

Data Quality Assurance (Selected Aspects): Best Practices for Immunization Information Systems

2013 AIRA IIS Meeting
October 7- 9, 2013
Denver, Colorado

Amanda Harris
Nevada State Immunization Program

N. Elaine Lowery, JD, MSPH
Co-Chair, AIRA-MIROW Steering Committee







Presenters

- Amanda Harris, Nevada State Immunization Program
- N. Elaine Lowery, JD, MSPH, Co-Chair, AIRA-MIROW Steering Committee, Independent Consultant (PHII)

Presentation Collaborators

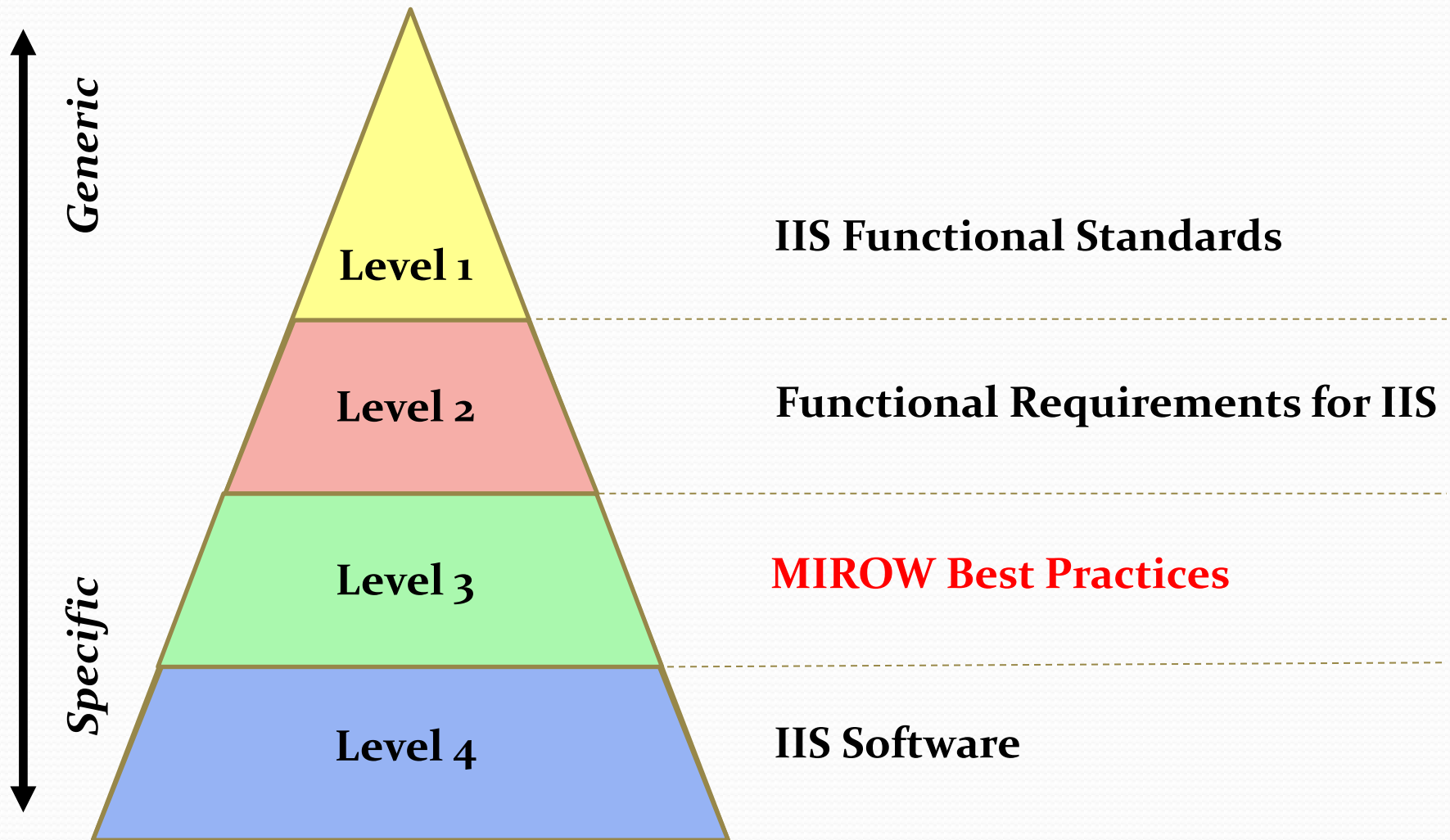
- Erin Corrigan, MPH, MFA, Oregon Immunization ALERT
- Warren Williams, MPH, Co-Chair, AIRA-MIROW Steering Committee, National Center for Immunization and Respiratory Diseases, CDC
- David Lyalin, PhD, National Center for Immunization and Respiratory Diseases, CDC
- Frank Caniglia, RHIA, Pennsylvania Statewide Immunization Information System
- Emily Emerson, Minnesota Immunization Information Connection
- Nichole Lambrecht, MSc, Envision Technology Partners, Inc.

