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Immunization Information Systems for a New Era

Inventory Management Webinar

August 11, 2014

Introduction

Janet Fath, CDC

Inventory Management Benefits

- Overall

- Vaccine Program Staff

- Providers

Overall Benefits

- More visibility into provider inventories, with better information about associated costs

- Reduced waste

Benefits for Vaccine Program Staff

Vaccine program staff

- Can hold providers more accountable
- Have better tools to ensure that public stock is administered only to eligible persons
- Can identify pockets of vaccine inventory and facilitate transfers as needed
- Can identify opportunities for education

Benefits for Providers

Providers

- Monitor inventory more easily with better tools for storage and handling

- Over-order less frequently

- Avoid double data entry

- Save time

Agenda

- Benefits of Good Inventory Management Practices

- Increasing Inventory Data Quality – Washington

- Decrementing On-Hand Inventory using
EHR data – Arizona

- Reconciling Inventory – Florida

- Documenting Returns and Wastage – New York City

Key Concepts

- Policies

- Process

- Tools

- Tips

Increasing Inventory Data Quality

Jan Hicks-Thomson/Kristina Crane, Washington

WA Inventory Reporting Policies

- IIS use is not mandated in Washington

- Inventory and doses administered are due

  - Every month ~ Every provider

Process and Potential Issues
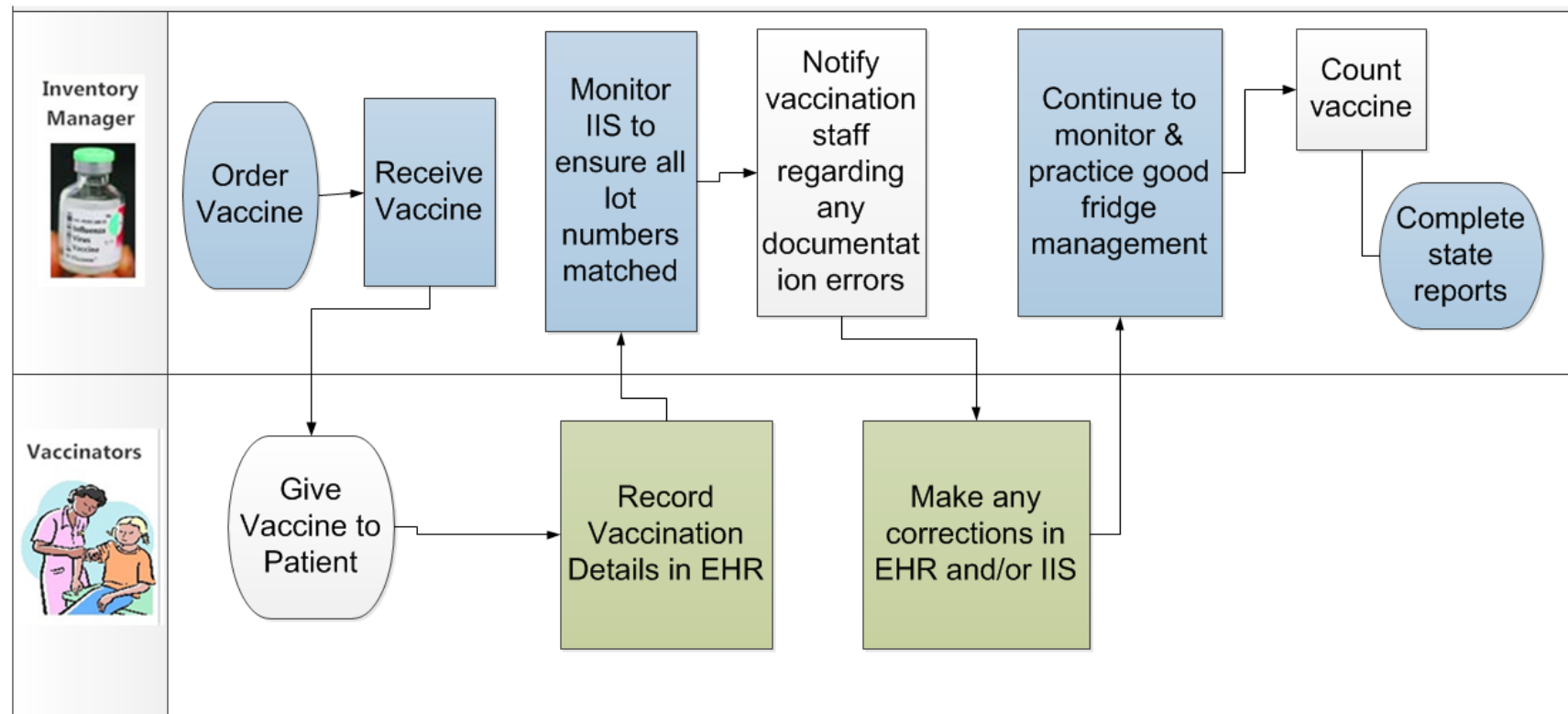
The Results

