures. This designation is automatically achieved when an IIS meets the designated measures and tests in a specific content area (e.g., Transport, Submission, Query, etc.).
- **Validated with Minor Differences:** The IIS has achieved full alignment with community-selected measures except for differences that 1) are allowed within the measures and test, or 2) are meeting requirements of local policy/law that do not conflict with measures and tests.
- **Major Differences:** The IIS cannot support the measures because of additional requirements that conflict with measures and tests; the IIS must make significant changes in one or more measures to align.
- **Not Measured:** The IIS has communicated willingness to be measured but is not able to be tested at this time.
- **Opted Out:** The IIS has chosen not to be measured.

Measures for each content area of Validation will be drawn from published IIS Assessment measures and tests, where results are already available to individual IIS via AART (please see the AART section later in this document). No new measures or tests will be introduced in the Validation stage that are not already measured and visible in the Assessment stage.

AART Validation statuses will be displayed with the following graphics:

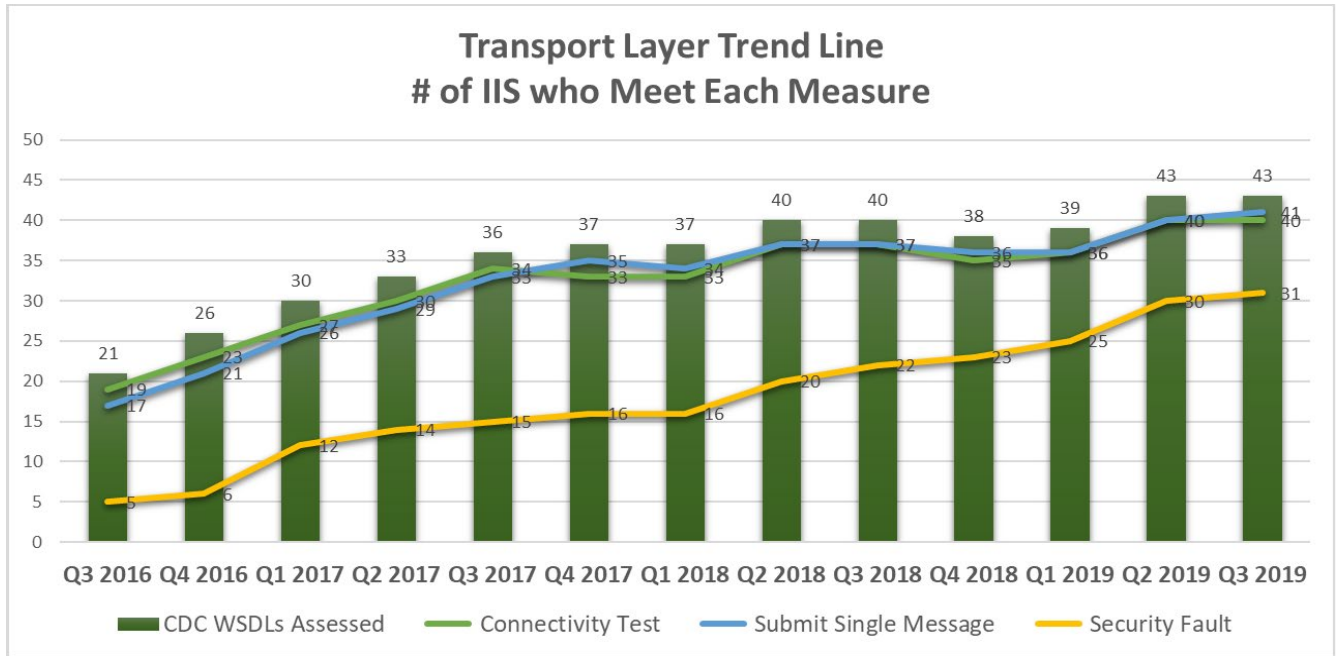


AIRA will provide IIS who meet the status of “Validated” with a formal statement they can include on their communication and marketing materials if desired. These IIS will be positively recognized as “Validated” at AIRA events. Those IIS that meet “Validated with Minor Differences” or make notable progress toward the measures for Validation will also be recognized at AIRA events.

