

# Development of Best Practices for Immunization Information Systems

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Immunization Information Systems Support Branch (IISB)



# Presenter

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# Presentation Collaborators

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- Rebecca Coyle, Executive Director, American Immunization Registry Association (AIRA)

*The findings and conclusions in this report are those of the author(s) and do not necessarily represent the views of the funding agency.*

# An IIS Community Perspective

- IIS community has a lot to offer
  - Need a systematic approach to address a multitude of problems and reach consensus on solutions
- The approach used to develop IIS operational best practices is an example that can be followed, benefiting the IIS community across multiple registries.
  - Promote community collaboration
  - Learned solutions from each other
  - Consensus based best practices
  - Applicable for other settings

# Challenge

- Today's Immunization Information Systems (IIS), are complex business systems
  - involving intricate processes and operating policies
  - with multilevel associations of collaborating federal, state, and local partners.
- With the Meaningful Use initiative and VTrckS deployment more people are looking at our data and use it
- IIS stakeholders need to explore new ways to address and manage that complexity in order to support ever increasing demands of the public health programs.

# Response

- The Modeling of Immunization Registry Operations Workgroup (MIROW) was formed by the American Immunization Registry Association (AIRA) in partnership with Centers for Disease Control and Prevention (CDC) to develop a topic-by-topic Best Practice guidebook for various aspects of IIS functionality.
- MIROW Goals
  - Promote operational consistency
  - Foster communication and collaboration
  - Increase credibility of IIS

# Aim - Consistency Across IIS

- MIROW efforts are intended to provide a basis and support for a uniform alignment of the IIS processes according to recommended guidelines.
- Inconsistency among IIS negatively affects overall data quality, comparability, operational cost, and usefulness of information.

# MIROW Approach and Values

- Consensus of experts that represent IIS stakeholders
- Open and inclusive development process
  - Operational topics for analysis are selected based on feedback from IIS community
  - Draft guidelines are reviewed in the IIS community
- Detailed and practicable best practice recommendations, NOT high-level requirements
- The focus is on topics and best practices that have the greatest potential for providing value and use across all IIS
- Recommendations are at the business/operational level and independent from particular IIS implementations and technology solutions

# Development Methodology

- Combination of face-to-face analysis sessions and web-based teleconferences
- Coordinated work of a large group, small sub-groups, and individual contributors
- Employment of proven standard business analysis and modeling techniques
- Engagement of professional facilitators for in-person meetings
- External reviews of developed guidelines
- Assessments and surveys on implementation in IIS



# How MIROW works

- Collaborative efforts between AIRA and IIS SB/CDC
- MIROW work is guided by the AIRA Steering Committee
  - Warren Williams, Co-Chair, [wxw4@cdc.gov](mailto:wxw4@cdc.gov)
  - Elaine Lowery, Co-Chair, [elaine.lowery@comcast.net](mailto:elaine.lowery@comcast.net)
- Business analysis and development process support provided by IIS SB/CDC
- Organizational support for in-person meetings from AIRA staff
- Facilitation support for in-person meetings provided by external consultants
- Volunteering subject matter experts from the IIS community

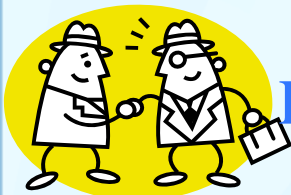
# How MIROW works (continued)