Average Number of Documentation Errors per Month

Site 1 – Chart base of 6,600

Saves 6 – 10 hours per month conducting state accountability reports

Site 2 – Chart base of 39,500

Reporting time: Was 24 hours per month now 11 hours per month

Tools

- Patient Detail Report – to find lot number documentation mistakes

- Training includes best practices in vaccine storage
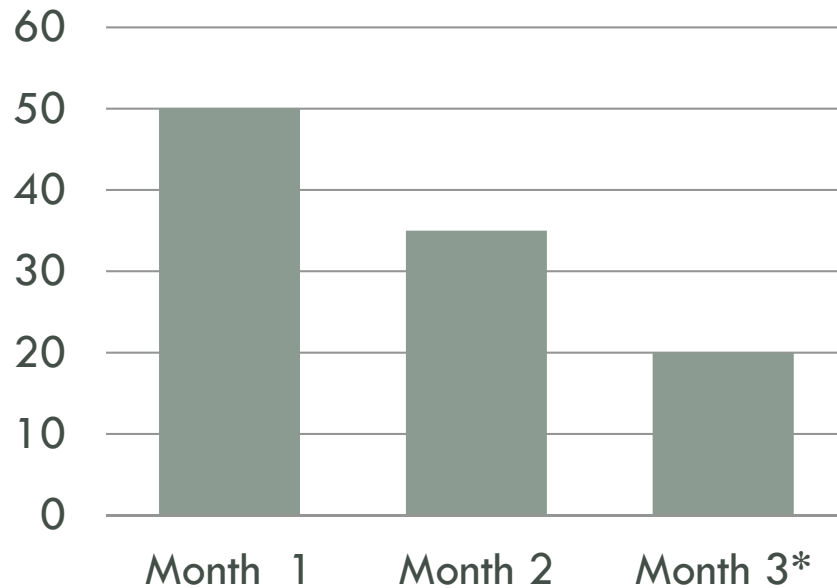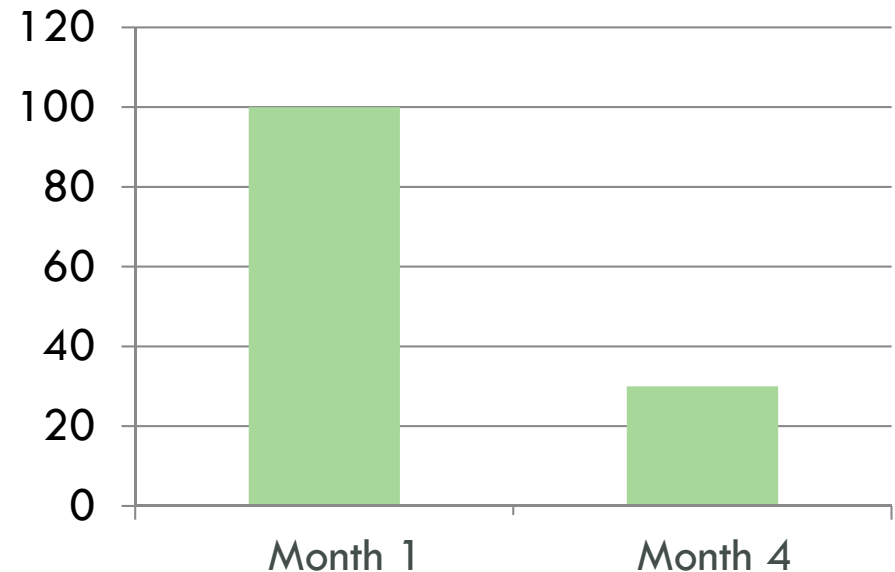
Vaccine	Vacc. Date	Dose Size	Mfg. Code	Lot	Public Lot	VFC Eligible	Historical	Vaccinator
IPV	12/06/2013	Full	PMC	J1382	N	Y	N	███████