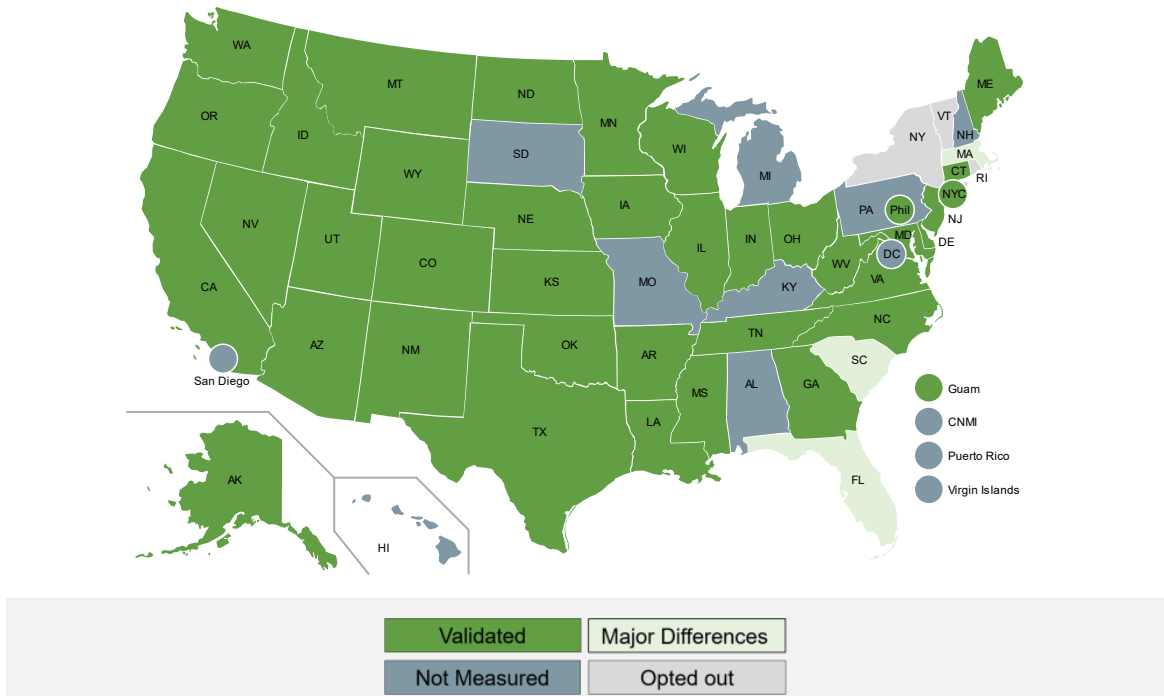
Quarterly Status Reports

AIRA will publish quarterly status reports, with the primary audience being the IIS community, to show progress. Reports will include the following graphics to share the results.

Quarterly Trend Data on Transport Alignment (actual data):



Quarterly Status Report on Transport Alignment (actual data):



There are some important conceptual approaches within Validation that will guide rollout:

- The progress toward Validation will be measured in content areas, to continue with the incremental approach that has shown early success through Testing and Discovery and IIS Assessment.
- Measurement will be encouraged but remains voluntary. The AART application will continue to be used as the platform for declaring the desire to be measured in the stages and content areas of measurement, as well as for declaring sharing settings to allow for transparency.
- Following the rollout of each content area of Validation, individual IIS will be automatically moved forward in Validation, but will have full access to update their settings if they are not ready to be measured and/or share their results with the community.
- Validation may include all or a subset of the measures in IIS Assessment, but will not include new measures that were not introduced in IIS Assessment. The measures, and their scoring to achieve the statuses of Validated, Validated with Minor Differences, and Major Differences will be documented, recommended by MACAW, and approved by the AIRA Board for each content area. Some measures may be measured in Assessment, but not immediately recommended for Validation.
- Some content areas may be broken down into “Basic or Complete” measures. This graduated approach allows for more nuanced results and makes it easier to show both success and improvement. The “Basic” level includes essential measures an IIS would be expected to pass to minimally meet a specific content area, while “Complete” includes a more comprehensive set of measures for a given area.

