IIS Assessment Measures and Tests
Message Transport

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Background and Context

Interoperability is a core function for Immunization Information Systems (IIS). The ability to seamlessly capture and exchange data is fundamental to the maintenance and use of consolidated records. Standardized interoperability is critical for IIS interfaces with Electronic Health Records (EHRs) as well as IIS-IIS exchange. Although there are many aspects to interoperability, message transport, or how messages get from system A to system B, is an important building block for standardized data exchange.

In 2011, CDC convened an EHR-IIS Interoperability Expert Panel that focused on selecting a transport layer standard. The panel consisted of 41 industry experts representing the Office of the National Coordinator (ONC), the CDC Public Health Informatics and Technology Program Office (PHITPO), the American Immunization Registry Association (AIRA), the Electronic Health Record Association (EHRA), the Indian Health Service (IHS), IIS vendors, EHR vendors, and IIS programs.[1] The panel recommended SOAP Web Services as the standard[2], and CDC developed a common Web Services Definition Language (WSDL) to allow for easier IIS and EHR adoption.

In 2016, AIRA convened the Measurement for Assessment and Certification Advisory Workgroup (MACAW) to develop and propose measures for IIS Assessment, beginning with message transport. These measures will be shared with the AIRA Board of Directors and the broader AIRA community to ensure broad community input and agreement.

Functional Standards and Operational Guidance Statements

The use of standardized transport mechanisms is also referenced throughout the 2013-2017 IIS Functional Standards[3] and Operational Guidance Statements. The revised IIS Functional Standards were developed by the Immunization Information Systems Support Branch, CDC/NCIRD, through a consensus-based process involving input from a variety of IIS managers and technical experts from across the U.S. They are intended to lay a framework for the development of IIS through 2017, and represent the standards all IIS should meet by the end of 2017. The Operational Guidance Statements were released in 2016 to provide further guidance to the IIS community about how to achieve the functional standards and to inform the development of measures for achievement.

Programmatic Goal 1: Support the delivery of clinical immunization services at the point of immunization administration, regardless of setting.

> **Functional Standard 1.4:** When the IIS receives queries from other health information systems, it can generate an automatic response in accordance with interoperability standards endorsed by CDC for message content/format and transport
>
> > **Operational Guidance Statement 1.4.8:** IIS supports the SOAP Standard Interface, Web Services Definition Language (WSDL), as endorsed by CDC. (See Transport Layer Protocol Recommendation)

[1] http://www.cdc.gov/vaccines/programs/iis/interop-proj/ehr.html
[2] http://www.cdc.gov/vaccines/programs/iis/interop-proj/downloads/ehr-interop-trans-layer-tech-recs.pdf
[3] http://www.cdc.gov/vaccines/programs/iis/func-stds.html

Functional Standard 1.5: The IIS can receive submissions in accordance with interoperability standards endorsed by CDC for message content/format and transport

Operational Guidance Statement 1.5.3: IIS supports the SOAP Standard Interface, Web Services Definition Language (WSDL), as endorsed by CDC. (See Transport Layer Protocol Recommendation)

Proposed Measures

Message transport is a straightforward area of interoperability that can be assessed with one proposed measure closely matching the Operational Guidance Statement above:

1) The IIS supports the SOAP Standard Interface 1.2 specification, Web Services Definition Language (WSDL), as endorsed by CDC.

Proposed Tests

There are three proposed tests under Measure 1 to assess IIS alignment. These independent tests will be conducted as part of the Interoperability Testing Project:

1a) The IIS shall implement the Connectivity Test Operation
1b) The IIS shall implement the Submit Single Message Operation
1c) The IIS shall have the ability to throw a Security Fault

The following test cases and outcomes are proposed to validate alignment with this measure:

Test Case	Test Outcomes
1a) Perform a connectivity test request to an IIS	A successful test is indicated if the IIS responds with any of the following: • IIS responds with a conformant connectivity test response • IIS responds with a conformant Unsupported Operation fault
1b) Perform a Submit Single Message request to an IIS with all of the following: • Proper credentials as specified by the IIS • One HL7 message containing a basic VXU message	A successful test is indicated if the IIS responds with a conformant submit single message response. Acceptance or rejection of the HL7 message is not relevant for passing this test.
1c) Perform a Submit Single Message request to an IIS with all of the following: • Incorrect credentials • Basic VXU message	A successful test is indicated if the IIS responds with a conformant Security Fault.