MIROW Decrementing Inventory via Electronic Data Exchange

AIRA Discovery Session

May 23, 2016

AIRA AMERICAN IMMUNIZATION REGISTRY ASSOCIATION

Immunization Information Systems for a New Era

Overview

- Introduction to MIROW
- Overview of DI-v-EDE
- Fundamental Concepts
- Fundamental Principles, Business Rules, and Scenarios
- Reports

Introduction to MIROW

- The Modeling of Immunization Registry Operations Workgroup
  - Formed in 2005
  - AIRA in partnership IISSB 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 Steering Committee

- Oversight from the MIROW Steering Committee
  - Warren Williams – Co-Chair
  - Elaine Lowery - Co-Chair
  - Brandy Altstadter, STC
  - Amanda Harris, NV
  - David Lyalin, CDC
  - Megan Meldrum, NY
  - Elizabeth Parilla, MN
  - Katie Reed, HP
  - Kim Tichy, IA
  - Bhavani Sathya, NJ
- AIRA Staff
  - Rebecca Coyle
  - Nichole Lambrecht

How MIROW Works

- Business analysis and development process support provided by IISSB/CDC and AIRA public health consultants
- 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"

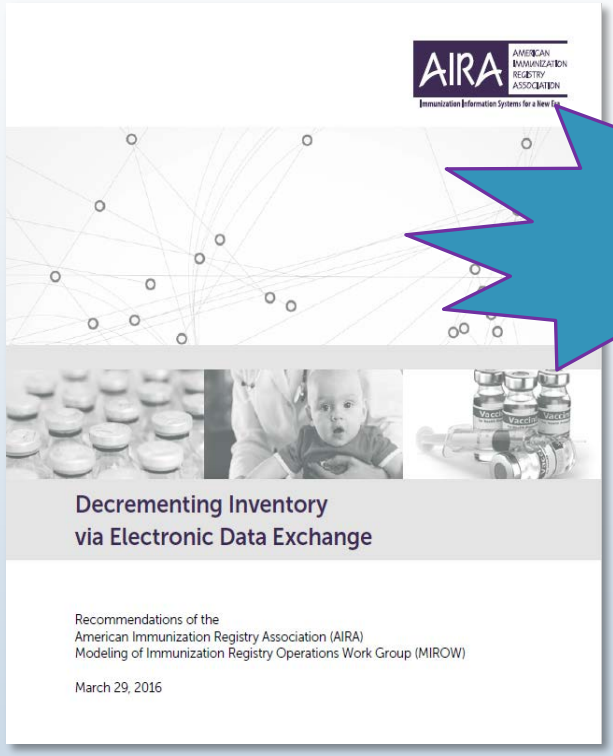
Past Topics

- Management of Patient Active/Inactive Status in IIS
- Data Quality Assurance – Selected Aspects
- Inventory Management
- Patient Eligibility for the VFC Program and Grantee Immunization Programs
- Reminder/Recall
- Incoming Data Quality Assurance – Incoming Data
- Vaccination Level Deduplication
- IIS-Vaccine Adverse Event Reporting System Collaboration (pilot project)

