

# **Progress Update: Automating VTrckS ExIS Data Exchange & Usability Best Practices Catalog**



**AIRA 2016 National Meeting**

# Background

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- Awardees transitioned to VTrckS by May 2013
- 47 awardees regularly upload order and inventory data from their IIS
- Two projects
  - Automated VTrckS ExIS Data Exchange
  - Usability Best Practices Catalog

# Automated VTrckS ExIS Data Exchange



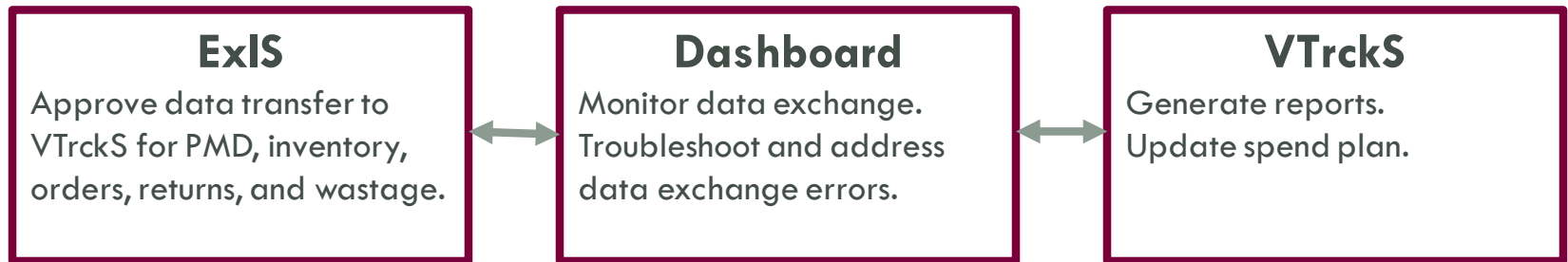
Janet Fath, CDC/NCIRD/ISD/IISB

# Automated Data Exchange Vision

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## Objective

Automate data exchange between VTrckS and awardee ExIS



## Method

The solution will include:

- Steps awardees need to take to prepare
- Blueprint for VTrckS development

## Audience

ExIS awardees that wish to do so

## Benefits

- Near real-time data exchange
- Increase efficiency
- Reduce errors

# Automated Data Exchange Progress

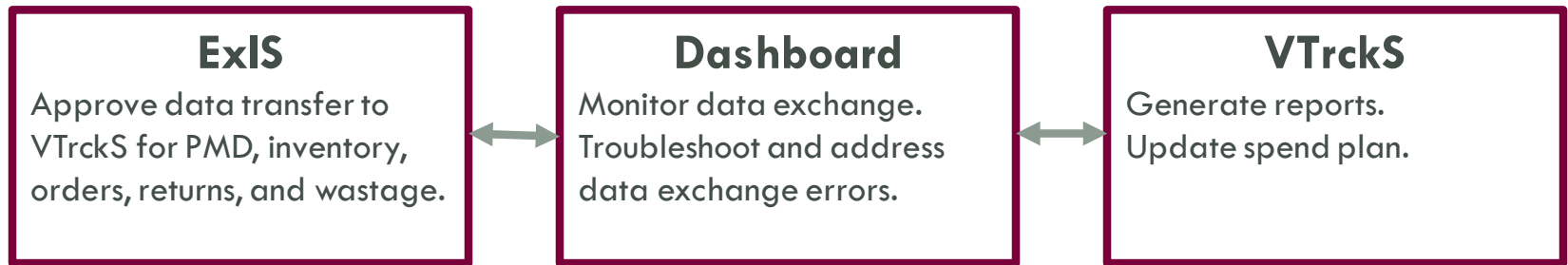
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- Proposed data exchange solution
- Error analysis
- STC data exchange readiness

# Automated Data Exchange Progress

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- **Proposed data exchange solution**



