



Immunization Information Systems

KEEPING PACE WITH EVOLVING PUBLIC HEALTH INITIATIVES



Benefits of MIROW to IIS

- Promotes operational consistency within IIS
- Fosters communication and collaboration within the IIS community
- Increases credibility of IIS

“The issues are complex, and there are some things that can and should be standardized.”

Immunization Registry Operational Guidelines Evaluation Final Report, July 2014

IMMUNIZATION INFORMATION SYSTEMS (IIS) serve as a model for how information systems can provide tremendous benefits to public health. For years, IIS have collected, analyzed, and reported on immunization-related data across the United States. That information has been used to track immunization coverage, send immunization reminders to patients, track vaccine availability, ensure kids receive the vaccinations they need to attend school and much more. The IIS community continually examines how it can best support current and forthcoming federal initiatives, such as incentives for provider adoption of electronic health records, the concept of a Nationwide Health Information Network (NHIN), and the use of IIS to support a myriad Vaccines for Children Program activities, with the goal of improving public health overall.

In response to these needs, the American Immunization Registry Association (AIRA) partnered with the Centers for Disease Control and Prevention/National Center for Immunization and Respiratory Diseases (CDC/NCIRD) in 2005 to begin developing consensus-based best practice recommendations for improving key aspects of IIS operations. This initiative brought together subject matter experts and practitioners from the IIS community to form the Modeling of Immunization Registry Operations Work Group (MIROW). The goal of this group is to identify and prioritize functional areas of IIS that can benefit from a collective approach and to develop best practice recommendations for these areas using business modeling and facilitation techniques. The resulting recommendations are technology-independent; that is, they can be applied regardless of the IIS technology platform implemented.

Since 2005, the group has developed recommendations for IIS around assuring incoming data quality, deduplicating vaccination-level data, assigning patient active/inactive status, conducting reminder/recall activities, patient eligibility status, and vaccine inventory management. Most recently, MIROW has begun to develop “micro” guides, providing recommendations for specific and significant IIS operational areas, such as lot number validation. Future topics for the group will center on key IIS operational issues as determined by the MIROW Steering Committee and with IIS input.

The MIROW Approach

MIROW employs a proven methodology to develop best practice recommendations that relies on guidance from the Steering Committee, facilitated collaboration of subject matter experts (SMEs), and application of business analysis and modeling techniques. The following steps outline the general process for developing each set of recommendations:

- STEP 1** The MIROW Steering Committee selects a topic to address, defines the scope of the topic, and narrows the focus to those sub-topics that will be addressed.
- STEP 2** The Steering Committee selects subject matter experts (SMEs) to serve as a workgroup to develop best practice recommendations for the selected topic.
- STEP 3** A small workgroup of business analysts and SMEs gathers and analyzes current practices for the topic, developing materials such as a domain model, glossary of terms and definitions, and identifying modeling instruments, templates and other tools that will facilitate development of best practice recommendations.
- STEP 4** A multidisciplinary team of SMEs, business analysts, facilitators, observers, administrative staff, and sponsors participates in facilitated face-to-face discussions in which they analyze existing practices, brainstorm how to improve these practices, reach consensus on recommendations to support these improved practices and capture those recommendations in a document.
- STEP 5** The workgroup finalizes the recommendations developed during the face-to-face sessions via conference calls and over email. Editors and external reviewers help create the final version of the best practice recommendations document.

STEP 6 MIROW surveys IIS that have implemented the best practices to evaluate the operational improvements realized from the implementation. Analysis of the survey feedback informs and guides subsequent updates to the recommendations. The MIROW Steering Committee also promotes adherence to the recommendations as a standard of excellence.

Contents of Best Practices Recommendations

Best practice recommendations include the following information:

- An overview of the topic being reviewed
- Principles, business rules, and general recommendations associated with the topic
- Various models, such as business process models, state transition models, and others
- Agreed upon terms and definitions
- Challenges to and solutions for implementing the best practice recommendations
- Select references for peer-reviewed literature
- Examples of implementation
- Reading paths recommended based on IIS Program role

Available Best Practice Recommendations

MIROW has developed eight best practice guidelines of these recommendations. Each guideline may be downloaded in complete, or in most cases, summarized “mini guide” form from the AIRA web site (www.immregistries.org/resources/aira-mirow). The following table summarizes the content of each currently published guideline. This is an ongoing initiative with additional topics added regularly.

