AIRA
AMERICAN IMMUNIZATION REGISTRY ASSOCIATION

Transport Assessment

Aggregate Report

2026 – Quarter 1

M&I
MEASUREMENT & IMPROVEMENT

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Introduction

Overview: The measurement process for Transport uses the National Institute of Standards and Technology (NIST) Immunization Test Suite Validation Tool. This tool provides consistent conformance-based results for all measured IIS. In addition, the technical requirements for data transport are documented in the HL7 Version 2.5.1: Implementation Guide for Immunization Messaging, Release 1.5 and addendum. This is referred to as the National IG.

Interoperability is a core function for IIS. Although there are many aspects to interoperability, message transport, or how messages get from system A to system B, it is an important building block for standardized data exchange. In 2011, the Centers for Disease Control and Prevention (CDC) convened an Electronic Health Record (EHR)-IIS Interoperability Expert Panel that recommended SOAP (Simple Object Access Protocol) Web Services as the IIS Transport standard, and CDC developed a common Web Services Definition Language (WSDL) to facilitate and enable easier IIS and EHR adoption.

Background: Transport moved into the Measurement and Improvement (M&I) stage of Assessment in 2016. Testing and recognition occur in the first and third quarters of each calendar year. This report contains the aggregate results of the IIS remeasurement completed in **Quarter 1 of 2026**. IIS can access their individual measurement reports in AART.

Measures: Measurement for Assessment and Certification Workgroup (MACAW), the advisory body for M&I, approved measures and tests for Transport in May 2016. The detailed measures and tests document is located on the AIRA repository. Measures and tests are based on the IIS Functional Standards v5.0. Transport measures and tests are specifically based on the following:

- **Functional Standard C5.0**: Manage interfaces for exchange and integration of data electronically between the IIS and other information systems in accordance with federal and jurisdictional standards.
- **Guidance Statement C5.1**: The IIS exchanges data in accordance with current interoperability standards endorsed by CDC for message content, format, and transport.

Testing Method: AART sends HL7 messages to IIS pre-production systems to test connectivity using SOAP XML as specified in the CDC WSDL. The IIS SOAP XML response is validated using the NIST HL7v2 Immunization Test Suite (2015 Edition). This tool provides consistent conformance-based results for all measured IIS. Each measure has at least one

test case but may have more as needed. In total, 3 test cases were developed, reviewed, and approved for the three Transport measures. Test cases were developed to isolate the test case to the measure; expectations for a test case should be few, not many; and focus on proper behavior based on standards.

Possible results: IIS can achieve one of three possible results in both test and measure outcomes – **meets, deviates from national standard, does not meet,** or **not measured**.

Summary Results

Sixty-one[1] IIS were encouraged to be measured in the IIS Transport Assessment. Of the 61 participating IIS,[2] **60 (98%)** had a SOAP Web Services/CDC WSDL end point available for testing. This is an increase of 39 IIS since the baseline measurement in Quarter 3 of 2016 (n=21).[3].

Specific results for each measure were as follows:

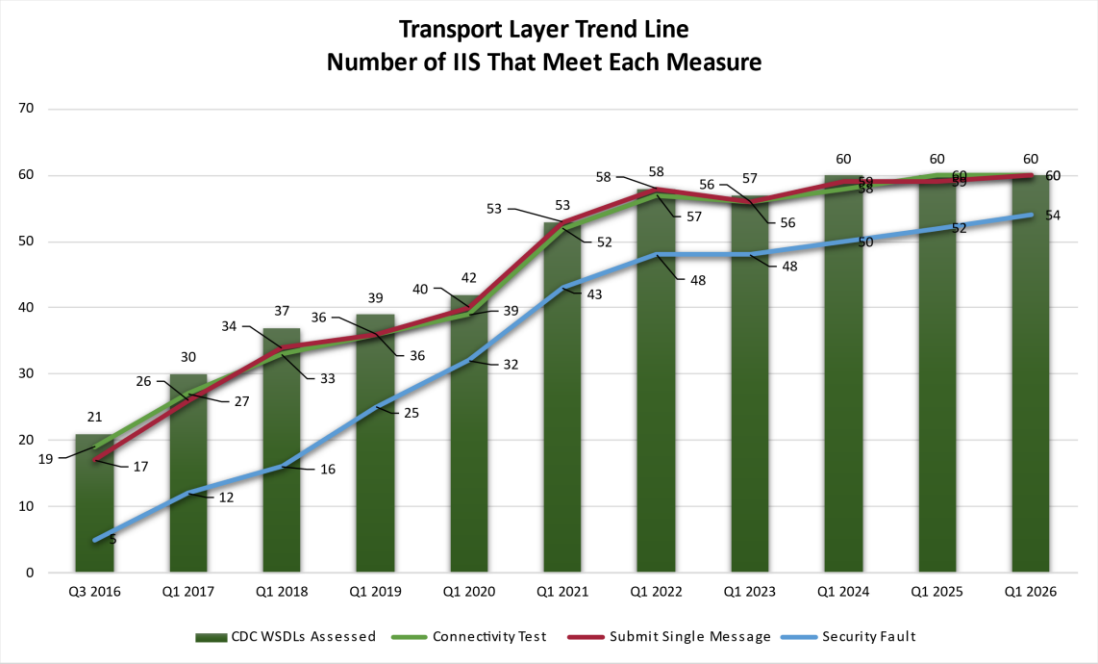
Connectivity Test	Submit Single Message	Security Fault
60	60	54
0	0	3
0	0	3