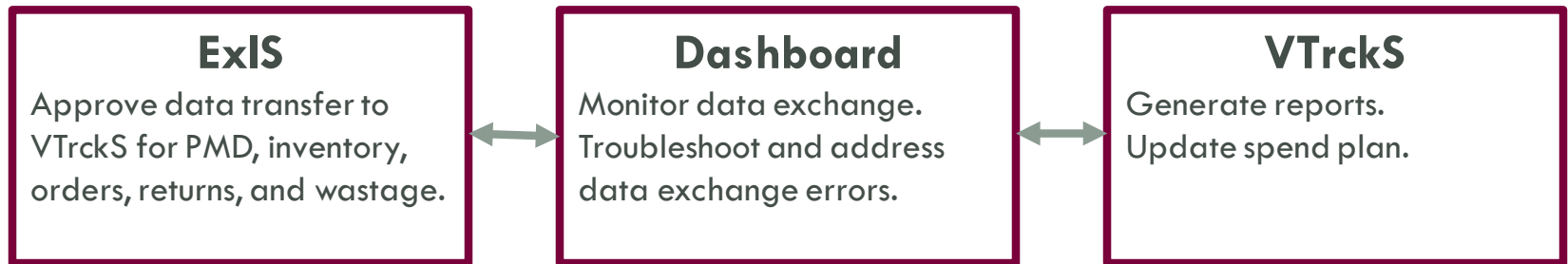
- **Error analysis**

- **STC data exchange readiness**

# Automated Data Exchange Progress

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- **Proposed data exchange solution**



- **Error analysis**

- **STC data exchange readiness**

# Error Analysis: Most Frequent Errors

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## Provider Master Data

- {1} Business hours must be in military format (HHMM)
- {7} Last Name cannot contain special characters for ?\*%&=<> for Record Types B, P and C

## Inventory Data

- {2} Multiple lines with the same Provider PIN, NDC and Lot Number are not allowed
- {3} Invalid NDC
- {4} Lot Number is invalid or blank
- {6} Provider PIN does not exist

## Order Data

- {5} Invalid NDC or blocked NDC



# Error Analysis

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- Automating should prevent some errors, such as:
  - NDC is blocked and cannot be ordered
- Awardee IIS will need to prevent other errors
  - Provider business hours must be in HHMM (military time) format
  - Multiple lines with the same combination of Provider PIN, NDC, Lot Number for an inventory transaction

# Automated Data Exchange Progress

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- Proposed data exchange solution
- Error analysis
- **STC data exchange readiness**

# STC Data Exchange Readiness

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Sample strategies to increase data quality and reduce manual entry include:

- Implement data entry validation on manual entry fields to prevent formatting errors
- Display all information awardees need for making decisions
- Include only validated data in the ExIS upload files
- Expand search and filtering capacities to target provider master data (PMD) updates

# Prevent Errors → Improve Data Quality

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- Implement data entry validation on manual entry fields to prevent formatting errors
  - Future:** Users cannot type disallowed characters (? \* % & = < >) in free text fields.
  - Present:** Users can type disallowed characters in free text fields.
- Display all information awardees need for making decisions
- Include only validated data in the ExIS upload files
- Expand search and filtering capacities to target provider master data (PMD) updates

# Steps All Awardees can Take

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- As you have opportunity, trap for errors
  - The VTrckS ExIS team can give awardees a list of errors to address
- Ensure all orders originate in the ExIS
  - Flu orders
  - Direct ship orders in excess of \$25K
- Stay tuned for updates

# Ordering and Inventory Usability Best Practices Catalog



Amy Stone, Stone User Experience

# Usability Best Practices Catalog

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## Objective

Document usability best practices for vaccine ordering, inventory management, and related functions

### • Sample workflows



### • Sample pages

Inventory Reconciliation									
From: 05/01/2015 To: 05/01/2015 Print Form									
VFC									
Vaccine	Brand / Packaging	LOT #	Exp	Ones Admin	Wanted / Expired	On Hand	Physical		
DTaP	Glaxo	00148A	3/06/2014	18	0	0	8		
	12 Single Dose	00148A	6/16/2015	22	0	10	12		
	Total			40	0	10	20	Adjust	
DTaP IPV	Glaxo	0420AA	3/06/2015	3	0	0	0		
	12 Single Dose	0420AA	3/06/2015	10	0	0	8		
	Total			13	0	0	8	Adjust	
IPV	Glaxo	0420AA	3/06/2015	14	0	14	13		
	12 Single Dose	0420AA	3/06/2015	14	0	14	14	Adjust	
	Total			28	0	28	27	Adjust	
PPSV	Glaxo	1421F	3/06/2015	14	0	14	13		
	12 Single Dose	1421F	3/06/2015	14	0	14	14	Adjust	
	Total			28	0	28	27	Adjust	

- Design rationale
- Error handling
- Policy considerations
- Usability best practices

## Audience

- Awardees considering new ordering and inventory tracking functions
- Awardees seeking to improve usability of existing functions

## Inputs

- Design observations
- Available training
- Small group discussions

# Why Develop the Catalog?

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- Address a need to make vaccine ordering and inventory functions easier for IIS users, particularly providers
- Provide awardees a best practice resource to guide their efforts in building easy to use systems based on industry standard usability guidelines
- Consolidate existing vaccine ordering and inventory best practices into an accessible resource