What is MIROW?

- The Modeling of Immunization Registry Operations Workgroup
 - Formed in 2005
 - AIRA in partnership IISB at the CDC
- Objective
 - Develop and promote IIS Best Practices
- Goal
 - Provide the basis and support for uniform alignment of IIS processes

Inconsistency among IIS negatively affects overall data quality, comparability, operational cost, and usefulness of information.

MIROW Efforts in Context



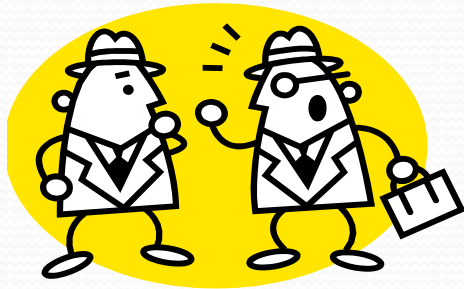
How MIROW Works

- Oversight from the MIROW Steering Committee
- Business analysis and development process support provided by IISB/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

The MIROW Process



Brainstorming



Discussing



Reaching
Consensus

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

The MIROW Process



MIROW Best Practice Guidelines

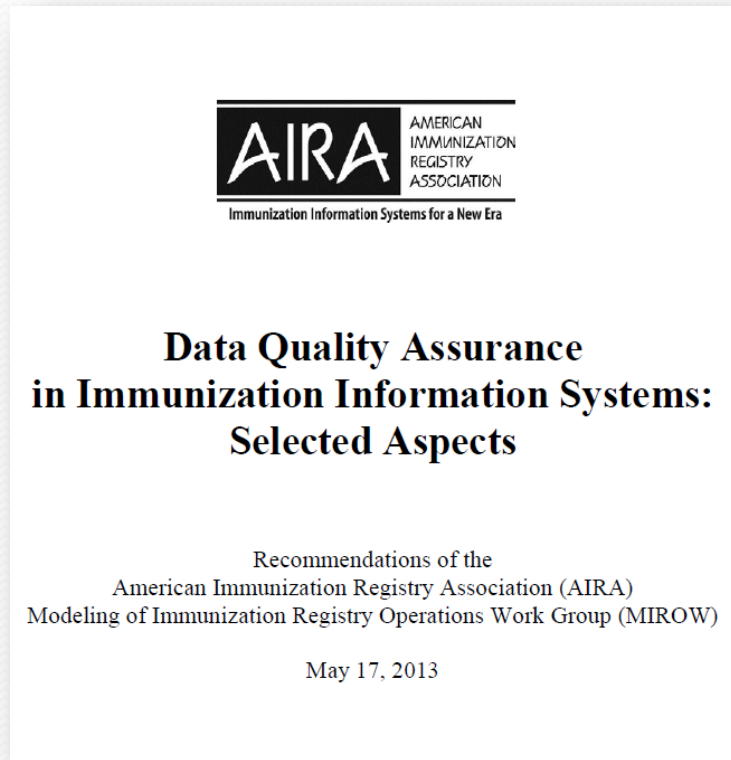
IIS-VAERS Collaboration	Patient Status (MOGE)	Vaccination Level Deduplication	Data Quality: Incoming Data	Reminder/Recall	Patient Eligibility	Inventory Management	Data Quality: Selected Aspects
29	11	52	45	82	52	68	63
2005	2005	2006	2008	2009	2011	2012	2013