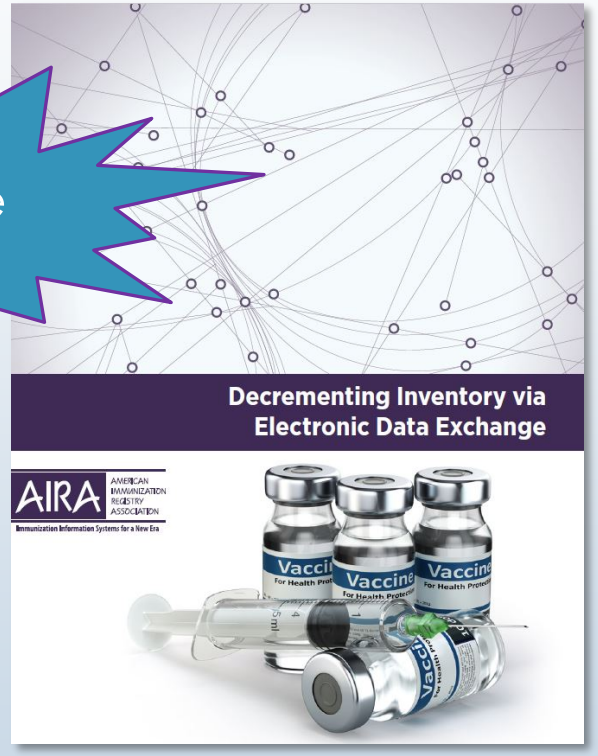
DI-v-EDE Documents

Complete Guide – 139 pages

Mini-guide – 8 pages



Available Now!



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 DI-v-EDE?

- DI-v-EDE assists immunization programs in maintaining more accurate provider vaccine inventories and provider organizations in meeting awardee immunization program operational requirements (e.g., vaccine accountability).

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 July 2015 (Decatur, GA)
  - Analyzed existing practices
  - Formulated consensus-based recommendations
- Finalized work via phone meetings
- Small group and workshop

DI-v-EDE Workgroup

- Experts
  - Brandy Altstadter, STC
  - Jennifer Bednar, HP
  - Janet Fath, CDC
  - Danielle Hall, ME
  - Amanda Harris, NV
  - Therese Hoyle, MI
  - Tracy Little, OR
  - Megan Meldrum, NY
  - Bhavani Sathya, NJ

- Project Support Team
  - Warren William, Co-Chair
  - Elaine Lowery, Co-Chair
  - Nichole Lambrecht, AIRA
  - Angela Lindsay, CDC
  - David Lyalin, CDC
  - Elizabeth Parilla, MN

DI-v-EDE Concepts

- The DI-v-EDE process is an automated method to decrement the number of vaccine doses in a provider organization's inventory in the IIS when the organization reports a vaccination event through electronic data exchange from an EHR to the IIS.
- Each provider organization's vaccine inventory is categorized based on funding indicators.
- To deduct a vaccine dose from the appropriate stock the IIS matches information that the provider organization submits regarding a vaccination event against the information that IIS has for the inventory of that provider organization.
- The IIS uses data elements such as lot number, lot number expiration date, dose level eligibility, lot level public/private indicator and, in some cases, dose level public/private indicator to match inventory.

Fundamental Concepts

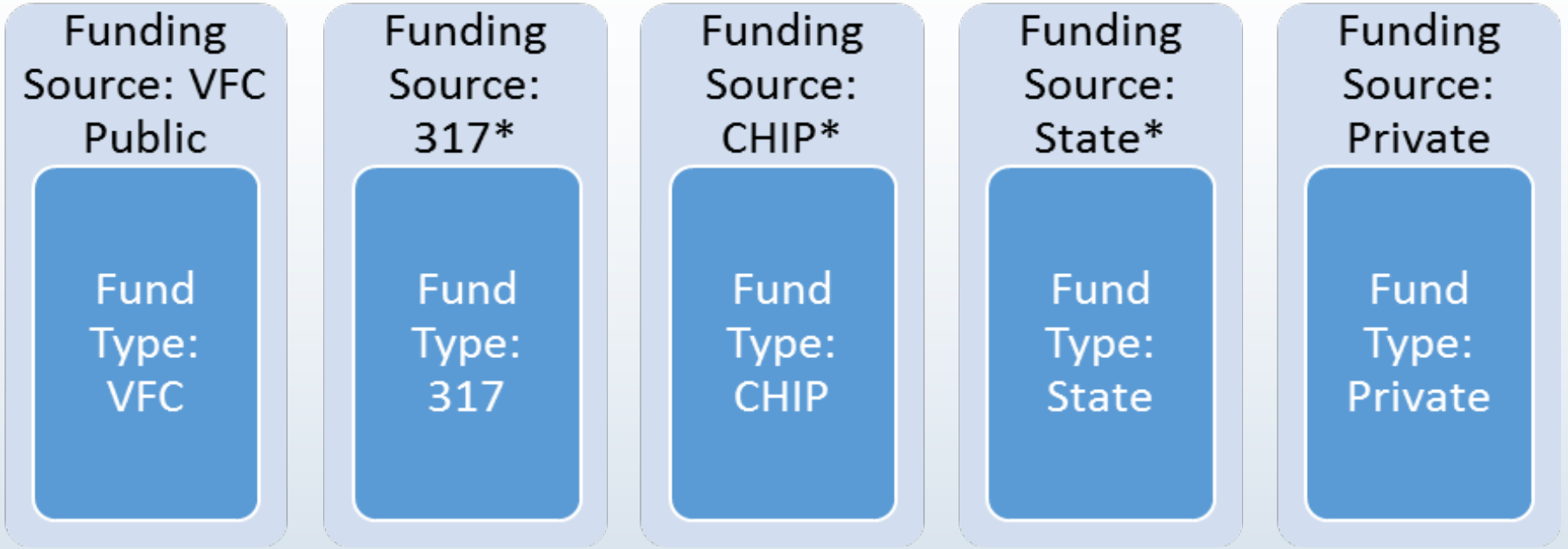
- Fund Type
- Storage Model
- Dose Level Eligibility
- Dose Level Public/Private Indicator
- Lot Level Public/Private Indicator