# Activity Timeline

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**OCT 2014:** Project Kick-off

**APR 2016:** AIRA National Meeting

**JUN-AUG 2015:** Small Group Discussions

**OCT 2015-JAN 2016:** Review and Feedback

**JAN 2016:** ExIS UBPC Flu Prebook Demonstration

**FEB 2016:** AIRA Webinar

**FEB 2016:** ExIS  
UBPC Publication

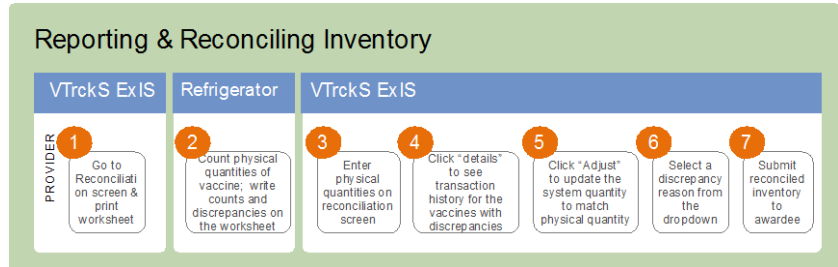
# Usability Best Practices Catalog

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    - ☰ Wireframes
    - ☰ Special Considerations
    - ☰ Interaction Details
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  - ▶ Adjusting Vaccine Inventory
  - ▶ Reporting and Reconciling Inventory
  - ▶ Ordering Vaccine
  - ▶ Approving Vaccine Orders
- ▼ Flu Prebook Workflows
  - ▶ Setting Up Vaccines
  - ▶ Prebooking and Approval
  - ▶ Allocating Vaccine
- ☰ Usability Best Practices
- ☰ Rollout Considerations

## Sample Workflows



## Sample Wireframes

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You are logged in as: Jonesboro Health Department - Westside | PIN 377111

Home | Inventory | Reconcile

Inventory

Transaction Report Refrigerator Worksheet

Inventory from 07/01/2015 to 08/04/2015

Lost or Unaccounted For: 1% (up to 5% allowed)

Vaccine	Lot # & Exp Date	Starting Inventory	Received	Admin	Other	On Hand	Physical Count	Discrepancy	Action
DTaP Daptacel 10 Single Dose Vials NDC: 50181-0282-11	UI171AC 9/22/2016 UI180RL 8/30/2015 ⚠	160 40	100 0	-110 -38	-13 0	137 2	136 2	-1 0	5 Adjust Adjust
DTaP IPV H Pentacel 5 Single Dose Vials NDC: 50181-0282-11	Lot #: UI171AC Expiration Date: 09/22/2015								Adjust
HPV4 Gardasil 10 Single Dose Vials NDC: 50181-0282-11	Adjust: 1 dose(s) Reason: —Select—								Adjust
PPSV Pneumovax 10 Single Dose Vials NDC: 50181-0282-33									Adjust

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Cancel OK

Cancel Save Submit Inventory

# Prevent Errors → Improve Data Quality

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- Upload and populate valid values from trusted sources
- Use data entry controls instead of free text fields
- Perform field level validation

# Prevent Errors → Improve Data Quality

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- Upload and populate valid values from trusted sources
  - *VTrckS Shipment Data File* – NDC's, lot numbers, expiration dates, quantities
  - *Federal Vaccines List* – NDC's, lot numbers available for ordering
- Use data entry controls instead of free text fields
  - E.g., calendar control for dates
- Perform field level validation
  - Prevent users from entering values that are not valid

# Example: UI for Receiving Shipments

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## Receive Shipment

You are logged in as: Jonesboro Health Department - Westside | PIN 377111

[Home](#) > [Orders & Transfers](#) > Receive Shipment

EXIS Order #: 0055    VTrckS Order #: 1234    Type: VFC    Order Date: 10/21/2015    [Order History](#)