← Number of Key Recommendations

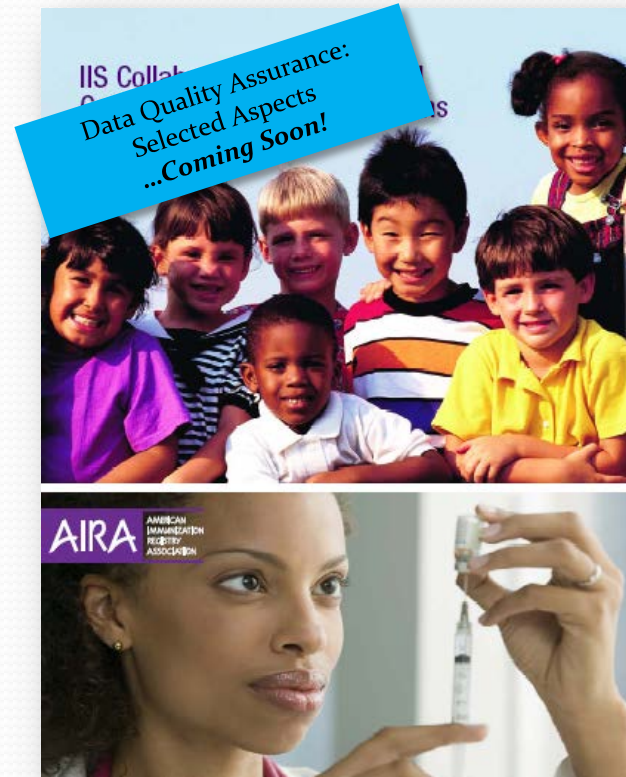
- Since 2005, expertise from:
 - 26 IIS
 - Federal agencies, regional and county public health departments, IT vendors and consultants

MIROW Documents

Complete Guide – 113 pages



Mini-guide (brochure) – 4 to 8 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>

Why Data Quality Assurance?

- Electronic data exchange and the ongoing Meaningful Use initiative
- Resulting increase in IIS-EHR collaborations
- IIS and IIS partners need data quality assurance guidelines



2013 Focus: Three Selected Aspects

- Development of a Domain Model & Diagram:
 - Main concepts, terms, and definitions related to reporting of immunization and demographic information to IIS
- Reporting Facility Identification Management:
 - Properly identifying organizations in complex submittal chains and organizational hierarchies.
- 2008 MIROW guide:
 - Review and update of the business rules for validation of data incoming to IIS

Development Methods

- Formed a diverse workgroup comprised of 13 subject matter experts
 - IIS Staff
 - IIS Vendor Staff
 - Health IT Vendor Staff
- Utilized modern business analysis and facilitation techniques
- Conducted preliminary work
 - Collected and analyzed existing IIS materials
- Met August 2012 (Decatur, GA)
 - Analyzed existing practices
 - Formulated consensus-based recommendations
- Finalized work via phone meetings

