AIRA
AMERICAN IMMUNIZATION REGISTRY ASSOCIATION

AART

Software and Report Enhancements

May 31, 2022

AART: Software and Report Enhancements

Introduction

The Aggregate Analysis Reporting Tool (AART) is updated on a regular basis which impacts various IIS-specific reports, features and user navigation. This update includes significant enhancements as outlined below. AIRA welcomes feedback and we encourage any comments or questions be sent to aart@immregistries.org. More information about AART and the Measurement and Improvement Initiative can also be found on the AIRA website.

Uses of AART beyond Measurement and Improvement Initiatives

The Aggregate Analysis Reporting Tool (AART) has been a valuable application that assists jurisdictions with visualizing and compiling results into community-driven measures and tests correlating to the Immunization Information Functional Standards. The Measurement for Assessment & Certification Advisory Workgroup (MACAW) have determined that the uses of AART are going well beyond meeting the needs of Measurement and Improvement initiatives to include running test cases by content area, testing of AART connections and publishing reports. The capabilities of AART are expanding to also include the following:

- Fulfilling quick aggregate requests for community partners
- Verifying HL7 connections with federal partners
- Testing proof of concept frameworks with third -party vendors
- Publishing data for various research project

If your IIS is interested in utilizing AART for additional purposes that extend beyond the current M & I initiatives, please contact us at aart@immregistries.org to discuss this process further.

Data at Rest (DAR) Report in Testing and Discovery

The following functionality will be available in Quarter 4 2021

1) DAR has been added to the Measurement and Sharing page within AART. Participants are now able to manage their measurement and sharing settings for DAR Testing and Discovery. This single select function allows an IIS to indicate their desired level of sharing with IIS, vendors, CDC or NIST.
2) Participants can upload their transformed data extract file in AART by clicking on 'See Discovery Reports" and then clicking on "Upload DAR file"

3) DAR Report Results can be accessed from the Dashboard
4) The DAR Results Summary table has been added to AART and displays the counts of each test case by dimension (completeness, timeliness, and validity). Each test case is evaluated based on threshold levels and reported as: meets, does not meet, data unavailable and no threshold.
5) For those users wanting more detail about their report, the Report Link below the three dimensions triangle on the reports page goes to the qDAR application. This application in addition to providing more in-depth test case information also allows for the opportunity to query IIS wide data for custom data quality reports.
6) Under the Testing and Discovery link on the left-hand menu, you will be able to navigate to the Dashboard link on the DAR report page. This link takes you directly to all the DAR reports on the qDAR application including the Provider Breakdown report.

HL7 Testing and Discovery Report

The following changes will be reflected starting with the Quarter 3 2021 HL7 Discovery Report:

1) Missing and or/duplicate test cases were initially skewing the CDC's Endorsed Data Elements results. These errors have been fixed. If the test passes, the Medium Priority Elements will return yes under Accepted.
2) The Coded Value test cases for social security number, account number and driver's license were added as new submissions and are applied when the HL7 Testing and Discovery Report is generated.

The following changes will be reflected starting with the Quarter 1 2021 Testing and Discovery Report Performance based scoring represented in descending order has been added so that an IIS can compare their scores against the efficiency of fellow registries.

The following changes will be reflected starting with the Quarter 1 2020 Testing and Discovery Report:

1) A new "submit feedback" button has been added to allow AART users to send questions or comments to AIRA technical staff about specific test cases.
2) CPT codes have been removed from testing.
3) "AIRA" has been added to first and last names to help IIS identify the data that is coming from AIRA testing. All street names are not Dutch words and not English to better identify data from AIRA.

The following changes will be reflected starting with the Quarter 4 2019 Testing and Discovery Report:

1) CPT codes have been removed from the HL7 Testing and Discovery Report.