Order Line # / Vaccine	Doses Ordered	Lot #	Exp Date	Doses Shipped	Doses Received	Temp	Action
DTaP Series							
<b>1. DTaP</b> Daptacel® 10 pack - 1 dose vial NDC: 49281-0286-10 <a href="#">Tracking #s</a>	30	NR20333	01/30/2017	30	<input type="text" value="20"/>	<input type="text"/>	receive
<b>2. DTaP IPV</b> Kinrix® 10 pack - 1 dose vial NDC: 56160-0812-11 <a href="#">Tracking #s</a>	20	QB49022	01/1/2017	20	<input type="text" value="20"/>	<input type="text"/>	receive
<b>3. DTaP-Hep B-IPV</b> Pediarix® 10 pack - 1 dose syringe NDC: 58160-0811-52 <a href="#">Tracking #s</a>	60	34211BB	04/10/2016	60	<input type="text" value="60"/>	<input type="text"/>	receive
<b>4. DTaP-IPV-HIB</b> Pentacel® 5 pack - 1 dose vial NDC: 49281-0510-05 <a href="#">Tracking #s</a>		18433AV	03/30/2017	50	<input type="text" value="50"/>	<input type="text"/>	receive
				50	<input type="text" value="50"/>	<input type="text"/>	receive
<b>5. Hepatitis A Pediatric</b> Havrix® 10 pack - 1 dose syringe NDC: 58160-0825-11 <a href="#">Tracking #s</a>					<input type="text" value="50"/>	<input type="text"/>	receive