Patient ID	First Name	Middle Name	Last Name	Birthday	Guardian F.N.	Phone Number	VFC Eligible	Facility
██							NO	PC MADC PEDIATRICS

Vaccine	Vacc. Date	Dose Size	Mfg. Code	Lot	Public Lot	VFC Eligible	Historical	Vaccinator	Facility	Date VIS Form Given	VIS Publication Date
Rotavirus, pentavalent RV5	12/03/2013	Full	SKB	J001252	N	NO	N	███████	DOWNTOWN	12/03/2013	

Decrementing On Hand Inventory using EHR Data

Terry Rinck, Arizona

Arizona Policies

- Message Conformance - Message must contain the following:

  - RXA.15 - Lot Number

  - RXA.16 - Expiration Date

  - RXA.17 - Manufacturer Code

  - OBX - Eligibility Code and Funding Source

- Message Testing – Must be performed to "Go Live in Production."

  - Provider must send 200 successful message

Process

- Process Steps

    1. Provider must enter the Inventory Lot Number in the IIS System prior to sending messages or as the inventory is received.

    2. Provider enters doses administered into the EHR.

    3. Data from the EHR are sent to the IIS using a properly formed message.

    4. Doses administered decremented from inventory by the IIS System.

- Potential Issues

    - Non-conformance of messages.

        - Missing Facility IDs may cause decrementing issues.

Tools

- IIS System – with decrementing capabilities

- Interface Engine – Primary message filtering

- Experienced HL7 Staff

Tools: HL7 Message Analyzer

- Review and verify message conformance

Tools: HL7 Implementation Guide

- Contains tabbed segments, data types, HL7 tables, CVX and MVX codes

Tools: HL7 Specific Rules, 2.5.1*

- A field by field document containing the rules specific to Arizona

The following specifications and rules supersede CDC and general HL7 guidelines when sending messages to the Arizona Immunization Program. Otherwise CDC and general HL7 guidelines apply.

MSH.1 – **Field Separator** will be the pipe | identified as (ASCII 24)

MSH.2 – **Encoding Characters** will be ^~\& identified as (ASCII 94, ASCII 126, ASCII 92, ASCII 38) respectively.

MSH.3 – **Sending Application** is required and shall be the pre-share name of the application that is generating this message. This field is filtered and new values must be preloaded.

MSH.4 – **Sending Facility** is required and shall be the **IRMS Id** assigned and provided by the ASIIS System.

MSH.5 – **Receiving Application** is required and shall always be **ASIIS**.

MSH.6 – **Receiving Facility** is required and shall always be **ASIIS**.

MSH.7 – **Date/Time of Message** is required and shall be in the following format (YYYYMMDDHHMMSS) and have a degree of precision to the minute generated.

MSH.9 – **Message Type** is required and shall be **VXU^V04^** for Unsolicited Vaccination Messages.

MSH.10 – **Message Control Id** is required and shall be unique for each message attempt from a sending facility with a maximum of 20 characters.

MSH.11 – **Processing ID** is required and because the ASIIS system has separate points for sending test and production messages it is acceptable for a test message to contain a **P** in this field. This must not be a **T** if you want vaccinations to post to ASIIS.

MSH.12 – **Version Id** is required and shall contain the version of the message being sent.

PID.3 – **Patient Identifier List** is required and shall contain the **Patient Medical Record Number** in parts 1 and the number type identifier of **MR** in parts 5 pursuant to the CX DataTypes formats. Social Security Number should reside here with the SS identifier.

* Excerpt – The original document is 4 pages long.

Tips

- Get provider production data during the testing phase.

- Have a stable IIS system with good support.

- Provide well-written HL7 guides and rule sets pertinent to your implementation.

Reconciling Inventory

Baskar Krishnamoorthy/Morgan Maclean, Florida

Florida Policies

- All VFC providers must place the order request in Florida SHOTS (IIS).

- Inventories must be reconciled before the provider can place their order request.

- Public providers can perform inventory management in Florida SHOTS (IIS).

  - Required for VFC funded vaccines.