The following changes will be reflected starting with the Quarter 3 2019 HL7 Testing and Discovery Report:

1) Numerous Discovery Test cases were updated due to missing release 1.5 technical requirements. These updated test cases may impact several areas of the Discovery Report for your IIS as the updated messages are now release 1.5 compliant.
2) Some test cases in the Coded value sections were intending to test NDC codes but were erroneously submitting their respective CVX code. These test case have been updated. This may impact your Discovery Report if your IIS is unable to accept NDC codes.
3) Previously, this was an all or nothing scoring mechanism.
4) Several NDC Test cases were incorrectly submitting a vaccination event in the future. These tests have been corrected so the vaccination event dates are logically equal to today or in the past.

The following changes will be reflected starting with the February 2019 Testing and Discovery Report:

1) 6 test cases were removed from the Coded Values section along the left-hand side of the Discovery Report. This will result in a very small increase in score across most IIS.

The following changes will be reflected starting with the September 2018 Testing and Discovery Report:

1) 89 test cases were removed in the Sensitive section along the left-hand side of the Discovery Report. This will result in an increased score across most IIS as nearly all tests had expectations which exceeded current IIS interfaces functionality and need not be tested at this time.
2) NDC and CPT submissions were added as new tests in version 2.0 of AART. However, AART was not properly matching the submitted NDC or CPT when a query returned a CVX code representation of the NDC. This resulted in a lower score in several sections than it should have. Fixes have been made to properly match between coding systems.
3) The Tolerant Score (Left hand side of Testing and Discovery Report) was being calculated incorrectly. This has been fixed, most IIS will see their tolerant score double as a result.
4) Bad Data Not Stored (Top side of Testing and Discovery Report) was incorrectly failing some test cases. These have been fixed. Most IIS will see an improvement in this section.
5) Good Data Stored and Bad Data Not Stored (Top side of Testing and Discovery Report) was being calculated incorrectly. This has been fixed, most IIS will see their scores improve in these two sections as a result.

Clinical Decision Support (CDS) Testing and Discovery

The following changes will be reflected starting with the Quarter 3 2021 CDS Testing and Discovery Report:

1) New COVID-19 test cases for Novel/ Seasonal has been added to both CDS Testing and Discovery and in the Interactive CDS Results Explorer. Additionally, the header for Novel/ Seasonal COVID-19 has been updated.
2) Expected Date was incorrectly failing some test cases. These have been fixed. Both the Expected and Actual Dates will generate correctly, thus initiating a pass or fail status for vaccine forecasting.

The following changes will be reflected starting with the Quarter 1 2021 CDS Testing and Discovery Report:

1) Multi-select links have been added to the CDS Testing and Discovery reports. The new feature allows users to select either "Grace-Period or "Catch up" as an option to further define test case results.
2) Bug fixes were completed to ensure changes to the CDS threshold measures do not impact historical reports. Additionally, CDS results evaluation status now aligns with the Summary Assessment measure.

The following changes will be reflected starting with the Quarter 3 2020 CDS Testing and Discovery Report:

1) If the IIS does not honor the ACIP grace period, no grace period specific test cases will be run. These test cases will not be included in any report or calculation.
2) The CDS Assessment Report will denote the IIS Grace Period setting at the time of the execution in the Conformance Tests and Results table in the "Grace Period" row as Tested/Not Tested

The following changes will be reflected starting with the Quarter 1 2020 CDS Testing and Discovery Report:

1) A new "submit feedback" button has been added to allow AART users to send questions or comments to AIRA technical staff about specific test cases.
2) Similarly, to CDS Assessment, test cases where RSPs are not returned will not be scored.
3) "AIRA" has been added to first and last names to help IIS identify the data that is coming from AIRA testing. All street names are not Dutch words and not English to better identify data from AIRA.
4) As part of CDS testing, AIRA intentionally adds an irrelevant vaccination event in test cases where no vaccination events are part of the test case. This ensures IIS accept the patient. However, this was causing some challenges when data was later queried. This issue has been fixed and may lead to more test cases being measured in select IIS.

The following changes will be reflected in the Quarter 4, 2019 CDS Testing and Discovery Report:

1) Test cases will not be scored when an IIS does not return all the data in the RSP.

