National Center for Immunization and Respiratory Diseases (NCIRD)

Modernizing Vaccine Management

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Presentation Objective

- To describe NCIRD’s strategic approach to improving the oversight, management and accountability of CDC’s immunization program including:
  - Centralized Vaccine Distribution
  - Vaccine Tracking System (VTrckS)
  - Immunization Information Systems (IIS)
  - HANA – Advanced Data Analytics Platform
Agenda

- Background
- Centralized Vaccine Distribution
- Vaccine Tracking System (VTrckS)
- Immunization Information System (IIS)

Moving Forward
- The Power of Information
- Hana – Advanced Data Analytics Platform
Program Background: Modernizing Vaccine Management

Vaccine Management Business Improvement Project
Centralized Vaccine Distribution: Overview

- Previous Distribution Model:
  - 64 independent distribution systems – 60% commercial distributors, 40% in-house
  - 400+ depots nationwide
  - Some providers required to pick-up vaccine
  - High risk of vaccine cold chain errors

- Transition to centralized, commercial distributor began in February 2007 and was completed in June 2008.

- Current Model
  - Vaccines are now distributed from two national locations
  - Eliminates need for multiple state and health department depots
  - Reduces storage risks and distribution costs
Centralized Vaccine Distribution

Benefits:

• Decrease in the overall size of the inventory
• Vaccine delivered directly to provider from distributor
• Increase in federal visibility to vaccine
• Vaccine insured prior to/during distribution
VTrckS High-Level System Landscape

- Direct Order Entry
- ExIS
- VACMAN (legacy)
- VOFA (legacy)
- NIPVAC (retired)

CDC Infrastructure Supporting VTrckS

Manufacturers

Distributor (McKesson)

UFMS
Vaccine Tracking System (VTrckS): Overview

Vaccine Tracking System (VTrckS)
- An integrated system that supports end to end vaccine management
- Standardized and automated system that supports on-line provider ordering
- Business rules facilitate grantee order review
- Provides monitoring and replenishment of CDC’s vaccine inventory
- Manages CDC’s vaccine purchase contracts, state vaccine budgets and spending plans
- Near real-time inventory visibility and order status
- Improved operational efficiency and controls

Internal Efficiencies
- Improved funds management processes
- Improved inventory management results in enhanced visibility and significant savings
- Reduced administrative processes

Stockpile
- Migration of part of the Pediatric Vaccine Stockpile from the manufacturer to the distributor
- Improved preparedness capabilities for public health crises
**Vaccine Tracking System (VTrckS):** High-level milestones & accomplishments

- **Development Began**
- **VTrckS Released to 4 Pilot Grantees**
- **Spend Plan & Full VTrckS Deploys to Pilots**
- **Spend Plan & Full VTrckS Deployment Began**
- **Spend Plan Deployment Complete**
- **VTrckS Deployment Complete**

**VTrckS Go-Live Was December 13, 2010**
- 4 pilot grantees used VTrckS directly
- Orders from remaining 58 grantees interfaced through VTrckS
- Back office legacy system was retired, Funds, contracts, and inventory management was transitioned to VTrckS

**Spend Plan & Full VTrckS Deployment Began May 1, 2012**
- Spend Plan was deployed to all 62 grantees by Aug. 1
- Full VTrckS solution was deployed to all grantees by June 2013
- Forecasting legacy system was sunset in Oct. 2012 & Front End legacy systems were sunset in Oct. 2013
VTrckS O&M Leadership Update Report – as of 5/7/2015

### Order Type

<table>
<thead>
<tr>
<th>Order Type</th>
<th># of Orders</th>
<th>$ Amount</th>
<th>Open 30 days</th>
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</thead>
<tbody>
<tr>
<td>Purchase Orders</td>
<td>3,077</td>
<td>$12,776,996.00</td>
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<tr>
<td>Sales Orders</td>
<td>6,055</td>
<td>$54,782,310.69</td>
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<tr>
<td>Returns</td>
<td>1,263</td>
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</table>

### Total number of Vaccine Orders, Vaccine Doses and Dollars entered into VTrckS

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Total Orders</td>
<td>= 5,075,062</td>
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<tr>
<td>Total Doses</td>
<td>= 384,256,454</td>
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<tr>
<td>Total Dollars</td>
<td>= $16,731,447,735.84</td>
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### VTrckS EDI Reconciliation W/E (5/3/2015)