  - Must record inventory details when recording shots that were provided in the last 15 days.

  - Majority use the functionality for their private purchase vaccines as well.

- Private providers who are also VFC providers can perform inventory management in Florida SHOTS.

  - Must self report doses administered and current inventory-on-hand data.

Process

- **Receive Inventory by accepting Pending Receipts –** created by import of shipment data from VTrckS - for VFC funded vaccines shipped.

  - If shipment data is not correct, provider has the ability to modify the values.

  - If provider modified the values, an exception report is available for program staff to review.

550010		37026	00005-1971-02 Prevnar 13	50 / 50	37026-4	Fulfilled		Shipment	Shipped/Received Lot Numbers do not match.

	Shipped Value	Received Value
Doses	50	50
Lot #	H08092	HO8093
Exp Date	03/31/2015	03/31/2015

550010		37026	00006-4045-41 Gardasil	10 / 10	37026-3				eceived Lot Numbers do not match.

  - Public providers also have a Receive inventory functionality to enter their private purchase vaccines.

- By using the receive inventory functionalities, Inventory Records (Vaccine Type/NDC/Lot Number/Expiration Date) are created in the system.

Process

The providers have the following functionalities available to reconcile inventory in Florida SHOTS.

- **Adjustments** (Spoiled, Wasted, Expired, Unusable, Unaccounted For, Borrowing and Payback etc.)

Process

- **Transfers** - The providers can record transfers of vaccine to either a different eligible provider or to a different funding source (only for public providers)

Process

- **Transaction History** - Providers will be able to see all transactions that have occurred for an inventory record

Process

- **Order Request** – Public Providers will be provided with snapshot of the current inventory on-hand (for all inventory records) when placing the order request.

Vaccine Category: IPV										
Brand Name	Packaging $ per dose	Lot #	ExpDate	Begin Inv	Rcvd + XFer In	Doses Admin	Xfer Out	Adjustments/ Returns	Calc Inv On-Hand
Ipol 49281-0860-10	10 doses per Multi-Dose Vial $ 12.4200	J15611	10/12/2015	0	30				30
		J14061	07/20/2015	30			20		10
		J12811	06/05/2015	0				0	0
		H13542	07/08/2014	1				-1	0
		Total for all 49281-0860-10 lots:		31	30		20	-1	40

- **Order Request** – Private Providers will be provided with a snapshot of the inventory transactions (for all inventory records) when placing the order request. Private providers can self report, any discrepancies will be system noted with a color highlight.

Provider's designated ordering schedule is: M1: Monthly 1st through 15th of any month.
The Provider orders Vaccines of Type: Both (DirectShip and Non-DS)

Vaccine Category: DTaP										
Brand Name	Packaging $ per dose	Lot #	ExpDate	Begin Inv	Rcvd + XFer In	Doses Admin	Xfer Out	Adjustments/ Returns	Calc Inv On-Hand	Current Inv
Daptacel 49281-0286-10	10 Single Dose Vials $ 15.3800	C4617AA	10/22/2016	20		0			20	0
		C4587AA	08/01/2016	200		150			50	25
		C4504AA	03/12/2016	27		27			0	0
		Total for all 49281-0286-10 lots:		247		177			70	25

Tools: For Refrigerator Counts

- **Physical Inventory Report** - printed list of vaccines (with NDC/lot number/expiration date) expected to be on hand – for public providers

Vaccine Type	Mfg/Lot #	Expiration Date	D Begin Inventory	E Doses Received	F Doses Trnfrd In	G Doses Sent Out	H Doses Adjusted	I Doses Admin	J D + E + F - G + H - I = J Calculated Doses On Hand	K Physical Inventory	L J - K = L Variance
DTAP	SKBC59CP	02/20/2016	10	0	0	0	0	0		10	_____
DTAP	SKBH7E57	12/17/2015	10	0	0	0	0	0		10	_____
SUBTOTAL DTAP			20	0	0	0	0	0		20	_____
DTAP-IPV	SKB3ZL2Y	03/27/2016	30	0	0	0	0	0		30	_____
DTAP-IPV	SKBJP2HP	08/17/2015	0	0	0	0	0	0		0	_____
DTAP-IPV	SKBPY3DZ	05/31/2016	10	0	0	0	0	0		10	_____
SUBTOTAL DTAP-IPV			40	0	0	0	0	0		40	_____