Adjust Expiration Date

DTaP-Hep B - IPV Pediarix® 10 pack - 1 dose syringe

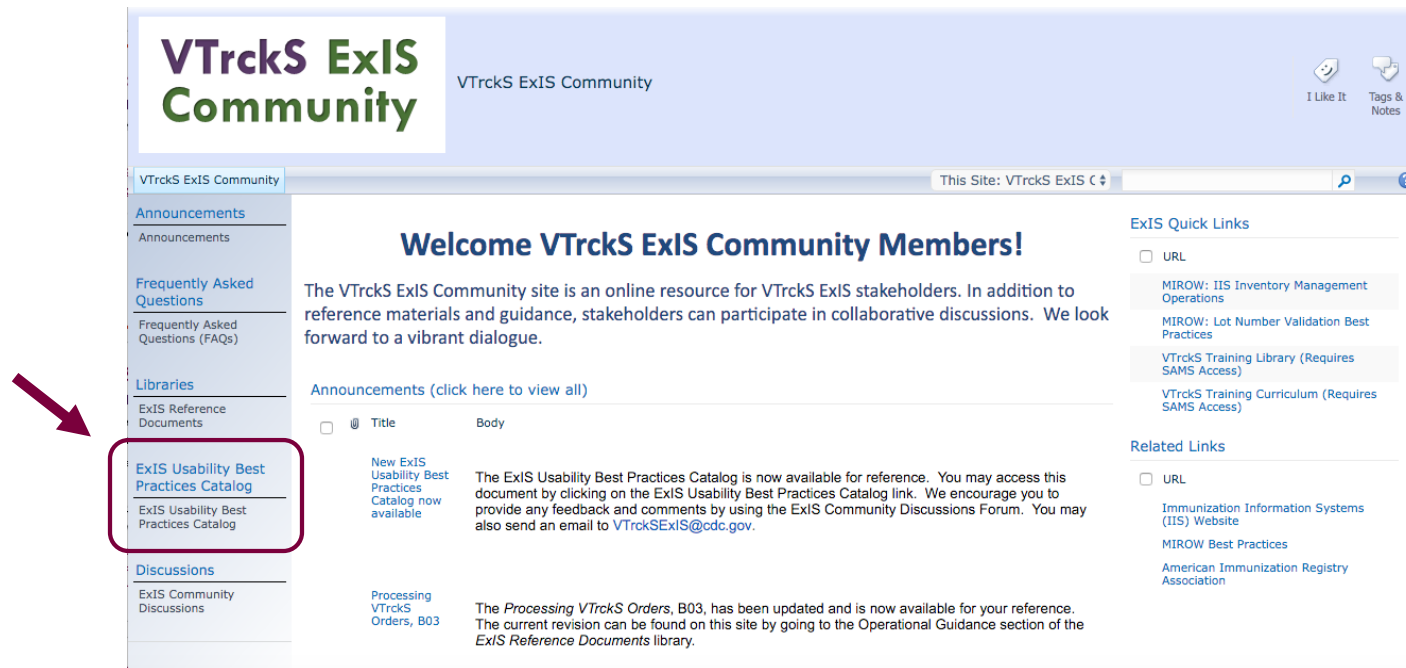
Exp Date:  /  /

OK

# How to Access the Catalog

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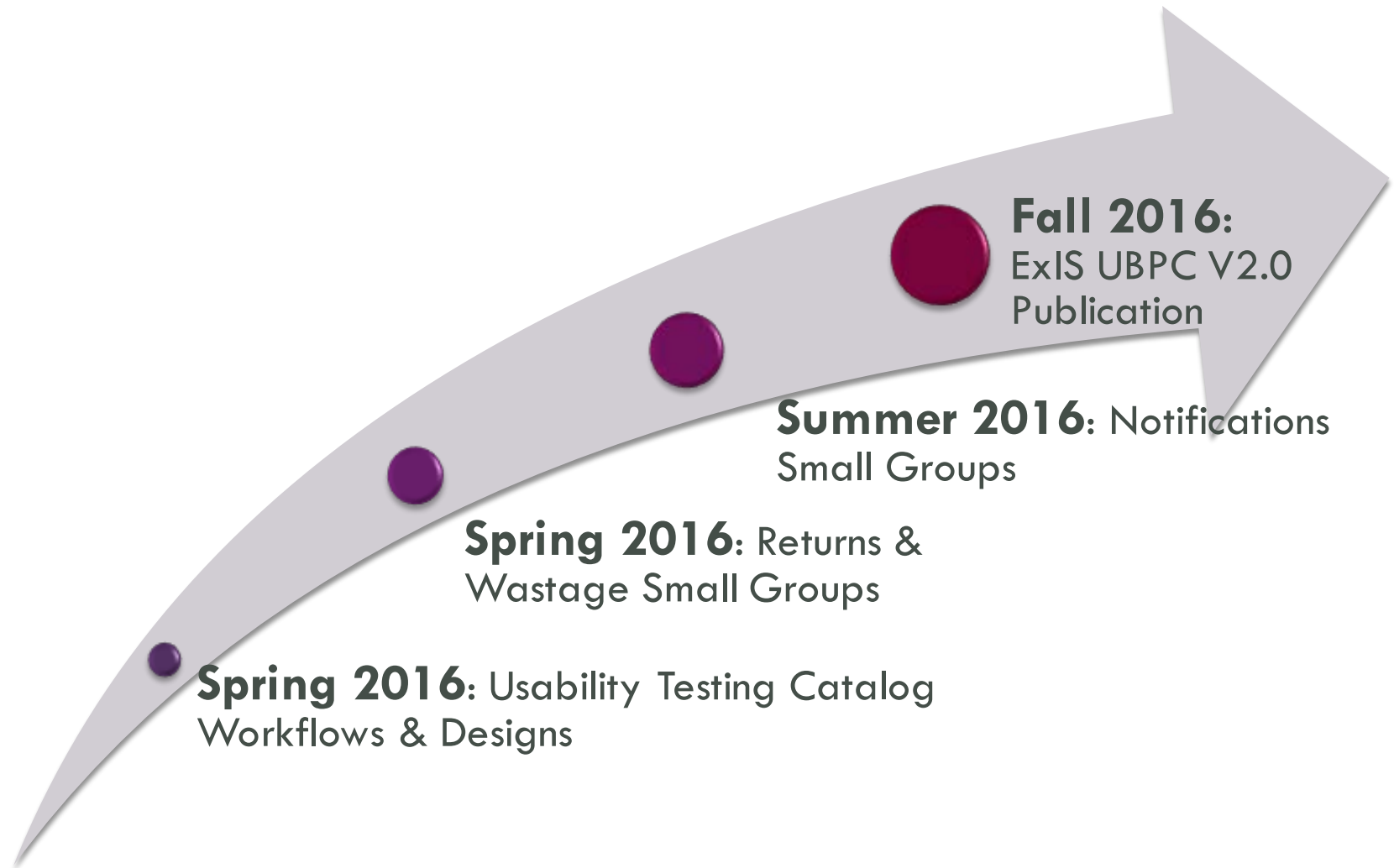
- ExIS Usability Best Practices Catalog is accessible via the VTrckS ExIS Community Site
- <https://partner.cdc.gov/Sites/NCIRD/VEC/default.aspx>



- If you want to join, send a request to [VTrckSExIS@cdc.gov](mailto:VTrckSExIS@cdc.gov)

# Future Plans

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# Additional Resources

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*AIRA Introduction to the VTrckS ExIS Usability Best Practices Catalog* recorded webinar

<http://www.immregistries.org/events/2016/02/29/introduction-to-the-vtrcks-exis-usability-best-practices-catalog-webinar>



# Learn More About Usability

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- Are you interested in learning more about usability testing?
- Are you interested in participating in a usability test of select ExIS Usability Best Practices Catalog prototypes?
- If so, send a message to [VTrckSExIS@cdc.gov](mailto:VTrckSExIS@cdc.gov)

# Thank You!

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Send questions to [VTrckSExIS@cdc.gov](mailto:VTrckSExIS@cdc.gov)

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