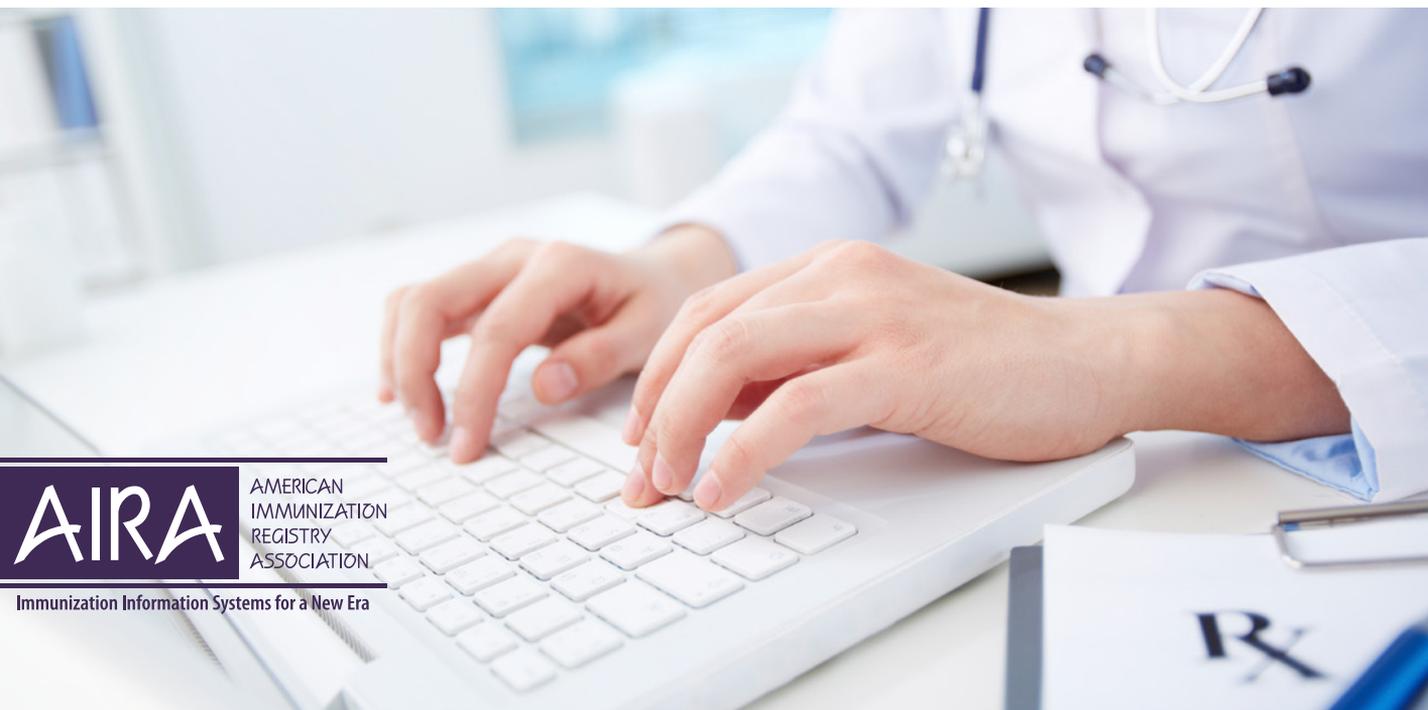




# Data Quality Assurance in Immunization Information Systems: Selected Aspects





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### **MIROW: Helping IIS Keep Pace with Evolving Health Initiatives and Technology**

In 2005, the American Immunization Registry Association (AIRA) formed the Modeling of Immunization Registry Operations Workgroup (MIROW) to identify areas for improvement in IIS operations and develop best practice recommendations. MIROW regularly assembles workgroups of subject matter experts from the immunization information system (IIS) community to examine, discuss and develop consensus-based best practices for IIS operations.

Immunization Information Systems (IIS) and other health information systems such as electronic health record (EHR) systems must increasingly work together to meet the requirements of the U.S. Federal Government's Meaningful Use initiative and other initiatives around exchanging and using clinical data in an electronic format. Guidelines around data quality assurance and a standard approach to identifying facilities that report vaccinations and patient demographic data to IIS will facilitate exchange of electronic data.