- **Order Request Worksheet** - printed list of vaccines (with NDC/lot number/expiration date) – for private providers

Vaccine Type	Brand Name	Packaging $ per dose	Lot #	ExpDate	Doses Admin 04/03/2014 to 08/05/2014	Current Inv	Place X if you don't need vaccine
DTaP	Daptacel 49281-0286-10	10 Single Dose Vials 15.38					
	Infanrix 58160-0810-11	10 Single Dose Vials 16.17	AC14B153AA	08/18/2014			
DTaP/HEP B/IPV	Pediarix - Latex Free 58160-0811-52	10 Single Dose Syringes 53.86	7537C	04/17/2016			

Tools: Reports

- **Aging Vaccine Report**
  - Already expired, expires within 30, 60, 90, or by a specified date.
  - For removing expired vaccine from IIS inventory.
- **Vaccine Accountability Report**
  - Available for providers.
  - Also statewide report available for the program office.

Tips

- Reconcile vaccine inventory regularly as events occur.

    - For public providers, policies have helped.

    - Private providers who upload data to the registry login/access the IIS only for ordering. This results in reconciliation not occurring in a timely fashion.

        - A potential issue to consider when looking at automatic decrementing of doses administered when reported through upload.

- When recording an inventory transaction, the date of occurrence (effective date) is critical.

- From IIS point of view, plan on having the capability to undo transactions (reversing the adjustments).

Documenting Returns and Wastage

Alaina Stoute, New York City

CIR* Background

- * Citywide Immunization Registry (CIR)

- A population-based IIS

- Launched in 1997

- Vital records uploaded twice a week

- ~125, 000 births annually

- Mandatory reporting of immunizations for children 0-18 years, voluntary ≥ 19 years with consent

Returns/Wastage Definitions

Returns

- Spoiled/expired vaccines that can be returned to McKesson so that CDC can apply for federal excise tax. These vaccines should be returned within 6 months to maximize CDC's chance to receive excise tax credit. The doses should still be returned to McKesson even if 6 months have passed.

Wastage

- Vaccines that cannot be returned to McKesson so that CDC can claim excise tax credit—such as damaged doses; doses not in their original container; doses remaining in a multi-dose vial that were opened but not finished. It doesn't matter when these doses are reported to the program—they are still wastage and should not be returned to McKesson.

New York City Policies

- Providers are required to complete the VFC Returns/Wastage form in the CIR.

- The form contains the following fields:
  - Vaccine Returns/Wastage reason
  - Vaccine Type
  - Brand
  - Manufacturer
  - Vaccine Lot
  - Expiration Date
  - Unit Presentation
  - Number of Doses

- Providers who fail to report spoiled, expired, or wasted vaccine are identified and are subject to VFC compliance site visits or CIR outreach site visits.

- Providers with instances of excessive spoilage or expired vaccine, will be required to reimburse publicly funded vaccine.

Process

- Reporting VFC vaccine returns and wastage in the CIR is a 3-step process

  1. Enter VFC vaccine returns/wastage information

  2. Review and confirm VFC vaccine returns/wastage information

  3. Receive VFC Vaccine returns/wastage receipt

- Providers receive a confirmation email

Process (continued)

- VFC returns and wastage files are automatically created from CIR data.

- The VFC returns and wastage files are uploaded daily into VTrckS using the new vaccine returns/wastage interface.

VFC Returns/Wastage Screen

VFC Vaccine Returns/Wastage:

Vaccine Return/ Wastage Reason	Vaccine Type	Brand	Manufacturer	Vaccine Lot 💬	Exp. Date	Unit Presentation	# of Doses	
Reset 🔄 -- Select -- ▾	▾	▾	▾	▾	▾			Add Event ➕

-- Select --
Improper storage upon receipt
Refrigerator/Mechanical failure
Power outage
Opened multi-dose vial
Refrigerator too cold
Refrigerator too warm
Expired vaccine
Natural disaster
Other vaccine return
Recall
Broken Vial\Syringe
Vaccine drawn into syringe but not admin
Lost or unaccounted for vaccine
Other wastage (non-returnable)

Note: You can add up to **25 returns** in this Vaccine Returns/Wastage Form. If you need to add more returns, complete and submit an additional Vaccine Returns/Wastage Form(s).