Fund Type

- Describes the program (or a private payee) that paid for vaccine.
- Each dose of vaccine is paid for with funds from a public program (e.g., VFC, 317, state or CHIP funds) or private funding.

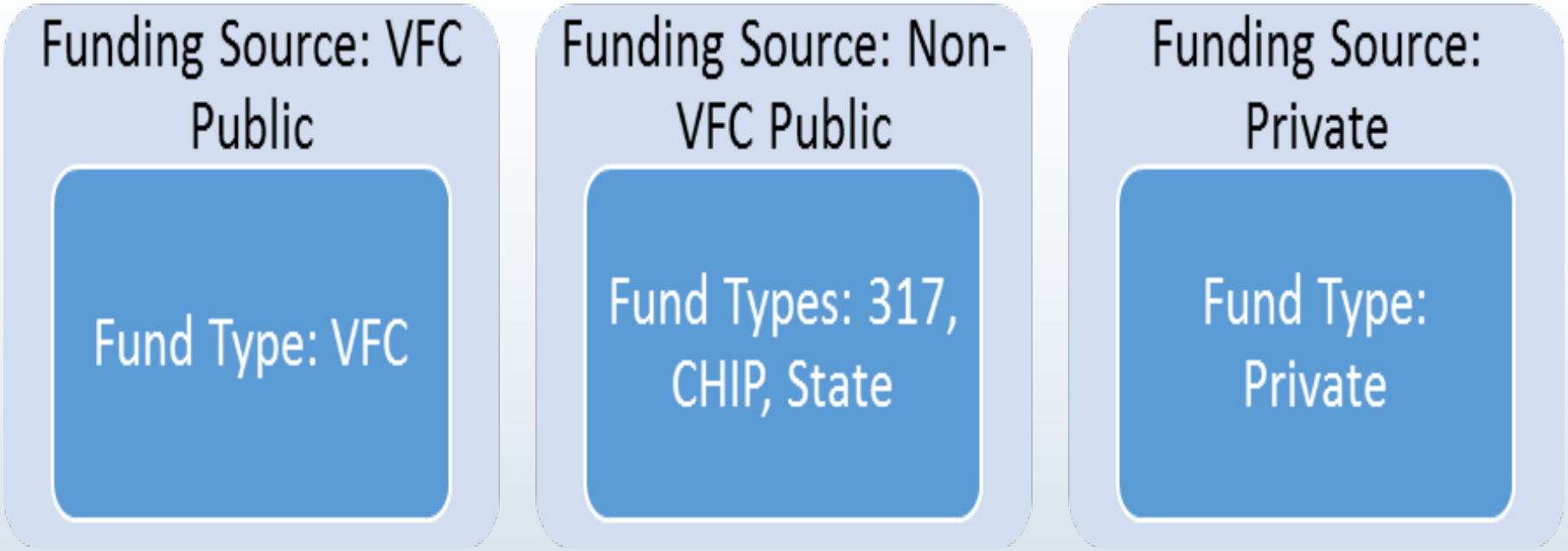
Storage Model

- Describes the way vaccine stocks are physically separated in the provider organization's storage unit.
- Depending on the awardee's requirements,
  - the provider organization may need to separate the vaccines by fund type or
  - may be allowed to have less specific categories (e.g., VFC public, non-VFC public and private).



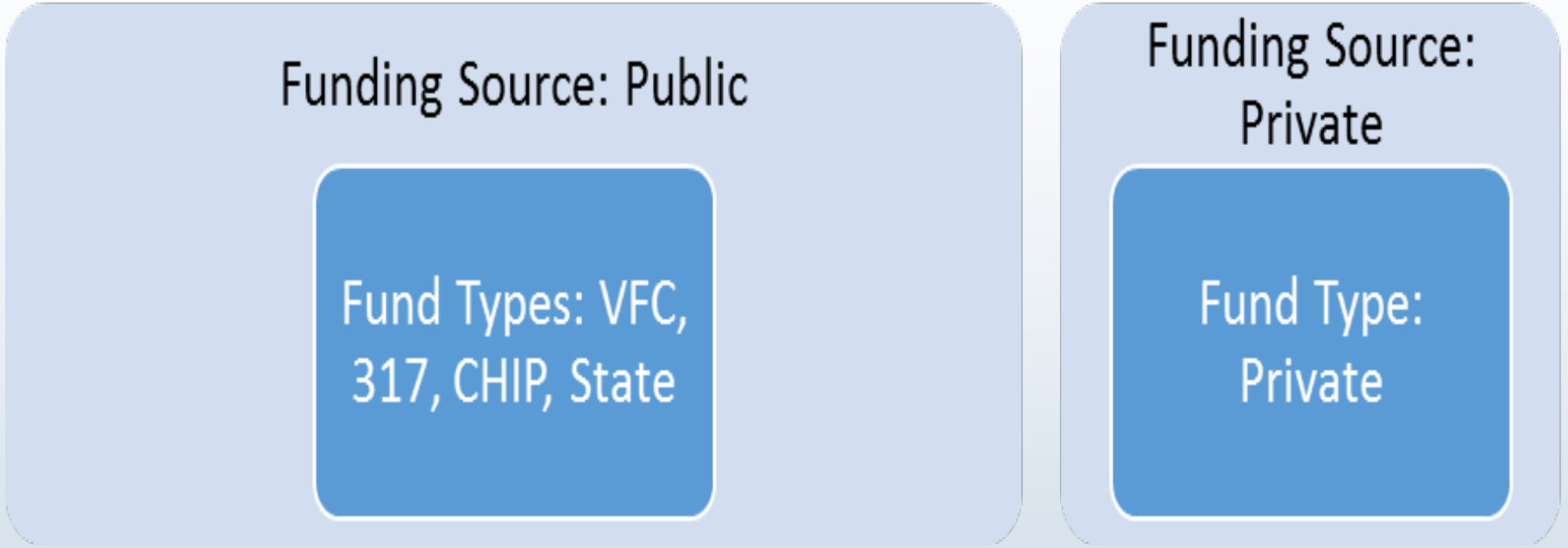
Multi-stock (4 or more) model

- Provider organization separates vaccines by fund type (e.g., VFC, 317, CHIP, State, and private).
- This model takes advantage of the fact that a provider organization knows fund type for each vaccine from the packing slip or other mechanism.



Three-stock model

- Provider organization separates vaccines into three funding source categories.
- This is the only model that VFC recommends; however, awardees can request to use a model that blends fund types into two stocks or one stock.



Two-stock model

The provider organization separates vaccines into two funding source categories.