Example: Submission and Query

There are fourteen measures included in Assessment for the Submission and Acknowledgment content area. Like the Transport content area, MACAW recommended and the AIRA Board approved which of the measures moved forward for Validation, and which are included in specific levels. Below is the levels for Validation in Calendar Year 2018, where “Basic” includes essential measures and “Complete” includes all measures forwarded to Validation. This also provides an example where some Assessment measures were NOT forwarded for Validation. These measures may be recommended for inclusion in Validation at a later date, and/or new measures may be added to all stages of measurement in the future as a result of evolving standards:

Assessment Measure	Basic Level	Complete Level
1 - The IIS processes a query requesting a patient's immunization record.	X	X
2 - The IIS processes a query requesting a patient's evaluated immunization record and forecast.	X	X
3 - The IIS responds to a query for a known patient (one-to-one match).	X	X
4 - The IIS responds to a query for a patient that is not in the IIS.	X	X
5 - The IIS responds to a query that results in multiple possible patients.		
6 - The IIS responds to a query that has a significant error that cannot be accepted.		X
7 - The IIS responds to a query for a known patient and returns known Core Data Elements.	X	X
8 - The IIS responds to a query with an RSP within 5 seconds or less for 95% of the queries submitted.		X

Reminder: Specific categories of Basic and Complete (where applicable), and definitions on which measures contribute to the statuses of Validated, Validated with Minor Differences, and Major Differences will be drafted by MACAW for each content area of measurement. These recommendations will then be shared with the IIS community for input and voted on by the AIRA Board **as each new content area is phased into the Measurement and Improvement process.**

Aggregate Analysis Reporting Tool, or AART

The Aggregate Analysis Reporting Tool, or [AART](#) is an application specifically developed to compile and display measure and test results, as well as information and suggestions for improvements. It is developed and supported by AIRA and is hosted on secure servers maintained by AIRA. All IIS program and vendor staff have access to AART. Users can register for AART on the [login page](#).

AART meets a variety of needs for the Measurement and Improvement Initiative:

- Allows IIS to declare their desire to be measured in some or all content areas and stages of Measurement and Improvement
- Allows IIS program staff to determine who can see their results in named or unnamed form

- Provides measure and test results in graphic or narrative form
- Displays graphics to compare individual IIS results with other IIS across the broad community

Measurement and Sharing Settings

AART's original settings of "opt-in" required users to declare their desire to be measured and their sharing settings at each new stage and content area of measurement, raising questions from end-users who felt confused by having check boxes to be measured and share repeatedly. Looking across sites, AIRA Staff noted IIS opting to be measured by content area (Transport, Submission/Acknowledgment, etc.) and by stage (Testing and Discovery, Assessment, Validation) was inconsistent and declined with the roll-out of each new report. Settings for sharing with IIS/Imm Programs, IIS Vendors, CDC/NIST, and EHR Vendors were also inconsistent and declined with the roll-out of each new report. MACAW recommended and the AIRA Board approved a change to an "opt-out" approach, where users will be automatically rolled forward to the next content area or stage. AART Admin users can modify their settings at any time.