This mini-guide highlights the best practice recommendations developed by MIROW related to facility identification management and validation of data coming into the IIS to better support reporting vaccinations and patient demographic data to IIS. Ultimately, having a standard approach to these activities should improve the quality of data being reported to IIS.

To read the complete best practice recommendations, download [\*Data Quality Assurance in Immunization Information Systems: Selected Aspects\*](#) from the MIROW website. These recommendations update, but do not replace, MIROW best practice recommendations relating to data quality assurance published in 2008, [\*Data Quality Assurance in Immunization Information Systems: Incoming Data\*](#).

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### Benefits of Adopting the Best Practice Recommendations

- Provides agreed-upon standard practices for facility identification management that can be applied when developing IIS applications and electronic health record (EHR) systems.
- Improves vaccination event and patient demographic data quality.

## Facility Identification Management

The essence of facility identification management in IIS is the challenge of properly associating the correct organization with data reported to the IIS. This is true especially in cases when several organizations are involved in a data submission chain and organizations have a complex organizational hierarchy.

### IIS-AUTHORIZED ORGANIZATION (IIS-AO)

An IIS must be able to attribute reported data to the correct organization, which may include health care providers, schools, and payers.

Organizations can assume one or more roles in the chain of reporting vaccination and demographic information to the IIS. The three main roles are:

- **Vaccinator:** Administers a vaccination.
- **Recorder:** Enters the vaccination or demographic-only information, or both, into the electronic data exchange system (such as an EHR) or the IIS user interface.
- **Submitter:** Submits the vaccination or demographic-only information, or both, to the IIS on behalf of itself or another organization.

An organization can, and often does, perform multiple roles. For example, when an organization is a self-reporting vaccinator (i.e., an organization that administers, records, and submits vaccinations to IIS) it performs all three roles. Each role can also be performed by different organizations. For example, one organization may record information about a vaccination that was administered by a different organization, another organization may submit the data on behalf of the organization recording the information, and the organization that administered the vaccination may be unknown.

There are three basic paths to report vaccination or demographic-only information to an IIS. In each path there can also be one or more organizations acting on behalf of another organization to submit the information to the IIS.

- **Administered vaccination events:** The Vaccinator and Recorder are always the same organization.
- **Historical vaccination events:** The Vaccinator and Recorder organizations are different, and often the organization that administered the vaccination is unknown.
- **Demographic-only data:** Only the patient's demographic information is reported, no vaccination event information, therefore vaccinator is not present only Recorder and Submitter.

The emphasis of these best practice recommendations is on functional relationships between organizations rather than on business organizational structure. Each organization in the reporting chain can introduce different data quality issues into the IIS. By knowing the specific functional role or roles that each organization plays, the IIS can more effectively and efficiently identify and resolve these data quality issues.



## Best Practice Recommendations for Facility Identification Management

### PRINCIPLES FOR FACILITY IDENTIFICATION MANAGEMENT

The following principles represent high-level direction to guide the development of more specific business rules.

- IIS should be consistent in the approaches followed for facility identification management. **P801**
- IIS should clearly document the approaches followed for facility identification management. **P802**

### BUSINESS RULES FOR FACILITY IDENTIFICATION MANAGEMENT

The work group developed business rules to describe specific requirements for the IIS to perform related to facility identification management.

- Conduct a pre-certification process for all organizations in the submittal chain to submit data to the IIS via electronic data exchange. **BR801**
- Identify and maintain baseline profile data for later comparison. Measures for this baseline data may include: Frequency of submissions, content and volume of data, method of reporting, and EHR vendor. **BR802**
- Track all participants in the chain of reporting and review and track submission information daily. **BR801 to BR809**
- Validate functional relationships of organizations regularly and when triggered by certain events. **BR815 to BR817**
- Update identification of organizations as required by changes in functional structure, such as mergers, acquisitions and dissolutions. De-authorize organizations that are no longer part of the reporting chain or as otherwise necessary. **BR818 to BR827**

### GENERAL RECOMMENDATIONS FOR FACILITY IDENTIFICATION MANAGEMENT

The workgroup developed general recommendations to provide requirements, advice, and suggestions for IIS functionality and operations related to facility identification management.