Key Outcomes

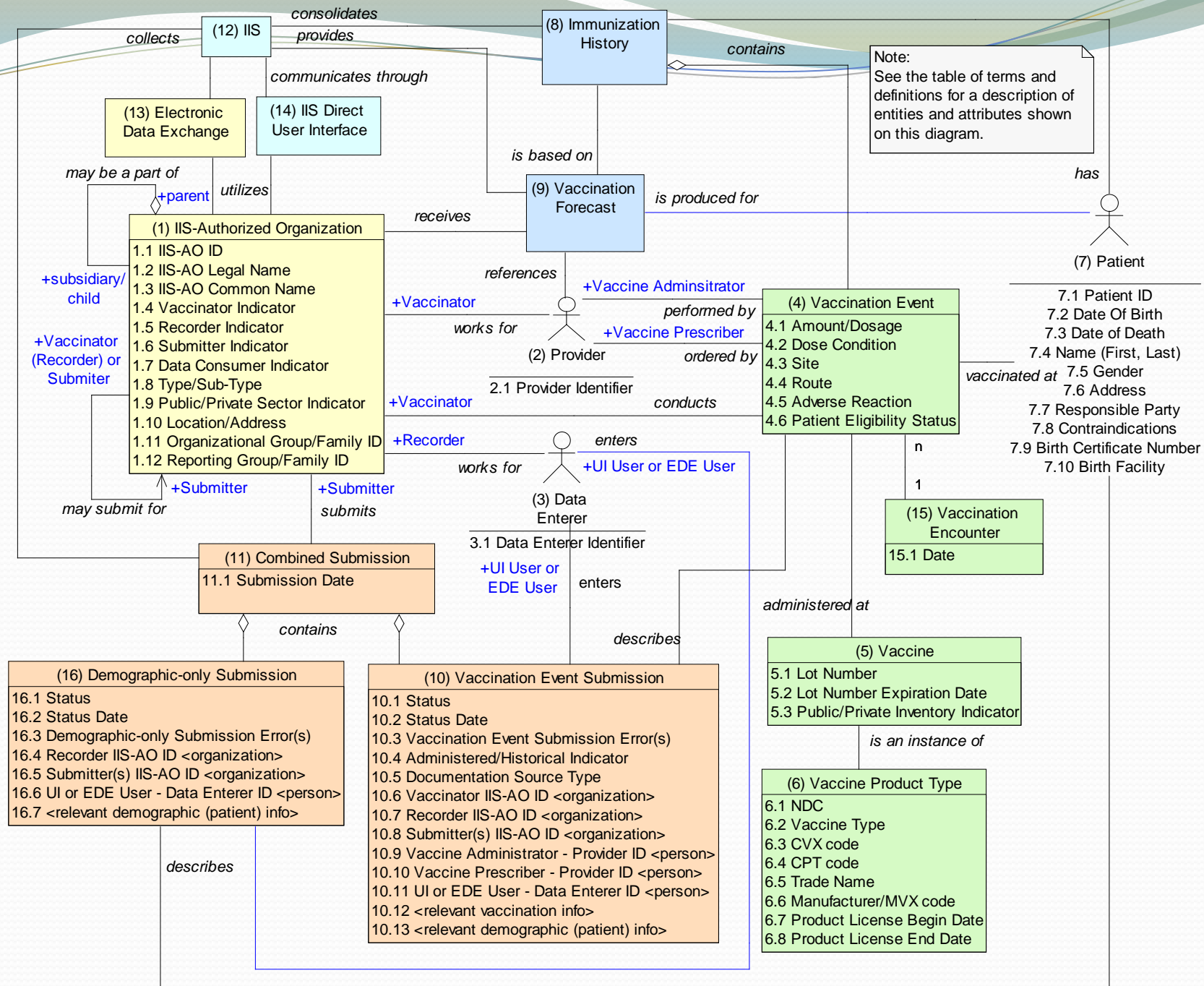
- Developed:
 - (and reconfirmed) key concepts, terms, and definitions related to various aspects of data quality assurance in IIS.
 - **New term-** IIS-Authorized Organization (IIS-AO)
 - Updated with today's industry terms and capabilities
 - business models and illustrations documenting 3 roles played by IIS-AOs.
- Formulated:
 - **8 operational scenarios** illustrating IIS-AO roles.
 - **2 principles, 27 business rules, and 7 general recommendations** to guide provider facility identification management and related data quality assurance efforts.
 - **exceptions** when a reduced set of data items may be accepted.
- Defined expected/minimum sets of data items for vaccination event and **demographic-only** submissions.
- Revised and updated **27 business rules** (from 2008) for validations of the data incoming to IIS.



2013 Topic Overview

- Major Concepts/Terms and Domain Diagram
- New Term - IIS-Authorized Organization
- IIS-AO Reporting Chains and Roles
- Facility Identification Management
 - Process diagram
 - Selected business rules
- Revised Business Rules from 2008 DQA guide

Major Concepts and Terms (Domain Diagram)