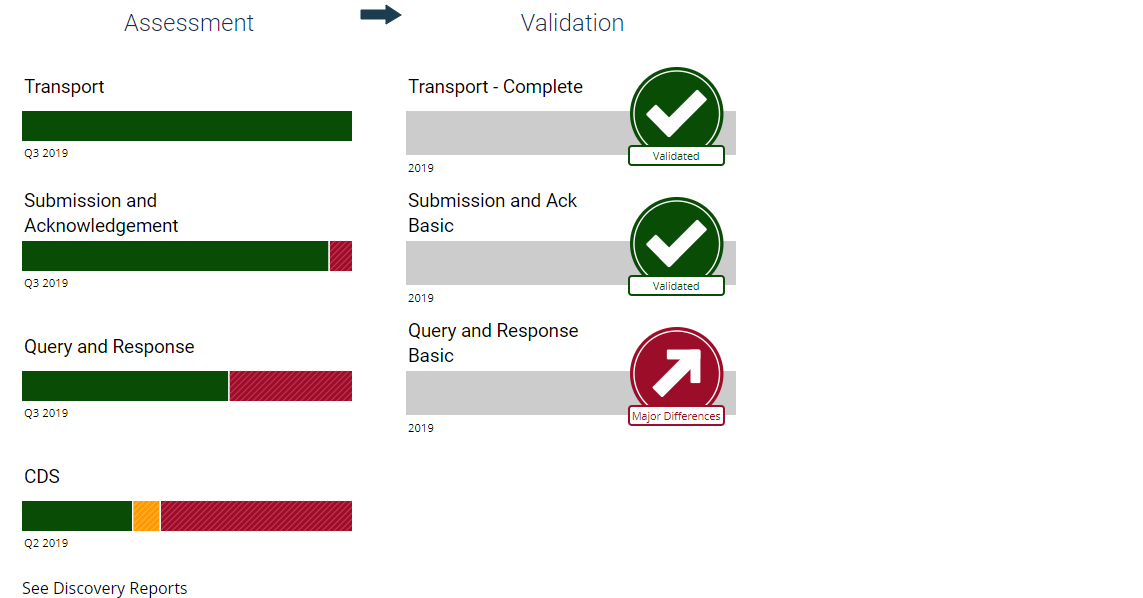
Viewing Results

AART displays results for each content area of testing, providing both graphic and narrative information on measure and test results. Clicking into each section will allow the user to view their current and past results as well as the results of other IIS who have opted to share. The following AART screenshot is the AART dashboard as of December 2019. The AART dashboard will continue to evolve as more content areas are added.

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



Testing and Discovery will continue to use the pentagon report to display various dimensions of alignment with standards. The pentagon report wraps HL7 content areas together into one report. Additional Testing and Discovery reports may focus on special topics (e.g., CDS).

Assessment reports will focus on individual measures and tests within each content area and will display both graphically and in narrative form if an IIS meets, deviates from, or does not meet each measure within a content area.

Validation reports will provide a summary status for each content area as a whole. The highest status for each content area (Transport, Submission/Acknowledgment, Query/Response, etc.) will be displayed in AART. Validation reports will be available to an individual IIS for a minimum of 30 days before they will be viewable by other users.

Rollout Timeline for Validation, Beginning with the Transport

Information on the concept of Validation and on the measures for Transport were shared with the IIS community at a Town Hall meeting on November 28, 2017. Transport measures were approved by the Board in December 2018.

The new AART dashboard was released in February. At this time, all IIS who had not yet declared their measurement and sharing settings were automatically moved forward into Validation for Transport. Settings can be changed at any time by an AART Admin user.

In March 2018, both Transport Assessment and Validation reports were created from the March measurement data. Following Validation reports being available in AART, users have a minimum of 30 days to review their Validation report and modify their measurement and sharing settings before the reports are visible to others. These reports are available in AART and on the AIRA repository [here](#).

Validation measures for Submission/Acknowledgment and Query/Response were approved by the AIRA Board in April 2018 and reports were available in AART in June 2018.

The AIRA Board approved Clinical Decision Support (CDS) Assessment Measures and Tests in June 2018 and the CDS Assessment thresholds in December 2018. The first baseline individual IIS reports were available in AART in April 2019.

Additional Considerations

The timing on introducing each content area of Validation should be sensitive to other obligations (e.g., grant reporting) that may limit the time and availability of IIS staff. Although AIRA is striving to minimize additional technical work needed for Validation, there may be operational and messaging responsibilities that accompany the Validation process.