One-stock model

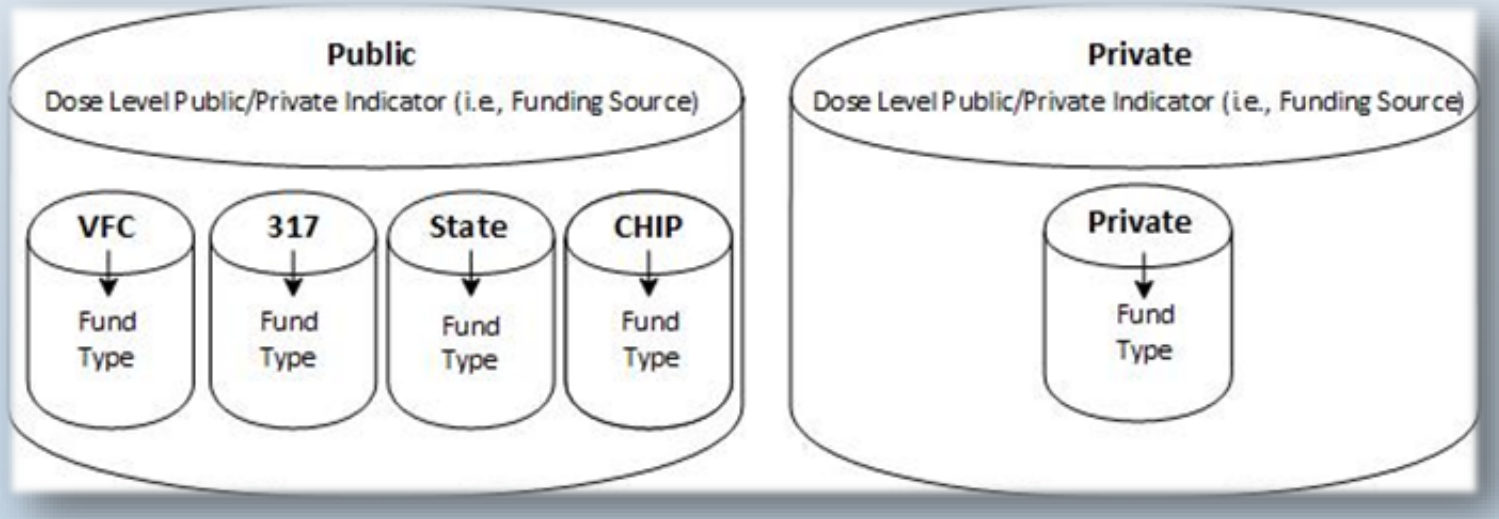
- Does not require provider organizations to partition vaccines into multiple inventory stocks within their storage.
- Two types:
  - Replacement: The provider organization uses privately-funded vaccines to vaccinate all patients and the VFC program replaces privately-funded vaccines that were administered to VFC eligible children.
  - Universal: The provider organization only has publicly-funded vaccine (at least for pediatric patients) supplied directly from the awardee immunization program.

Dose Level Eligibility

- Dose level eligibility describes a patient's eligibility for a dose of vaccine from a funding program (e.g. VFC, 317, etc.)
- Determined for each dose administered to a patient at the time of the vaccination event.

Dose Level Public/Private Indicator

- The provider selects a dose of vaccine from the storage unit based on the patient's eligibility.
- When the provider documents the vaccination event, they may include
  - specific fund type of the dose administered or
  - less specific categories (e.g., VFC public, non-VFC public & private).



Dose Level Public/Private Indicator

- These less specific categories are referred to as dose level public/private indicator since the data element identifies if the dose that was administered was purchased with public or private funds.
- Dose level public/private indicator is an aggregated reflection of fund type at the vaccine dose level.

Lot Level Public/Private Indicator

- The lot level public/private indicator is an aggregated reflection of fund type at the vaccine lot level.
- It indicates if vaccine doses with a given lot number are associated with publicly-funded or privately-funded inventory in the IIS.

