IIS Validation

Data Quality: Incoming/Ongoing

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Background and Context

The consolidation of immunization records from multiple sources is a primary function of Immunization Information Systems (IIS)[1]. To ensure complete, accurate and timely consolidated records, IIS must receive data from a high proportion of immunizers within their catchment area through standardized reporting channels. Messaging standards have been present across the IIS community for more than twenty years and have increasingly gained importance as Electronic Health Record (EHR)-IIS interoperability has grown in necessity across health care. The primary standard for IIS messaging is the HL7 Version 2.5.1 Implementation Guide for Immunization Messaging, Release 1.5[2].

In 2016, AIRA convened the Measurement for Assessment and Certification Advisory Workgroup (MACAW) to develop and propose measures for IIS Assessment. Data Quality: Incoming/Ongoing content area within the Measurement and Improvement Initiative (M&I) focuses on IIS detection of poor data quality during the submission of records. These measures and tests will be shared with the AIRA Board of Directors and the full AIRA community to ensure broad community input and agreement.

Functional Standards and Operational Guidance Statements

The importance of data quality is front and center in the IIS Functional Standards v4.0, updated in 2018[3]. The revised IIS Functional Standards were developed by the Immunization Information Systems Support Branch (IISSB) through a consensus-based process involving input from a variety of IIS managers and technical experts from across the United States. They are intended to reflect the functionality an IIS should strive to attain to fully support program and stakeholder immunization-related goals. The following overarching principle in the Functional Standards best describes the importance of Data Quality to the IIS.

> *As an IIS matures, the importance of data quality becomes more pronounced. Data quality is the cornerstone of successfully reaching all immunization-related goals. IIS Functional Standards related to data quality are woven into the Essential Infrastructure Functional Standards and are reflected in multiple goals in this document. This underscores the importance of thinking about and applying data quality in all aspects of access and use of IIS data and functionality.*

Approved Assessment Measures

The Assessment measures for Data Quality: Incoming/Ongoing were approved in quarter 1 of 2020 and will be used for Validation. For more information on the Assessment

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[1] http://www.cdc.gov/vaccines/programs/iis/about.html
[2] http://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-5-2014-11.pdf
[3] https://www.cdc.gov/vaccines/programs/iis/func-stds.html

measures, please see the Data Quality: Incoming/Ongoing Assessment document on the AIRA website.[4]

Validation Stage

The *Immunization Information System (IIS) Measurement and Improvement: Testing and Discovery, Assessment and Validation Overview*[5] document describes the Validation stage in detail and should be referenced for more information. At the highest level, the Validation stage uses the same (or a subset of) measures and tests which have been developed, vetted, and approved by the IIS community and AIRA Board for IIS Assessment. No new measures are introduced at Validation that have not already been measured in IIS Assessment.

Validation Levels

Data Quality: Incoming/Ongoing will contain two Validation Levels (Basic and Complete). Measures selected for Validation are reviewed and assigned a Level based on the following definitions.

- **Basic Level:** A level of Validation measurement that includes only essential measures to functionally meet the content area.
- **Complete Level:** A level of Validation measurement that includes conformance to all measures approved for Validation.

The following table defines the requirements for both Basic and Complete levels of Validation.

Table 1: Data Quality: Incoming/Ongoing Validation Levels

Assessment Measure	Basic Level	Complete Level
PATIENT DEMOGRAPHIC DATA ELEMENTS		
1 - The IIS detects data quality issues with patient name: first.	X	X
2 - The IIS detects data quality issues with patient name: last.	X	X
3 - The IIS detects data quality issues with patient date of birth.	X	X
4 - The IIS detects data quality issues with patient gender.	X	X
5 - The IIS detects data quality issues with patient address: state.	X	X

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[4] https://repository.immregistries.org/resource/measures-and-tests-for-assessment-data-quality-incoming-ongoing
[5] https://repository.immregistries.org/resource/iis-measurement-and-improvement-testing-and-discovery-assessment-and-validation-overview/

6 - The IIS detects data quality issues with patient address: country.		X
7 - The IIS detects data quality issues with race.	X	X
8 - The IIS detects data quality issues with ethnicity.	X	X
9 - The IIS detects data quality issues with patient multiple birth indicator and patient birth order.		X
10 - The IIS detects data quality issues with patient telephone number and patient telephone number type.		X
11 - The IIS detects data quality issues with responsible person name: first.		X
12 - The IIS detects data quality issues with responsible person name: last.		X
13 - The IIS detects data quality issues with responsible person relationship to patient.		X
14 - The IIS detects data quality issues with patient ID and patient ID: type.	X	X
VACCINATION EVENT DATA ELEMENTS		
15 - The IIS detects data quality issues with vaccine administration date.	X	X
16 - The IIS detects data quality issues with dose level eligibility.		X
17 - The IIS detects data quality issues with contraindications/precautions and contraindication/precaution observation date.		X
18 - The IIS detects data quality issues with exemptions/refusals reasons and exemptions/refusals date.		X
19 - The IIS detects data quality issues with vaccination event record type.	X	X
20 - The IIS detects data quality issues with vaccine funding source.	X	X
21 - The IIS detects data quality issues with vaccine product.	X	X
22 - The IIS detects data quality issues with vaccine manufacturer name.	X	X
23 - The IIS detects data quality issues with vaccine expiration date.	X	X
24 - The IIS detects data quality issues with vaccine event ID.	X	X
ADDITIONAL ASPECTS		
25 - The IIS has the ability to map between coding systems.	X	X
26 - The IIS returns critical information about a previously submitted vaccination event.	X	X
27 - The IIS returns the consolidated immunization history following an update.	X	X

Validation Statuses

Validation statuses are assigned based on the Assessment outcomes for the measures of interest (e.g., Meets, Deviates, Does Not Meet). More information on Assessment outcomes can be found in the *Measures and Tests for Assessments: Data Quality: Incoming/Ongoing[6]*.

Basic Level Requirements

Table 2: Basic Level Requirements

Validation Status	Assessment Outcome Requirements
✓ Validated	The IIS Meets all measures which are identified to be part of the Basic Level in Table 1 above.
↗ Major Differences	The IIS fails to meet the requirements for Validated.
! 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.

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[6] https://repository.immregistries.org/resource/measures-and-tests-for-assessment-data-quality-incoming-ongoing

Complete Level Requirements

Table 3: Complete Level Requirements

Validation Status	Requirements
 Validated	The IIS Meets all measures which are identified to be part of the Complete Level in Table 1 above.
 Major Differences	The IIS fails to meet the requirements for Validated.
 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.