The process should also be carefully coordinated with other measurement approaches that might unintentionally contradict Validation measures and results due to methodological differences (e.g., IISAR). AIRA and CDC will continue to collaborate to minimize the use of self-reported measurements and to promote the use of independent assessments of IIS functions, which can include Validation.

Finally, and perhaps most importantly, the timing should allow a reasonable amount of time, at minimum nine months, for an IIS to have prioritized changes in their system following publication of measures and/or baseline measurement within IIS Assessment.

Limitations and Challenges

It is critical to acknowledge that there are currently limited resources to fund enhancements in response to the results of the Measurement and Improvement process, although base cooperative agreement awards can and should be used to address alignment with standards. This resource issue, affecting funds as well as staffing resources, may make it challenging for IIS to prioritize enhancements needed to meet Validation, amidst their many competing priorities.

Since this is a voluntary process, it will be important to make it absolutely clear that the absence of Validation does not suggest the IIS does not meet the functions needed for successful IIS operations. Clear communication with both internal and external partners will be essential to the success of the measurement process. The AIRA website and repository, as well as all MACAW communications, should be leveraged fully to emphasize information about Validation.

Finally, both the Assessment and Validation processes will likely highlight areas in need of change that are outside of the IIS or Immunization Program's control. Collaboration with central IT resources, Health Information Exchanges (HIEs), policy decision-makers and others may be necessary to effect needed changes. This will require both time and advocacy to coordinate enhancements or modifications that support both the testing process as well as the end goal of validating full implementation of IIS Functional Standards.

Glossary of Terms and Acronyms

AART: The Aggregate Analysis Reporting Tool, an application used to display and share results from the Measurement and Improvement process.

Assessment Stage: A more formal testing step to measure IIS systems using IIS community-selected measures and tests, sharing those results for quality improvement, and providing technical assistance to accelerate improvement. This is the second of three stages.

Basic Level: A level of Validation measurement that includes only essential measures.

Complete Level: A level of Validation measurement that includes all measures approved for Validation.

Content area: An area for measuring IIS functionality and capability within a specific functional area, made up of distinct measures and tests. Measures and tests will become more formalized as they progress into different stages.

Major Differences Status: The IIS cannot support the measures because of additional requirements that conflict with the national standard; the IIS must make significant changes in one or more measures to align with standards.

Measure: A metric developed to measure how well an IIS aligns with IIS Functional Standards/Operational Guidance Statements or other recognized standard.

Stage: A distinct period of testing in the Measurement and Improvement Process.

Testing and Discovery Stage: A step in testing IIS systems to gather preliminary and general information on community alignment with standards. Testing and Discovery precedes all subsequent stages.

Validated Status: The IIS has achieved full alignment with community-selected measures.

Validated with Minor Differences Status: The IIS has achieved full alignment with community-selected measures except for differences that 1) are allowed by the standard (e.g., constraints), or 2) are meeting requirements of local policy/law that do not conflict with standard requirements.

Validation Stage: A summary step to acknowledge IIS that are progressing toward or achieving alignment with community-selected measures and tests. A Validation designation is automatically achieved when an IIS meets the designated measures and tests in a specific content area (e.g., Transport, Submission/Acknowledgment, Query/Response, etc.).

Revisions/Change Log

Date	Change	Reason
8-2017	Published Original Document, titled "Overview of "Immunization Information System (IIS) Proposed Voluntary Certification"	Community education/communication
11-2017	Title and content changed to "Immunization Information System (IIS) Measurement and Improvement: Testing and Discovery, Assessment, and Validation Overview"	Updated document to reflect MACAW recommendations and AIRA Board vote on concept of Validation.
05-2019	Updated terms throughout the document and update current MACAW member list	Updated terms to reflect MACAW decisions to add clarity to the Measurement and Improvement process (e.g. phase changed to content area and Fully Meets changed to Meets)
12-2019	Updated wording for Validated with Minor Difference and Major Differences.	Updated terms to better define the Validation statues based on new content areas