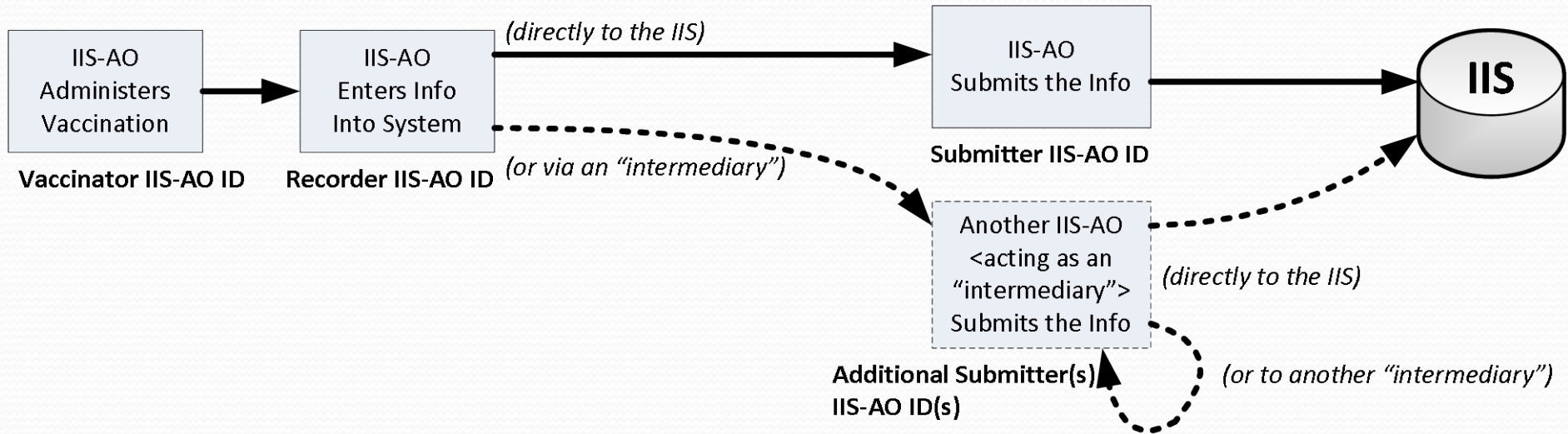


IIS-Authorized Organization (IIS-AO)

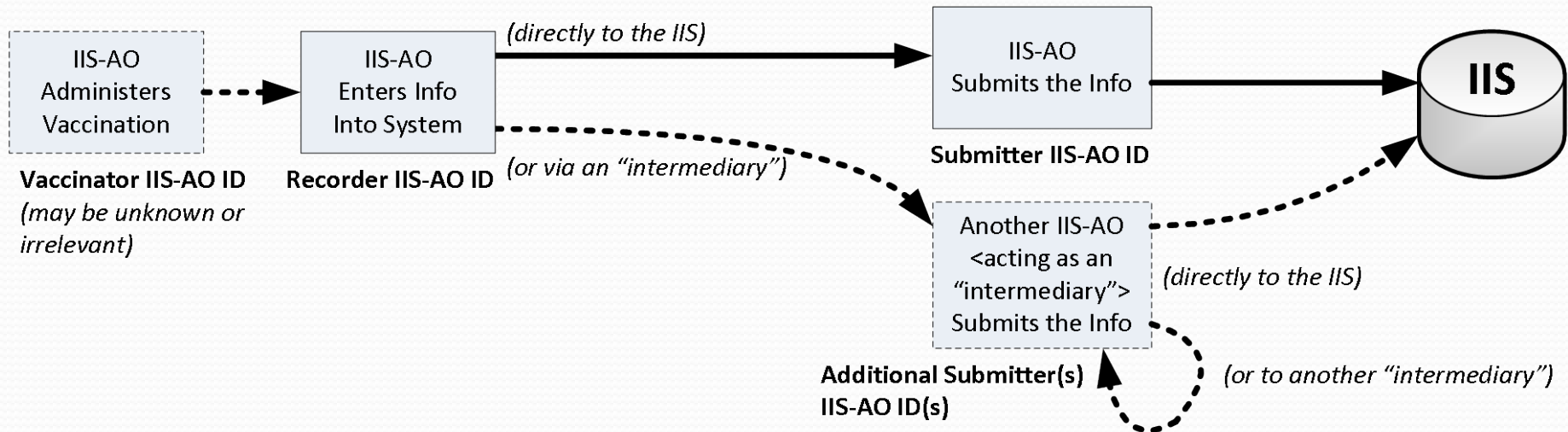
- Wide variety of organizations
- Diverse communication methods
- Describes any organization that has an agreement with the IIS which allows submittal and/or retrieval of the IIS data
- Roles: Vaccinator, Recorder, Submitter
- Previously, Vaccinator = Provider Organization.
 - A Provider Organization provides vaccination services and includes a collection of related Providers (e.g., clinicians – physicians, nurses)

Vaccination Reporting Chains

“Administered Vaccination Chain”