Fundamental Principles

- A principle (P) is a high-level business rule.
- It provides a high-level direction that helps capture institutional knowledge and guides the development of more specific business rules that represent specific requirements and decision-making logic for IIS processes and operations.

Fundamental Principles (cont'd)

- The following are some of the identified principles

Principle #	Description
P01	DI-v-EDE should support the awardee program policies.
P03	The IIS must preapprove a provider organization for DI-v-EDE.
P04	Inventory information in the IIS should map to the storage model used by the provider organization.
P06	DI-v-EDE should support dose-level accountability.
P07	The IIS should notify provider organizations of problems in the DI-v-EDE process.
P08	The IIS should assist provider organizations to correct data quality issues.

Business Rules

- In contrast to fundamental principles, business rules (BR) represent specific requirements and decision-making logic for various steps of the DI-v-EDE process.

Business Rules (cont'd)

- The following are some key business rules.

BR#	Description
BR101	The IIS should organize a provider organization's inventory by lot number, lot number expiration date, and lot-level public/private indicator.
BR202	Provider organization submissions should include the following data elements to support DI-v-EDE: lot number, dose-level eligibility, dose-level public/private indicator (optional for DI-v-EDE), vaccination event date, CVX code, National Drug Code ([NDC] optional for DI-v-EDE), provider organization IIS ID, and lot number expiration date.
BR203 and BR204	The IIS should only decrement active inventory for administered (not historical) immunizations.
BR205 and BR302	When an inventory reconciliation is closed, the IIS should freeze the results for automatic decrementing and make adjustments manually.
BR401	The IIS should establish and maintain a preapproval process and provider organization education for DI-v-EDE.

Operational Scenarios

- Operational scenarios can help the reader explore the best practice recommendations through real situations.
- The following represent a few key scenarios outlined in the full best practice guidelines.

	S#	Description
'Best case' scenario		
	S201	Typical best case scenario for DI-v-EDE.
Inactive lot number		
	S502	Lot number in submission matches a lot number in provider organization inventory in the IIS that is not active.
Inconsistent data		
	S801	Mismatch of dose-level eligibility and lot-level public/private indicator.
Reconciliation		
	S1301	Reconciliation timeliness.

S201. Typical best case scenario for DI-v-EDE

- Submission contains consistent information for all of the following: Lot number, dose-level eligibility, dose-level public/private indicator (optional), vaccination event date, CVX (or NDC) code, lot number expiration date, and provider organization IIS ID.
- Dose is administered
- Dose-level eligibility and dose-level public/private indicator indicate that the appropriate vaccine stock was used for the patient
- Lot number in submission matches lot number in provider organization inventory in IIS with lot-level public/private indicator (e.g., public).
- Inventory is active
- Balance is greater than zero
- Provider organization is preapproved in the IIS for DI-v-EDE

S502. Lot number in submission matches a lot number in provider organization inventory in the IIS that is ***not active***.

- Effect on immunization record:
  - Record information in patient record
  - Do not decrement inventory
- Consequences:
  - IIS notifies provider organization that inventory is not active, decrementing did not take place
- Notes:
  - Provider organization may need to accept inventory in the IIS

S801. Mismatch of dose-level eligibility and lot-level public/private indicator

- Submission from provider organization indicates a dose-level eligibility and/or dose-level public/private indicator = public
- Lot number matched in the provider organization inventory in the IIS has a lot-level public/private indicator = private
  - Effect on immunization record/inventory:
    - Record information in patient record
    - If awardee does not allow borrowing, dose is not decremented; if awardee does allow borrowing, decrement private inventory
  - Consequences:
    - Awardee notifies the provider organization that dose was not decremented (if borrowing not allowed) or that it was decremented (if borrowing is allowed)

Reports

Inventory decrementing issues sample

Report run on 2013-12-11
Organization MAINE MEDICAL PARTNERS
Sites(s) MMP SACO PEDIATRICS