Discussing

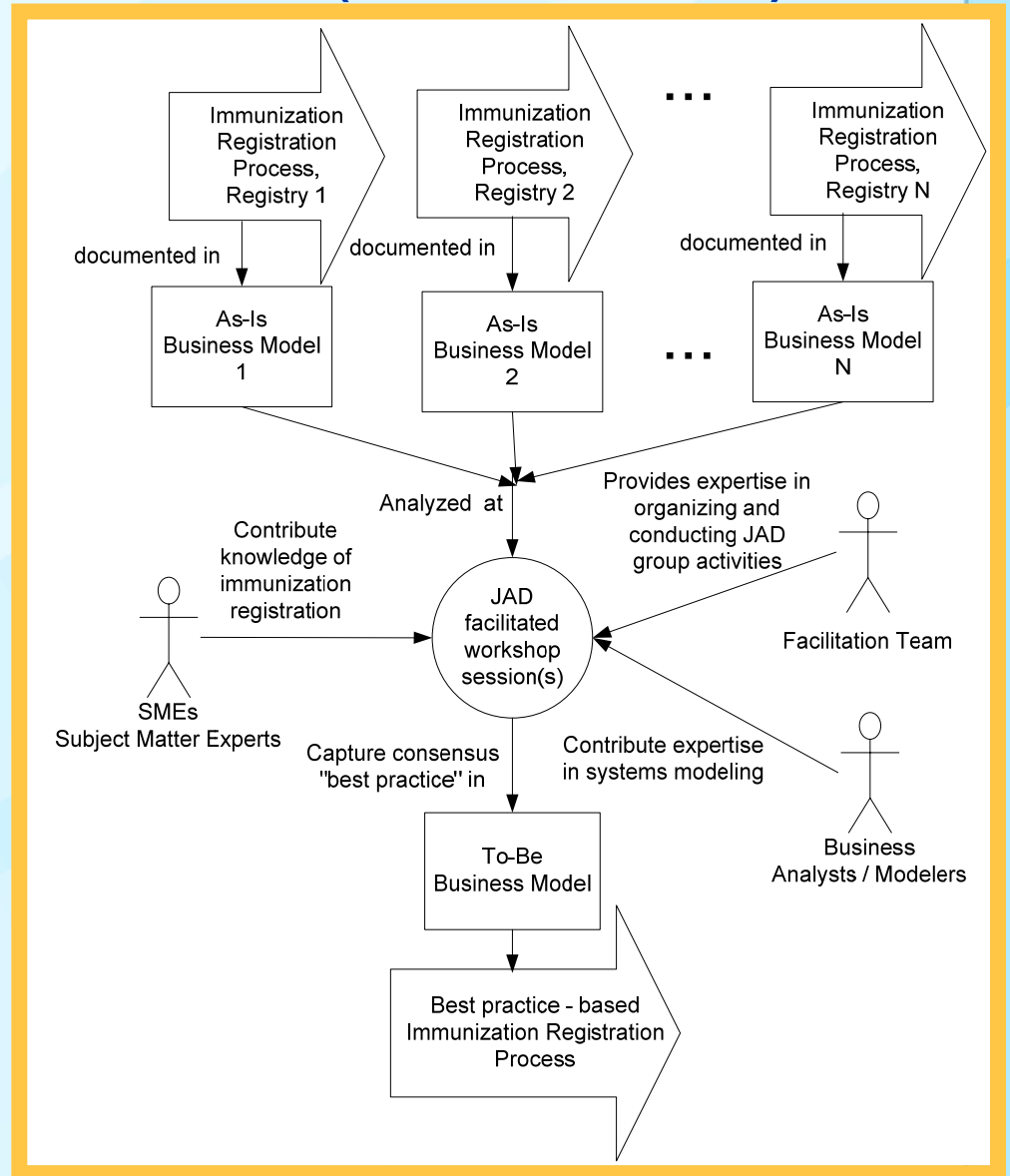


Brainstorming



Reaching consensus

Consensus → *“I can live with that and support it.”*

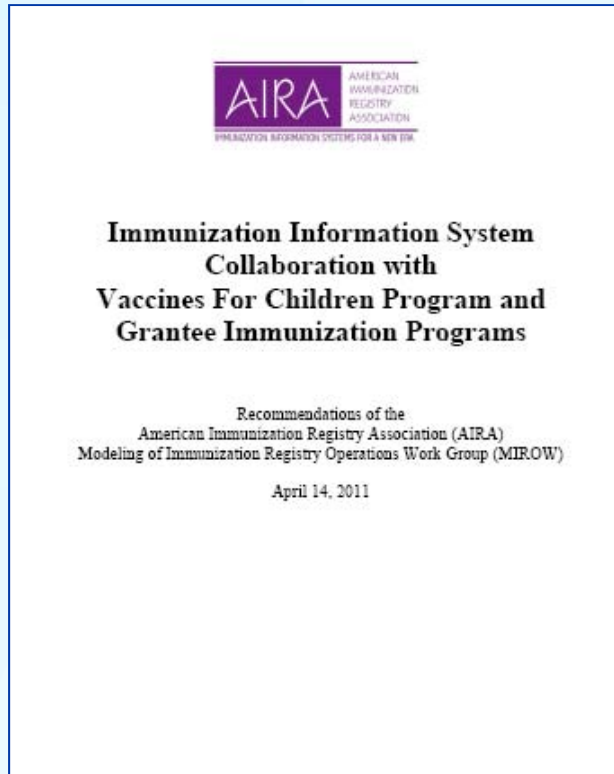


## Topics Developed

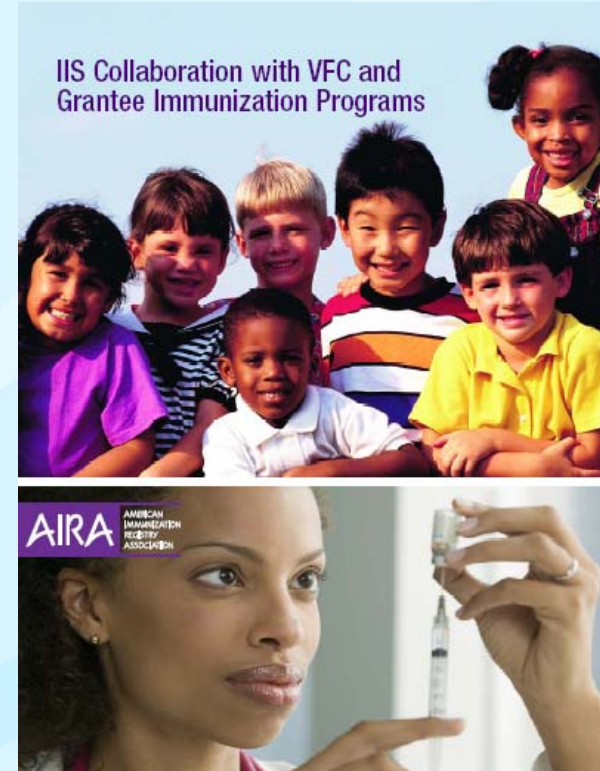
<u>Topics Developed</u>	<b>Panel size</b>	<b>Best practices highlights</b>
<b>Data Quality Assurance in IIS: Selected Aspects (2012 - in-progress)</b>	12	TBD
<b>IIS Inventory Management Operations (2011-2012)</b>	14	<b>8</b> principles, <b>25</b> business rules <b>23</b> general recommendations <b>20</b> key reports
<b>IIS-VFC/Grantee Programs Collaboration (2010-2011)</b>	14	<b>26</b> eligibility screening scenarios <b>17</b> business rules <b>9</b> general recommendations
<b>Reminder/Recall in IIS (2008-2009)</b>	13	<b>29</b> Principles, <b>23</b> Business rules <b>30</b> General Recommendations
<b>Data Quality Assurance in IIS: Incoming Data (2007-2008)</b>	11	<b>13</b> Principles <b>32</b> Business rules
<b>Vaccination Level Deduplication in IIS (2006)</b>	20	<b>9</b> Principles, <b>20</b> Business rules, <b>23</b> Illustrative scenarios (examples)
<b>Management of Moved or Gone Elsewhere (MOGE) Status and other Patient Designations in IIS (2005)</b>	16	<b>6</b> Statuses defined on the Provider level, <b>5</b> Statuses on the Geographic Jurisdiction level
<b>IIS-VAERS Guide (pilot project)</b>	21	<b>10</b> Functional standards, <b>8</b> Business rules, <b>11</b> Alternative scenarios (process)

# MIROW Documents

Complete Guide - 102 pages



Mini-guide (brochure) - 6 pages



Download MIROW documents at:

AIRA web site: <http://www.immregistries.org/pubs/mirow.html>

CDC web site: <http://www.cdc.gov/vaccines/programs/iis/activities/mirow.html>

# What do MIROW Documents Offer?

- Peer-reviewed detailed and practical guidelines
  - Experts from 26 IIS participated in MIROW sessions since 2005, as well as many IIS partners and stakeholders from public health programs, federal agencies, regional and county health departments, IT vendors, consultancies, and private registries.
- A variety of specific business rules and general recommendations to apply to program operations
- Recommended IIS reports
- Illustrative examples and templates
- Strategies on how to address problems, issues, and barriers
- A set of agreed upon terms and definitions

# Implementing MIROW Best Practices

- Recommended best practices attempt to balance ideal possible practices with pragmatic considerations of what will be possible to implement in an IIS.
- The implementation of best practice recommendations will vary based on the specifics of a particular IIS and its interaction with EHR vendors' technology and application architecture. Also, resource constraints and required changes to existing functionality may result in ***incremental adoption*** of these guidelines.
- Recommended set of best practices is not exhaustive. Each individual IIS may choose to implement additional rules and practices based on its unique requirements and insights.
- Best practices are not static – they will need to change and evolve over time as business requirements change.