The following changes will be reflected starting with the Quarter 3 2019 CDS Testing and Discovery Report:

1) Starting Q3 of 2019 CDS Testing, and Discovery will include version 4 CDSi test cases.
2) IIS who are interested in looking at which Test Cases will be executed as part of CDS testing now have a single interactive page to find this useful information. Note, this is just the test cases which will be ran, it doesn't contain any IIS-specific results. https://app.immregistries.org/aart/fitsView

The first Clinical Decision Support (CDS) Testing and Discovery report was released in Q2, 2019. The CDS Discovery Report is the original AART report that was developed to explore how IIS currently implement Clinical Decision Support for Immunization (CDSi) test cases to align with Advisory Committee on Immunization Practices (ACIP) recommendations. The report looks at 5 CDS concepts (Evaluation Status, Series Status, Earliest Date, Recommended Date, and Past Due Date) across age groups and vaccine families.

CDS Assessment Reports

The following changes will be reflected starting with the Quarter 1 2021 CDS Assessment Report:

1) New COVID-19 test cases have been added to the New or Changed measures in both CDS Assessment and in the Interactive CDS Results Explorer.

The following changes will be reflected starting with the Quarter 1 2021 CDS Assessment Report:

1) Bug fixes were completed to ensure the CDS Evaluation Status correlates with the Summary Assessment measure.
2) Bug fixes were completed to ensure changes to the CDS threshold measures do not impact historical reports. Additionally, CDS results evaluation status now aligns with the Summary Assessment measure.
3) Once an end user generates a query to test CDS test measures, the results will appear in chronological order.
4) CDS thresholds for Deviates (Yellow Bar) will change from 65-90 to 80-90.

The following changes will be reflected starting with the Quarter 3 2020 CDS Assessment Report:

1) If the IIS does not honor the ACIP grace period, no grace period specific test cases will be run. These test cases will not be included in any report or calculation.

2) The CDS Assessment Report will denote the IIS Grace Period setting at the time of the execution in the Conformance Tests and Results table in the "Grace Period" row as Tested/Not Tested

The following changes will be reflected starting with the Quarter 1 2020 CDS Assessment Report:

1) A new "submit feedback" button has been added to allow AART users to send questions or comments to AIRA technical staff about specific test cases.
2) When looking at measures, a link has been added to "Compare with My Peers" that allows AART users to view peer results by measure from both Assessment and Validation reports.
3) As part of CDS testing, AIRA intentionally adds an irrelevant vaccination event in test cases where no vaccination events are part of the test case. This ensures IIS accept the patient. However, this was causing some challenges when data was later queried. This issue has been fixed and may lead to more test cases being measured in select IIS.

The following changes will be reflected in the Quarter 4, 2019 Assessment Report:

1) New functionality was added to allow users to compare their results to their peers at the measure or test level within the Assessment reports. This new functionality will not change your individual score per se but will make it easier to compare to your peers.

The following changes will be reflected starting with the Quarter 3 2019 CDS Assessment Report:

1) Starting Q3 of 2019 CDS Assessment will include version 4 CDSi test cases.
2) IIS who are interested in looking at which Test Cases will be executed as part of CDS testing now have a single interactive page to find this useful information. Note, this is just the test cases which will be ran, it does not contain any IIS-specific results. https://app.immregistries.org/aart/fitsView
3) CDS Assessment Reports have been enhanced in two ways. The first is to remove flu testing during Quarters 2 and 3. The flu tests will still be ran (and are accessible informational purposes), but they do not impact scores. The second is a new section for new or changed test cases. When new test cases are introduced (or existing test cases are modified), they are executed (and are accessible for informational purposes), but they do not impact scores.

The first Clinical Decision Support (CDS) Assessment reports were released in Q2, 2019. The results use over 750 test cases to measure across three CDS concepts (Evaluation Status, Earliest Date, and Recommended Date) for 12 CDS Assessment measures. There is an Interactive CDS Results Explorer that allows users to quickly drill down into each test cases by CDS concept, age group, and vaccine family to see specific test cases that were met and those that were not met.