MMP SACO PEDIATRICS 10131

Date	Client	Vaccine	Lot#	Vaccinator	Rejection Reasons
2013-11-26	zingy zing	Tdap > 7 years	AC52B088AA		Funding Program code in OBX did not match any vfc eligibility codes: V10
2013-07-26	wonton wontiz	Hep A	AhAvB536AA		The site does not have any lots matching lot number AhAvB536AA
2013-07-26	wonderful wonder	Hep A	AhAvB536		The site does not have any lots matching lot number AhAvB536
2013-11-26	silly sillow	Tdap > 7 years	AC52B088AA		The site does not have any lots matching lot number AC52B088AA
2013-11-26	hibby hibbit		UH765AA		The site does not have any lots matching lot number UH765AA

Figure 10. DES-Decrement detail report (from Maine IIS)

Reports

Ending inventory transactions summary sample

Vaccine Transactions Totals			
Trans Code	**Trans Description**	**Trans Count**	**Trans Value**
REC	Receipt of Inventory	0	0
Immunize	Immunizations Given	940	-940
Delete	Immunizations Deleted	0	0
TRA	Doses Transferred	0	0
3	Spoilage reported by provider	0	0
4	Expiration reported by Provider	0	0
5	Lost or damaged in transit to Provider	0	0
6	Failure to store properly upon receipt by Provider	0	0
7	Refrigeration failure reported by Provider	0	0
11	Lost or unaccounted for in Provider inventory	0	0
12	Other - Not Usable, reported by Provider	0	0
RECALL	Doses Recalled	0	0
ADMIN	Doses Administered	0	0
TRAEXP	Expired Doses Transferred	0	0
BORROWEDIN	Borrowed In	0	0
BORROWEDOUT	Borrowed Out	0	0
BORROWED	Borrowed Imm Given	59	-59
RET	Doses Returned	0	0
ERR	Error Correction	0	0
RECON	Doses Reconstituted	0	0
LOTDELETE	Lot Deleted	0	0
	Transaction Totals:	**999**	**-999**

Figure 14. Vaccine transactions (from Oregon IIS)

Reports

02/12/2016

Ending Inventory Report

Page 1

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Inventory: Private

Report Period : 10/28/2015 - 12/06/2015

DTaP (pediatric)

Lot Number	Expiration Date	Begin Balance	Doses In	Doses Out	Admins	Brwd/ Rplcd	Unusable LW	Balance	Dose Count	Diff
		Doses								
JD527	12/03/2016	0	0	0	0	0	0	0	0	0
FA545	05/07/2017	10	0	0	10	0	0	0	0	0
5775L	10/16/2017	30	40	0	21	0	0	49	49	0
TOTAL		40	40	0	31	0	0	49	49	0

DTaP-Hep B-IPV (Pediarix)

Lot Number	Expiration Date	Begin Balance	Doses In	Doses Out	Admins	Brwd/ Rplcd	Unusable LW	Balance	Dose Count	Diff
		Doses								
5F5F3	02/06/2017	0	0	0	0	0	0	0	0	0
2PY24	03/27/2017	0	1	0	1	0	0	0	0	0
N2LK2	08/27/2017	45	0	0	45	0	0	0	0	0
23Y4D	10/28/2017	0	70	0	37	0	0	33	33	0
TOTAL		45	71	0	83	0	0	33	33	0

DTaP-IPV (Kinrix)

Lot Number	Expiration Date	Begin Balance	Doses In	Doses Out	Admins	Brwd/ Rplcd	Unusable LW	Balance	Dose Count	Diff
		Doses								
5TD93	09/10/2017	41	0	0	32	1	0	8	8	0
MH9T7	09/29/2017	0	40	0	0	0	0	40	40	0
TOTAL		41	40	0	32	1	0	48	48	0

Figure 16. Ending inventory report (from Michigan IIS)

Acknowledgements

- Subject Matter Experts
- Steering Committee
- Facilitation Team at Advanced Strategies
- AIRA Staff
- Grantee IIS
- Participants of 2015 MIROW Workshop
- External Reviewers
- Technical Editor at CDC

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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

Q & A

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