# Evaluation approaches

- After every workshop, a questionnaire was completed by participating experts to gather feedback on various aspects of the best practice development efforts.
- Questions regarding utilization of MIROW guidelines were included in the Immunization Information Systems Annual Report (IISAR).
- A web-enabled survey was conducted to examine awareness and use of the patient status guidelines.
- More evaluation work is in a planning stage

## Experts Feedback After Face-to-Face Sessions (a fragment of the full questionnaire)

(1 – lowest, 4 – highest,  
e.g., 1– very unsatisfied, 2 – unsatisfied, 3 – satisfied, 4 – very satisfied)

Questions	2012 Data Quality	2011 Inventory Mngmnt	2010 IIS- VFC	2008 Reminder / Recall	2007 Data Quality	2006 Deduplica tion	2005 Patient Status
How likely would you be to take time to do this again for another topic/event?	3.83	4.00	3.86	4.00	3.90	3.79	4.00
Does your IIS program have the capability to implement these consensus recommendations?	3.63	3.70	3.50	3.13	3.56	3.23	3.38
Are you willing to implement these consensus recommendations?	3.92	4.00	3.58	3.50	3.89	3.82	3.79
How satisfied are you with the consensus recommendations developed in this meeting?	3.92	4.00	3.87	3.45	3.40	3.53	3.86



# Evaluation results summary

- Use of MIROW guidelines by IIS according to IISAR data:
  - 46% in 2007
  - 80% in 2009
- Some examples from 2010 IISAR data
  - 10 MIROW data quality validation rules for incoming data have been selected for evaluation. Degree of utilization for individual validation rules varies from 11 to 47 IIS
  - Measure of tracking patient active/inactive statuses at the Geographic level varies from 20 to 30 IIS for MIROW-recommended individual statuses
- 2007 Web survey results for the “MOGE” topic
  - response rate: 41% (30/74)
  - 18/19 participants familiar with guidelines them to be at least somewhat useful
- Average feedback from MIROW contributors: 3.74 / 4

# MIROW activities by IIS Sentinel sites

	AZ	CO	MI	MN	ND	NY C	OR	WI
1. Incoming & existing fields are captured completely and coded correctly for: <ul style="list-style-type: none"> <li>Type and Date</li> <li>Lot Number &amp; Manufacturer</li> </ul>	X X			X X	X		X X	X X
<b>2. Improve IIS processing procedures:</b> <ul style="list-style-type: none"> <li><b>Data Quality Improvement</b></li> <li><b>Vaccine deduplication</b></li> <li><b>Moved or Gone Elsewhere (MOGE)</b></li> </ul>	X X X		X X		X X	X	X X	X
3. Incorporate IIS into community-based coverage assessment strategies: <ul style="list-style-type: none"> <li>School-based</li> <li>WIC</li> </ul>		X X			X			X
4. Improve participation while maintaining sentinel site standards <ul style="list-style-type: none"> <li>Child participation in current SS</li> <li>Provider participation in current SS</li> <li>Expand SS areas</li> </ul>	X	X X X		X				

# Planning Future MIROW Activities

- 2012-2013: Topic in-progress “Data Quality Assurance (Selected Aspects)”
- 2013: Focus is on evaluation of how MIROW guidelines used by IIS
- 2014 and 2015: New MIROW topics (TBD by the Steering Committee)

# MIROW Challenges

- No shortage of challenging topics...lots of IIS operational areas to tackle
  - We able to support about one operational topic per year
  - Competing priorities of participating experts: meaningful use, electronic exchanges, VTrckS deployment are issues that every IIS has to focus resources on
- Effects of implementing operational best practices is hard to measure and quantify
- Complex operational issues take time and a lot of efforts to analyze and reach consensus on recommended practices

# Conclusions

- Development of detailed-level practicable best practices aims to
  - improve consistency of IIS operations
  - advance collaboration with immunization programs and other partners
  - better address challenges faced by the IIS community
- Use of facilitation and business modeling techniques enabled development of common consensus-based approaches that lead to support of immunization programs' activities with better IIS information.
- While IISAR results and other evidence indicate awareness and recognition of the MIROW best practice operational guidelines in the IIS community, additional studies are needed to evaluate specifics of guidelines' acceptance and utilization.

# Questions?

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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