Oregon State’s Perspective

The MIROW data quality chapters have been critical tools for ALERT IIS. Because of the value of these tools, we have prioritized time for Oregon staff to participate in the MIROW collaborative process. The use of dedicated subject matter experts from different stakeholder groups in this process is exactly why these tools are invaluable. Every IIS can benefit from referencing any one of the MIROW guides.

Jenne McKibben, ALERT IIS Director,
Oregon Immunization Program,
Oregon State Office of Public Health

TOPIC	SUMMARY	EXAMPLE OF KEY RECOMMENDATION
Patient Active/Inactive Status in IIS: Replacement of 2005 Guidelines	Revised recommendations for assigning patient active/inactive status (at both the provider organization and geographic jurisdiction level), actions for reminder/recall notifications and assessment based on patient status.	Each patient active/inactive status should characterize the association between one patient and one party responsible for the patient’s vaccinations.
Data Quality Assurance in IIS: Selected Aspects	Recommended rules around facility identification management, updates/additions to rules for validation of incoming data.	All participants in the submittal chain (vaccinator, recorder, and submitter) should be tracked and identified.
IIS Inventory Management Operations	Recommended rules around management of vaccine inventory data to improve data quality and reduce reporting burden on provider.	Every vaccine dose should be accounted for with the associated lot number information.
IIS Collaboration with Vaccine for Children Program and Immunization Programs of Grantees (in-progress)	Recommended rules around determining, assigning, and tracking VFC eligibility for a patient.	A decision table that lists all possible scenarios for assigning and documenting VFC patient eligibility status.
Reminder/Recall in Immunization Information Systems	Major principles and rules for the reminder/recall process, recommended IIS functionality to support reminder/ recall, how to measure reminder/recall effectiveness, and challenges initiating reminder/recall.	Combining reminder/recall methods to ensure notification is received.

TOPIC	SUMMARY	EXAMPLE OF KEY RECOMMENDATION
Data Quality Assurance in IIS: Incoming Data	Recommended guidelines for validating data before importing it into the IIS database to ensure data is of high quality.	Use of provider profile to monitor quality of incoming data.
Vaccination Level Deduplication in Immunization Information Systems	Recommended rules and procedures that may be used as the basis for creating algorithms that identify and manage potentially duplicate records for vaccination events.	Combining information from duplicate records into a new, consolidated record.
Management of Moved or Gone Elsewhere (MOGE) Status and Other Patient Status Designations in IIS	Recommended patient active/inactive status designations and rules for assigning status, along with recommended actions for recall/reminder notifications and coverage assessment based on status.	Tracking of patient status at the provider and geographic jurisdiction levels.

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What Do IIS Think of the Recommendations?

Recently, the Child Health Evaluation and Research (CHEAR) Unit of the University of Michigan conducted an evaluation to assess the degree to which the first three MIROW guides published have impacted IIS operations. According to the final report, most IIS programs were familiar with these guides and the majority have directly used one or more of them. The evaluation found the guides have prompted changes to existing IIS, helped in development of provider education materials, and saved staff time and effort related to data assessment and quality assurance. Programs that directly used the guides reported them to be helpful and found implementation to have many positive impacts. To read more, download the full evaluation report from the AIRA website (<http://www.immregistries.org/resources/aira-mirow>).

MIROW: Preparing IIS for Tomorrow’s Interconnected Healthcare

The need for IIS to continue adoption of technology standards and improvement of data quality is ongoing. Since 2011, the Centers for Medicare and Medicaid (CMS) has provided incentive payments to providers and hospitals that adopt and use electronic health record systems (EHRs) and who can demonstrate “meaningful use” of their data. One way to accomplish this is to exchange data with an IIS, thereby contributing meaningfully to public health. In addition, the development of HIEs across the US, along with the eHealth Initiative, which promotes use of interoperable technology to improve healthcare system quality, safety and efficiency, both underscore the need for public health information systems to continue improving data quality and interoperability. Clearly, the best practice recommendations developed by MIROW significantly contribute to preparing IIS today for this new interconnected environment that will be tomorrow’s reality.

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