- Document expectations between IIS and organizations in the submission chain in written agreements, including an understanding that the appropriate organizations will review error logs, address data quality issues and notify the IIS if there are changes in organizational status. **GR801 to GR803, GR807**
- Regularly monitor submissions for anomalies, trends and volume compared to baselines and act to identify and resolve issues. **GR804**
- IIS should be able to track roles of organizations in the data submission and use chain. **GR805**. See HL7 Considerations on the next page for comments on this general recommendation.

## HL7 Considerations

The workgroup also described practical considerations for implementing the best practice recommendations with current HL7 messaging standards. For example, when numerous organizations are involved in the submittal chain, while the IIS may not be able to track all of them it could reasonably track one or two of them (which would be considered “good practice”). To do this, the workgroup suggests the introduction of a new HL7 field, MSH-22, which would allow an HL7 message to carry information for up to two organizations that submit information on behalf of another organization in a submission chain. The best practice guidelines describe how the HL7 message can accommodate the data items recommended for facility identification management.

## Administered/Historical Vaccination Information and Expected Data Elements

The workgroup developed the concept of administered/historical to indicate the relationship between an organization and vaccination information submitted to the IIS. Administered means that the organization is recording vaccination information for a vaccine that it administered. Historical means that the organization is recording a vaccination that was administered by some other organization. For Administered vaccination information, the best practice is to submit the following set of data: Organization ID for both the organization that administers the vaccine and the organization recording the vaccination, Patient Date of Birth (DOB) and Name (First and Last), Vaccination Encounter Date, Vaccine Type and Lot Number. **BR105R1**. In some cases, an organization submits information for a vaccine it administered, but does not have all expected information for the set of data items. In these few cases a reduced set of information can be submitted (Examples: legacy immunizations, limited EHR capacity, and birth doses). **BR105R2**. For historical vaccination information, the best practice is to submit a smaller set of data: Patient DOB and Name (First and Last), Vaccination Encounter Date, and Vaccine Type. **BR105R2**

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## DISCLAIMER

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## Revisions to the 2008 MIROW Data Quality Assurance Guide

The workgroup revised some of the business rules from the 2008 MIROW data quality assurance guidelines. Key revised business rules are:

BR104	The minimum/mandatory set of data items for demographic-only submissions must include: Recorder IIS ID, Patient Date of Birth, Patient Name-First, Patient Name-Last, Birth Certificate Number, Birth Facility (code, name, address), Gender.
BR105R1	The minimum/mandatory set of data items for “administered” vaccination event submission must include: IIS ID for both Vaccinator and Recorder, Patient Name, First, Patient Name, Last, Patient Date of Birth, Vaccination Encounter Date, Vaccine Type, Administered/Historical Indicator = “Administered”, Lot Number.
BR105R2	The minimum/mandatory set of data items for “historical” vaccination event submission must include: Patient Name, First, Patient Name, Last, Patient Date of Birth, Vaccination Encounter Date, Vaccine Type, Administered/Historical Indicator = “Historical”.
BR108	Vaccinations submitted via electronic data exchange to IIS that do not perform a manual review should appear in the IIS within 2 business days of the submission date. Vaccinations submitted via electronic data exchange to IIS that perform manual reviews should appear in the IIS within 2 weeks of the submission date.
BR115	For administered vaccinations, submission date should be within 14 days of vaccination encounter date.
BR122	A patient’s eligibility for a public program should be consistent with the administered vaccine dose’s designation for a stock type (e.g., public, private).

## Building on Best Practice Recommendations for Data Quality

The best practice recommendations build on the data quality recommendations concerning data coming into the IIS published in 2008. The best practice recommendations summarized in this mini-guide do not replace the 2008 MIROW data quality guide but rather supplement it by covering additional data quality aspects and updating business rules. IIS may experience technical, resource-related and other challenges to implementing best practice recommendations. Additionally a given IIS may add, modify, or remove recommendations as their unique regulations, needs, and realities require. However, best practice recommendations serve as a valuable foundation for improving the overall data quality within the IIS by providing clear guidance around data quality in incoming data, including facility identification management.

## Learn More about Data Quality Assurance in IIS

For more in-depth, technical information about these recommendations, download the best practice guidelines, *Data Quality Assurance in Immunization Information Systems: Selected Aspects (2013)*, and *Data Quality Assurance in Immunization Information Systems: Incoming Data (2008)* from the [AIRA website](#).