If you ha... ...r VFC stock to use on non-VFC eligible patients, do you currently have in your VFC stock privately
purchas... ...t you borrowed and now need to report as return/wastage?   ○ Yes ● No

Number o...

Clear ☐   Continue ➡

VFC Returns/Wastage Confirmation

⚠️ **Please print the VFC Vaccine Return/Wastage Receipt and insert it in a shipping box with your non-viable returnable vaccines.**

✔️ Thank you. This VFC Vaccine Return/Wastage form has been submitted by **Melissa Mickle** on 07/30/2014 at 2:59 PM.

The confirmation number is **2438**. A copy of this return has been emailed to **MMICKLE@HEALTH.NYC.GOV**.

- Please use the Printer-Friendly Format 🖨 link below to print this confirmation and **only** insert the VFC Vaccine Return/Wastage Receipt with your vaccines in an empty shipping box. If you are unable to print the screen, you can also print the email confirmation you will receive and include it in the vaccine delivery box.

- If returning vaccines, return label(s) will be sent to you from McKesson Specialty after you submit your form to the Bureau of Immunization. Please allow up to 2 weeks for delivery.

- **DO NOT** mail any vaccine products directly to the Bureau of Immunization. They will be returned to you.

- **DO NOT** include ice packs.

- **DO NOT** send open vials, broken vials or syringes.

- Give the packed and labeled box to UPS the next time a delivery is made to your site.

- Only the vaccines eligible for return that you originally reported on the **vaccine return/wastage** form will be accepted. Please do not add any additional vaccines to the box.

- Please **DO NOT** call McKesson Specialty, UPS, or Federal Express to arrange a pickup or you will be charged for the pickup. Below are samples of the return label and return envelope.

- Please e-mail nycimmunize@health.nyc.gov or call 347-396-2405 with your CIR facility code and/or VFC PIN if you have questions.

VFC Returns/Wastage Receipt

Printer-Friendly Format

NYC Department of Health & Mental Hygiene
Bureau of Immunization
Vaccines for Children Program

VFC VACCINE RETURN/WASTAGE RECEIPT

VFC Contact Information

VFC PIN: BAA VFCCIR	**Provider Name:** CITY IMMUNIZATION REGISTRY	**Transact Date:** 07/30/2014
Shipping Contact Name: MARY JOE	**Phone/Ext:** (212) 555-1212	**Fax:** (212) 555-2323 **Email:** MMICKLE@HEALTH.NYC.GOV

VFC Vaccine Returns/Wastage

VFC Return/Wastage #1

Vaccine Return/Wastage Reason: Improper storage upon receipt	**Brand:** Varivax	**Expiration Date:** 01/03/2014
Vaccine Type: VAR	**Manufacturer:** MERCK	**Unit Presentation:** SDV; 10-Pack
NDC: 00006-4827-00	**Vaccine Lot:** 0082AE	**Number of Doses:** 100

Number of Return Labels Requested: 0

Tools

VFC vaccine returns and wastage data is used to:

- Identify providers who have poor storage practices

- Identify providers who do not administer vaccines with the earliest expiration dates first and/or over order

- Calculate reimbursement

Tips

- If possible, use the same returns and wastage reasons in your IIS as listed in VTrckS

- Include returns/wastage receipt in a confirmation e-mail in case the user is unable to print what is on screen

- Create a method for staff to modify the files before they are uploaded to VTrckS; providers do make mistakes

Discussion

Resources

- MIROW *Immunization Information System Inventory Management Operations*

  - http://www.immregistries.org/pubs/mirow.html

- *VTrckS ExIS Integration: File Specifications & Additional Information*

  - http://vtrcks-library.cdc.gov/gm/folder-1.11.4299

- *Processing VTrckS ExIS Orders*

  - Business rules applied to inventory uploads
  - http://vtrcks-library.cdc.gov/gm/folder-1.11.4125

Thank You

Learning Objectives

- Describe the **benefits of good inventory management practices**

- Describe and discuss **methods for increasing inventory data quality**

- Describe and discuss the process, policies, IIS tools, and tips for **decrementing inventory with data from EHR**

- Describe and discuss approaches for **reconciling** on hand inventory with inventory calculated from shipments received and doses administered

- Describe and discuss approaches for **documenting adjustments** to on hand inventory