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<th>Order Type</th>
<th>Count</th>
<th>Details</th>
<th>Count</th>
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<tbody>
<tr>
<td>Sales Orders to McKesson</td>
<td>5,644</td>
<td>ASN’s from McKesson</td>
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<tr>
<td>Purchase Orders to Manufacturer</td>
<td>3,112</td>
<td>Total IDOC Errors during Report Period</td>
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<tr>
<td>Sales Orders Confirm. from McKesson</td>
<td>5,617</td>
<td>Total IDOC Errors Remaining Open</td>
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<td>Order Changes to McKesson</td>
<td>514</td>
<td>Total IDOC to EDI Messages</td>
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<td>Goods Movement from McKesson</td>
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<td></td>
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<td>Total IDOC Errors during Report Period</td>
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<tr>
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<td>Total IDOC Errors Remaining Open</td>
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<td>Total IDOC to EDI Messages</td>
<td>0</td>
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<tr>
<td>Year</td>
<td>Total Orders</td>
<td>Total Doses</td>
<td>Total Dollars</td>
</tr>
<tr>
<td>------</td>
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<tr>
<td>2010</td>
<td>61,916</td>
<td>2,959,092</td>
<td>$132,242,513.17</td>
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<td>2011</td>
<td>1,825,947</td>
<td>93,013,292</td>
<td>$3,849,642,901.22</td>
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<td>2012</td>
<td>1,726,915</td>
<td>89,024,032</td>
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<td>2013</td>
<td>745,260</td>
<td>90,805,296</td>
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<td>2014</td>
<td>573,314</td>
<td>86,517,963</td>
<td>$3,990,665,423.91</td>
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<td>2015</td>
<td>141,710</td>
<td>21,936,779</td>
<td>$1,189,774,512.82</td>
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Vaccine Tracking System (VTrckS): Key Success Factors and Lessons Learned

Key Success Factors
- Engaging directly with all key internal and external stakeholders in initiation, planning and execution phases
- Expediting the transition of awardees to VTrckS
- Continuous communication with grantees and contractors
- Providing direct onsite/phone support to awardees during go live through implementation of Tiger teams (CDC staff, contractors) & Command center (including SAP consultants and CDC staff on phone)
- Ongoing VTrckS training for awardees
- Leveraging stakeholder support and consistent feedback

Lessons Learned
- Engaging the right stakeholders throughout the project lifecycle, particularly the development phase
- Identifying technology infrastructure requirements upfront to exchange business transaction data to internal and external stakeholders
- Changing the labels in the user interface, resulting in an overall better end user experience and adoption
Challenges

• Resistance to Change
• Gaining Buy-in
• Perceived Loss of Control
• Knowing What You Don’t Know!
• Expectation Setting
Immunization Information Systems (IIS): IIS Strategy

Vision for the Future of IIS
“Real time, consolidated immunization data and services for all ages are available for authorized clinical, administrative, and public health users, and consumers, anytime and anywhere.”

To further enhance IIS, NCIRD launched the creation of the IIS Strategic Plan in October 2012.

Objectives of the IIS Strategic Plan:
- To serve as a guide for NCIRD’s future investment decisions
- To strengthen the use of IIS to help NCIRD and awardees gain better insights into vaccine coverage, trends, and needs nationwide

The IIS Strategic Plan presents short-, mid-, and long-term goals and initiatives across five focus areas, nationwide leadership, sustainability, service delivery, capacity/infrastructure, and interoperability/data management.
Moving Forward: HANA- Advanced Data Analytics Platform

- **What is SAP HANA?**
  - In-memory data platform for performing real-time analytics, and developing and deploying real-time applications.

- **Advanced Data Analytics Objectives**
  - Improve advanced real-time scalable data analytics capacity and capability for NCIRD programs
  - Provide a platform for rapid data analysis for large (big) data for various programs in the Center as a shared service
  - Ability to integrate multiple data sources irrespective of data types and formats

- **Expected Benefits of Platform**
  - Enable awardee reports (used for immunization management) to be more scalable and timely
  - Establishes capability to process (more efficiently) immunization record info used to inform immunization best practices
  - Able to derive new insights (predictive analysis) from multiple data sources which can be integrated in the platform in a standardized manner
Moving Forward: The Power of Information

- Immunization Management Technology Highway

![Diagram with HANA, IIS, VTrcks, and Centralized Distribution (CD)]
Thank You!