



AIRA

AMERICAN IMMUNIZATION
REGISTRY ASSOCIATION

IIS Validation

Data at Rest

August 21, 2026

Background and Context

A key role of immunization information systems (IIS) is combining vaccination records from many sources to create complete and accurate histories. To do this well, IIS need data from most immunizers in their area, sent through standardized electronic channels. For more than 20 years, the IIS community has used messaging standards, which have become even more important with the rise of electronic health record (EHR) integration. VXU, or unsolicited vaccine update, is an HL7 version 2 message that contains demographic and vaccination data that is submitted to an IIS by an outside EHR. ACK, or acknowledgment, is an HL7 v2 message used to relay information back to the EHR regarding the status of the VXU. Additional electronic interfaces (e.g., flat file, Vital Records, Medicaid) also provide data for IIS. Finally, IIS continue to collect data through the IIS user interface. Once consolidated, the data reside in the IIS database for use by public health programs as well as for clinical encounters. The data residing in an IIS database are often referred to as “data at rest” (DAR).

Functional Standards and Operational Guidance Statements

The Measurement for Assessment and Certification Workgroup ([MACAW](#)), the advisory body for the [Measurement and Improvement \(M&I\)](#) initiative, initially approved measures and tests for DAR Assessment in December 2022. The detailed measures and tests document is located on the [AIRA Repository](#). Measures and tests are based on the [IIS Functional Standards v5.0](#). DAR measures and tests are specifically based on the following:

- **Functional Standard B4.0:** The IIS validates patient demographic and vaccination data.
- **Guidance Statement B4.2:** The IIS monitors data quality within the IIS in accordance with policies and procedures.
- **Guidance Statement B4.4:** The IIS delivers feedback and training to IIS partners and providers to ensure complete, timely, and accurate patient demographic and vaccination records.
- **Guidance Statement B4.5:** The IIS meets federal and jurisdictional data quality metrics.

Approved Assessment Measures

The Assessment measures for Data at Rest were approved in December of 2022, and select measures will be used for Validation. For more information on the measures, please see the *Measures & Tests for DAR Assessment Data at Rest Assessment* document on the AIRA website.¹

¹ <https://www.immregistries.org/m-i-measurable-areas#DAR>

Validation Stage

The *Immunization Information System (IIS) Measurement and Improvement: Testing and Discovery, Assessment and Validation Overview*² document describes the Validation stage in detail and should be referenced for more information. At the highest level, the Validation stage uses the same measures and tests (or a subset thereof) which have been developed, vetted, and approved by the IIS community and MACAW for Assessment. No new measures are introduced at Validation that have not already been measured in Assessment. Additionally, the thresholds established for the Assessment level are the same for the Validation level.

Validation Levels

Data at Rest 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. Additionally, all basic level measurements must also be met for an IIS to achieve complete validation.

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

Table 1: Data at Rest Validation levels

Assessment Measure	Basic Level	Complete Level
Completeness Measures		
1.01 - Patient first name is present in more than 99% of cases	X	X
1.02 - Patient middle name is present in more than 65% of cases		X
1.03 - Patient last name is present in more than 99% of cases	X	X
1.04 - Patient date of birth is present in more than 99% of cases	X	X
1.05 - Patient gender is present in more than 99% of cases	X	X
1.06 - Patient address street is present in more than 85% of cases	X	X
1.07 - Patient address city is present in more than 85% of cases	X	X

² <https://repository.immregistries.org/resource/iis-measurement-and-improvement-testing-and-discovery-assessment-and-validation-overview/>

Assessment Measure	Basic Level	Complete Level
1.08 - Patient address state is present in more than 85% of cases	X	X
1.09 - Patient address ZIP code is present in more than 85% of cases	X	X
1.10 - Patient complete address is present in more than 85% of cases	X	X
1.11 - Patient race is present in more than 95% of cases		
1.12 - Patient ethnicity is present in more than 95% of cases		
1.13 - Patient phone number is present in more than 90% of cases		
1.14 - Patient email is present in more than 90% of cases		
1.15 - Mother's maiden name is present in more than 90% of cases		
1.16 - Responsible person's first name is present in more than 90% of cases		X
1.17 - Responsible person's last name is present in more than 90% of cases		X
1.18 - Vaccine administration code is present in more than 99% of cases	X	X
1.19 - Vaccine administration date is present in more than 99% of cases	X	X
1.20 - Vaccine information source (e.g., Admin/Historical Indicator) is present in more than 99% of cases	X	X
1.21 - Vaccine lot number is present in more than 99% of cases of administered doses		X
1.22 - Vaccine lot expiration date is present in more than 99% of cases of administered doses		
1.23 - Vaccine eligibility code is present in more than 99% of cases of administered doses		
1.24 - Vaccine funding source is present in more than 99% of cases of administered doses		
Validity Measures		
2.01 - Patients born on the first of the month do not exceed a uniform distribution of birth dates of less than 5% of cases		X
2.02 - Patients born on the 15th of the month do not exceed a uniform distribution of birth dates of less than 5% of cases		X
2.03 - Patients born on the last day of the month do not exceed a uniform distribution of birth dates of less than 5% of cases		X
2.04 - Patient has more vaccinations than expected in less than 1% of cases	X	X
2.05 - Vaccine administration date is after vaccine lot expiration date in less than 1% of cases		

Assessment Measure	Basic Level	Complete Level
2.06 - Vaccine administration date is before birth date in less than 1% of cases	X	X
2.07 - Vaccine administration dates on the first day of the month do not exceed a uniform distribution of administration dates of less than 4% of cases		X
2.08 - Vaccine administration dates on the 15th of the month do not exceed a uniform distribution of administration dates of less than 4% of cases		X
2.09 - Vaccine administration dates on the last day of the month do not exceed a uniform distribution of administration dates of less than 4% of cases		X
2.10 - Vaccine administration code was administered at an improbable age in less than 1% of cases		X
2.11 - Vaccine administration code is not specific for administered vaccination event in less than 1% of cases	X	X
2.12 - Vaccine lot number has an invalid prefix in less than 1% of cases		X
2.13 - Vaccine lot number has an invalid infix in less than 1% of cases		X
2.14 - Vaccine lot number has an invalid suffix in less than 1% of cases		X
2.15 - Vaccine lot number contains at least one invalid character in less than 1% of cases		X
2.16 - Vaccine lot number is too short in less than 1% of cases		X
2.17 - Vaccine administration code is unrecognized in less than 1% of cases	X	X
2.18 - Vaccine manufacturer is unrecognized in less than 1% of cases		X
2.19 - Vaccine administration route is unrecognized in less than 1% of cases		X
2.20 - Vaccine administration (body) site is unrecognized in less than 1% of cases		X
Timeliness Measures		
3.01 - Administered vaccination events are entered into the IIS within one calendar day from administration date in more than 95% of cases		

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 & Tests – DAR Assessment*.³

Basic and Complete Level Requirements

Table 2: Basic level requirements

Validation Status	Assessment Outcome Requirements
 Complete Validated  Basic Validated	The IIS meets all measures which are identified to be part of the Basic or Complete level in Table 1 above.
 Major Difference – Validation Not Met	The IIS fails to meet the requirements for Validation.
 Not Measured	The IIS has communicated willingness to be measured but is not able to be tested at this time.
 Not Participating	The IIS has chosen not to be measured.

³ <https://www.immregistries.org/m-i-measurable-areas#DAR>