Transport, Submission and Query Assessment Reports

The following changes will be reflected starting with the Quarter 3 2021 Assessment reports:

1) Bug fixes were completed for the Transport Assessment Dashboard. The dashboard is displaying the Transport assessment properly.

The following changes will be reflected starting with the Quarter 1 2021 Assessment reports:

1) Bug fixes were completed to align the DQI Measures report with the new M&I COVID -19 Standards Alignment report.
2) Bug fixes were completed to ensure the Deviates from Standards on the Query Assessment report are generating appropriately each time the report is submitted or populated.

The following changes will be reflected starting with the Quarter 3 2020 Assessment reports:

1) HL7 Assessment Reports now show different attempts and provide feedback on local requirements:
   a. Base Message
   b. The outcome
   c. What was changed
   d. Second Attempted message
   e. Outcome of second message
2) Test cases for passed IIS measures in the Assessment Report will now be displayed.

The following changes will be reflected starting with the Quarter 1 2020 Assessment reports:

1) A new "submit feedback" button has been added to allow AART users to send questions or comments to AIRA technical staff about specific test cases.
2) When looking at measures, a link has been added to "Compare with My Peers" that allows AART users to view peer results by measure from both Assessment and Validation reports.
3) If IIS supply patient demographic data, new capability has been added to "pass" IIS that are able to return a multiple match per Query Measure 5 test cases.
4) Ensure queries during testing do not create conformance errors by not including repetitions in QPD fields.
5) "AIRA" has been added to first and last names to help IIS identify the data that is coming from AIRA testing. All street names are not Dutch words and not English to better identify data from AIRA.

The following changes will be reflected in the Quarter 4, 2019 Assessment reports:

1) New functionality was added to allow users to compare their results to their peers at the measure or test level within the Assessment reports. This new functionality will not change your individual score per se but will make it easier to compare to your peers.
2) You may begin seeing changes to Query Measure #5 (Multiple Match Patients) if you provided a multiple match patient to AIRA. This is still in the pilot stage, but please reach out to Eric Larson (elarson@immregistries.org) for more information.
3) Two new measures were added to Submission and Acknowledgment Assessment to test NDC. Measures 15 and 16 are now included in the Submission Assessment report.

The following changes will be reflected in the Quarter 1, 2019 Assessment reports:

1) The VIS barcode for Hepatitis B is updated to use the latest Hepatitis B VIS across all assessment test cases where Hepatitis B is an administered dose (RXA-9 = 00).

The following changes will be reflected in the Quarter 3, 2018 Assessment reports:

1) The VIS barcode for MMRV is updated to use the latest MMRV VIS across all assessment test cases where MMRV is an administered dose (RXA-9 = 00).
2) Measure 7 in Query Assessment tests for select CDC endorsed data elements by first submitting a VXU message with two vaccination events before querying for the patient. The vaccination events were changed from administered (RXA-9 = 00) to historical (RXA-9 = 01) to have better success in IIS accepting the initial VXU message. This will remove some false negative outcomes within this measure.

Validation Reports

The following changes will be reflected starting with the Quarter 3 2021 reports:

1) Bug fixes were completed to align the Thumbnail drill down functionality with new Basic and Complete Submission Validation measures.

The following changes will be reflected starting with the Quarter 1 2021 reports:

1) Bug fixes to ensure the new M&I COVID -19 Standards Alignment report displays all measures in all content areas regardless of Validation participation.

The following changes will be reflected starting with the Quarter 3 2020 reports:

1) All Validation Report test system URLs have been added to the dashboard to inform IIS of which endpoint is currently being tested.

The following changes will be reflected starting with the Quarter 1 2020 Validation reports:

1) When looking at measures, a link has been added to "Compare with My Peers" that allows AART users to view peer results by measure from both Assessment and Validation reports.