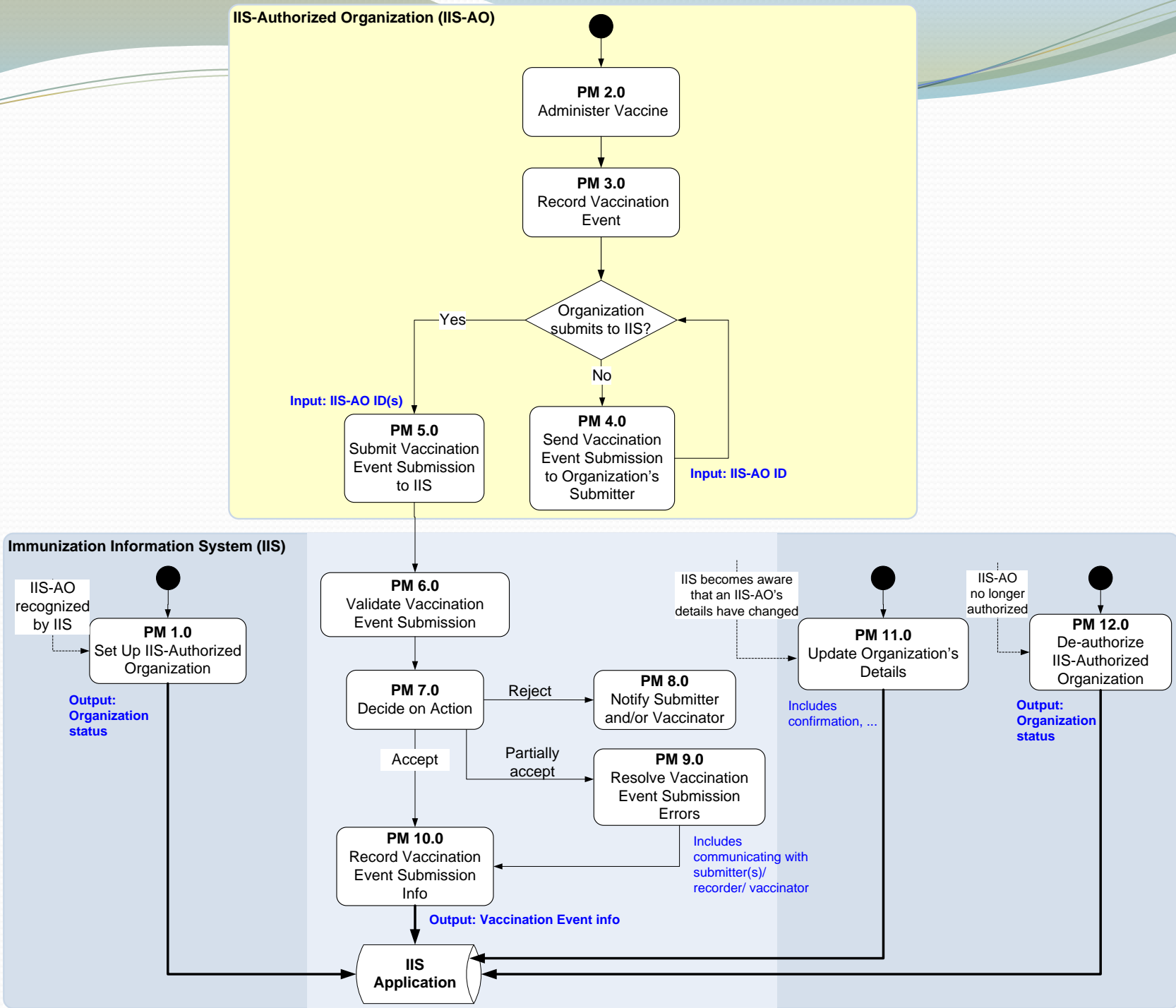
“Historical Vaccination Chain”