[1] The denominator for M&I participation decreased from 62 to 61 in Q2 2022, due to San Diego IIS's merge with California's state IIS.

[2] Includes all 50 states, American Samoa, the Commonwealth of the Northern Mariana Islands, the District of Columbia, the Federated States of Micronesia, Guam, New York City, Philadelphia, Puerto Rico, the Republic of the Marshall Islands, the Republic of Palau, and the Virgin Islands.

[3] Note that not all IIS were able to be assessed this quarter but they have been measured in previous quarters.

Summary of Progress



Of the 60 IIS with a CDC WSDL end point available for testing:

- **54 (90%)** met all three measures, which is an increase of **49** since the initial baseline.
- **6 (10%)** met two specific measures (Connectivity Test and Submit Single Message).[4]
- **0 (0%)** met one out of three measures.

Questions and/or Comments

Please direct questions and/or comments via AIRA's Technical Assistance Request form.

[4] It is important to note that the IIS that passed all measures except the Security Fault are interoperable with the CDC WSDL standard if the correct authentication parameters are sent. For this reason, these sites are functionally compatible for production use when authentication succeeds but improperly indicate authentication failure using a conformant Security Fault.

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Appendix A: Outcome Reasons

The following appendix provides specific details as to why IIS either deviated from or did not meet the CDC WSDL standard across the three tests. In some cases, an IIS may have more than one reason it deviated or did not meet the test.

Connectivity Test

Deviates from Standard	Does Not Meet
No IIS deviated	No IIS resulted in does not meet

Submit Single Message

Deviates from Standard	Does Not Meet
No IIS deviated	No IIs resulted in dose not meet

Security Fault

Deviates from Standard	Does Not Meet
Non-conformant fault: The IIS throws a fault as required by the standard, but the fault thrown by the IIS does not conform to the fault defined by the CDC WSDL.	**Does not throw a fault:** The IIS properly catches an authentication failure but returns the authentication failure where only HL7 responses are supposed to be returned rather than throwing a SOAP fault dedicated to authentication failures.

Appendix B: Report Limitations and General Recommendations

Limitations of Report

One limitation to note is that this report is based on conformance requirements that align with the standard, but it is not meant to suggest IIS cannot achieve interoperability outside of this standard. For example, although several IIS do not meet conformance on the Security Fault test, this does not imply the IIS are unable to interoperate using the Submit Single Message operation when authentication passes. It specifically means an IIS does not conform to the CDC WSDL when throwing a Security Fault during authentication failure. However, full conformance to standards across the IIS and EHR community will improve interoperability and onboarding timeliness.

General Recommendations

1. Review conformance test results and target program efforts to improve areas of non-conformance.
    a. In doing so, it is important to consider if the changes to conform will break existing connections. If the changes will break existing connections, it may be better to leave the existing non-conformant connection operational and provide a new end point that conforms with the CDC WSDL. This will provide an easy and natural transition strategy to the conformant CDC WSDL as new and existing providers/EHRs develop or upgrade their interfaces.
2. Use the conformance tool provided by NIST when developing and/or improving implementation of the CDC WSDL.
    a. The tool can aid the software development process. The tool is located at https://hl7v2-iz-r1-5-testing.nist.gov/iztool/#/cf and is free to use without installation or registration requirements.
3. Publish and make available all transport layer requirements for use by potential trading partners.
    a. Almost all IIS publish their HL7 guide, but only a limited number publish their transport layer requirements for use by trading partners prior to beginning the onboarding process. Waiting until onboarding to share transport layer requirements may delay or unnecessarily burden the onboarding process. The earlier a trading partner can access the requirements, the better chance it will have at developing its product to the requirements.
4. Consider sharing your Assessment results in AART with others, including EHRs.

a. This can be helpful as they prepare to exchange with your IIS. Please refer to *Information on AART Measurement and Sharing Settings* for guidance on sharing settings.