Software Enhancements & New Functionality

The Following changes will be reflected in AART starting in the Quarter 1 2022:

1) All AART users will see a new user interface when logging into AART. AART's existing URL will remain the same. To access the new UI, simply login with your existing username and password.
2) All navigation within the updated user interface has been moved to a left-hand menu.
3) If a user has access to view multiple test participant results, a new drop-down arrow is accessible next to the name of the current test participant. By clicking the drop-down arrow, a list of available test participants systems the user can select will display to view testing results and reports.
4) Test participant Admin users can access the administrative settings in the new UI by navigating to the lower quadrant of the left-hand menu and selecting "Settings." System Admin users can manage Measurement and Sharing settings by content area and those users who have access to view their specific testing results.
5) An additional section called "Other" has been added to the Measurement and Sharing settings page for measuring additional concepts listed below. Admin users are encouraged to confirm their measurement and sharing settings by logging into AART and clicking "settings" in the left-hand navigation menu.
   - Fulfilling quick ad-hoc aggregate requests from community partners
   - Verifying HL7 connections with federal partners
   - Testing data for various research project
6) A new "submit feedback" button has been added to the "Settings" left hand navigation menu that allows AART users to send general questions or comments to AIRA technical staff.
7) The term "IIS" has been updated to "System" in the upper quadrant of the left-hand menu. In AART, some users have access to more than one system. Therefore, you will be able to either toggle or select a single system to review outcomes for test cases.

The following changes will be reflected starting with the Quarter 1 2021 reports:

1) A new M&I: COVID-19 Standards Alignment report is now available to all individual IIS in AART. The COVID-19 Standards Alignment Report was a specialty content area created in June 2020 to assist IIS with better preparing for the expected arrival of a novel vaccine for COVID-19.
2) IIS Admin Users will have the ability to approve new users and manage their access to the IIS from the Settings page on the Participation and Sharing section. IIS Admin users can now see:

The following changes will be reflected starting with the Quarter 3 2020 reports:

1) A new M&I: COVID-19 Standards Alignment report is now available to all individual IIS in AART. The COVID-19 Standards Alignment Report was a specialty content area created in June 2020 to assist IIS with better preparing for the expected arrival of a novel vaccine for COVID-19.
2) IIS Admin Users will have the ability to approve new users and manage their access to the IIS from the Settings page on the Participation and Sharing section. IIS Admin users can now see:
   a. Pending Users: A list of users who have requested access but have not been setup to connect with the IIS.
   b. Authorized Users: The current list of users that have access with a new button that will allow editing of each user's access level
   c. Add New User: Allows for searching users in AART and adding them as authorized users.
3) AART users will now have the capability to filter the emails they receive from AART in the User section of the application.
4) Inactive AART users that change their password will have their user status changed from Inactive to Pending.
5) Email sent to AART users when their Access Level has been changes will include their updated Access Level status.

The following changes will be reflected starting with the Quarter 1 2020 Validation reports:

6) All AART users will receive an email to keep their user account current if they have not logged into AART in the last 365 days.

The following changes will be reflected in AART starting in the Quarter 4, 2019:

1) AART Admin users can see all users who have access to their IIS data. This information can be found by accessing the "Settings" link in the left-hand menu and clicking on the "Users" tab. System admin users are encouraged to confirm their measurement and sharing settings and review authorized and pending users who have access to testing results by navigating between the two tabs on the Settings page. The AART Dashboard has a new look focusing on Validation, Assessments, and Testing and Discovery. For users wanting to see details from Testing and Discovery, click on the "Discovery" link in the left-hand menu to display HL7, Clinical Decision Support, and DAR reports.   For users wanting to see details from Testing and Discovery, a new link on the bottom left of the page will display both HL7 and Clinical Decision Support Testing and Discovery reports.

Starting April 2019, the AART Dashboard includes the new Testing and Discovery and Assessment reports for Clinical Decision Support (CDS).