Illustrative Scenarios: IIS-AO Roles

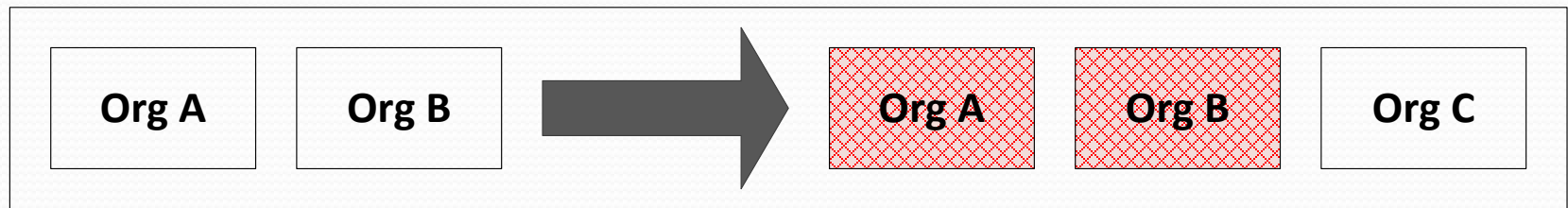
Sample Scenarios	Vaccination Event Submission		
	Vaccinator	Recorder	Submitter
1. Org A is a self-reporting Vaccinator.	Org A	Org A	Org A
2. Org B is submitting administered vaccination information to the IIS on behalf of Org A.	Org A	Org A	Org B
3. Org B is submitting administered vaccination information to the IIS on behalf of Org A. Org B submits via Org C.	Org A	Org A	Org B, Org C
4. Org A is entering and submitting historical vaccination information. Org B was the original Vaccinator and is known.	Org B	Org A	Org A
5. Org A is entering and submitting historical vaccination information. The original Vaccinator is unknown.	N/A	Org A	Org A
6. Org A is entering historical vaccination information, Org B is submitting it on behalf of Org A, and the original Vaccinator is unknown.	N/A	Org A	Org B

Facility Identification Management (FIM): Process model



FIM: Selected Business Rules

- BR811: All IIS-AO IDs must be unique and must never be reused.
- BR815: IIS should proactively validate the current organizational and reporting structure for existing IIS-AOs on a quarterly basis.
- BR820: If two or more IIS-AOs (Org A and Org B) merge to form one new organization, the IIS-AOs (Org A and B) should be de-authorized and a new IIS-AO (Org C) should be created with a new IIS-AO ID.



- Refer the guidelines document for more complex scenarios

Revised 2008 Business Rules

- BR105R1: The minimum/mandatory set of data items for the “administered” Vaccination Event submission must include:
 - IIS-AO ID (Vaccinator/Recorder)
 - Patient Name, First
 - Patient Name, Last
 - Patient Date of Birth
 - Vaccination Encounter Date
 - Vaccine Type
 - Administered/Historical Indicator = “Administered”
 - Lot Number

Exceptions for Minimum/Mandatory Data Set

- When an IIS-AO submits its own Vaccination Event (“administered”), but does not have all expected information for the expanded set of data items
 - Legacy immunizations
 - Limited EHR capability
 - Birth Doses of Hepatitis B
 - OR Demographic-only submissions



Conclusions

- 2013 MIROW Guide is a step in standardizing practices in the area of data quality assurance in IIS
- Recommendations are at the business/operational level, independent from specific implementations and technology solutions
- Consistent use and implementation of these recommendations will help to improve IIS practices.
- Developed guidelines will assist IIS in aligning practices through adherence to a set of common recommendations and guidelines.
- Guidelines address NVAC* recommendations to develop a guidebook and best practices for IIS to promote data quality

Acknowledgments

- Subject Matter Experts
- Steering Committee
- Facilitation Team at Advanced Strategies
- AIRA Staff
- Grantee IIS
- External Reviewers
- Technical Editor at CDC



A New Direction: Micro Topics

- Small Scope
- Expansion of Existing Guidelines
- Steering Committee = SME's
- First Venture...
 - Lot Number Validation
 - Expected 2014

B67CB50

AHAV89384

A32300B

J0035F

AB303289C

Contact Information

Amanda Harris

asharris@health.nv.gov

(775) 684-4258

Elaine Lowery

Elaine.Lowery@comcast.net

(303) 881-2440

Read MIROW recommendations documents and
abridged mini-guides at:

AIRA website:

<http://www.immregistries.org/resources/aira-mirow>

CDC website:

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

MIROW – Is It Working?

- Immunization Information System Annual Report (IISAR)
 - Use of MIROW Guidelines by IIS*
 - 46% in 2007
 - 80% in 2009
- University of Michigan
 - Use
 - Benefits
 - Barriers to Implementation
 - Impact



*According to IISAR data