VTrckS:
How Technology is Transforming CDC's Vaccine Delivery System

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Presenter Disclosures

- The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

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Discussion Points

- Introduction to the Vaccines for Children (VFC) Program and the Vaccine Tracking System (VTrckS)
- VTrckS Functionality and Benefits
- Electronic Data Interchange (EDI) in VTrckS
- External Information System (ExIS) Demand
- Managing a Public Health Crisis
- Wrap-up

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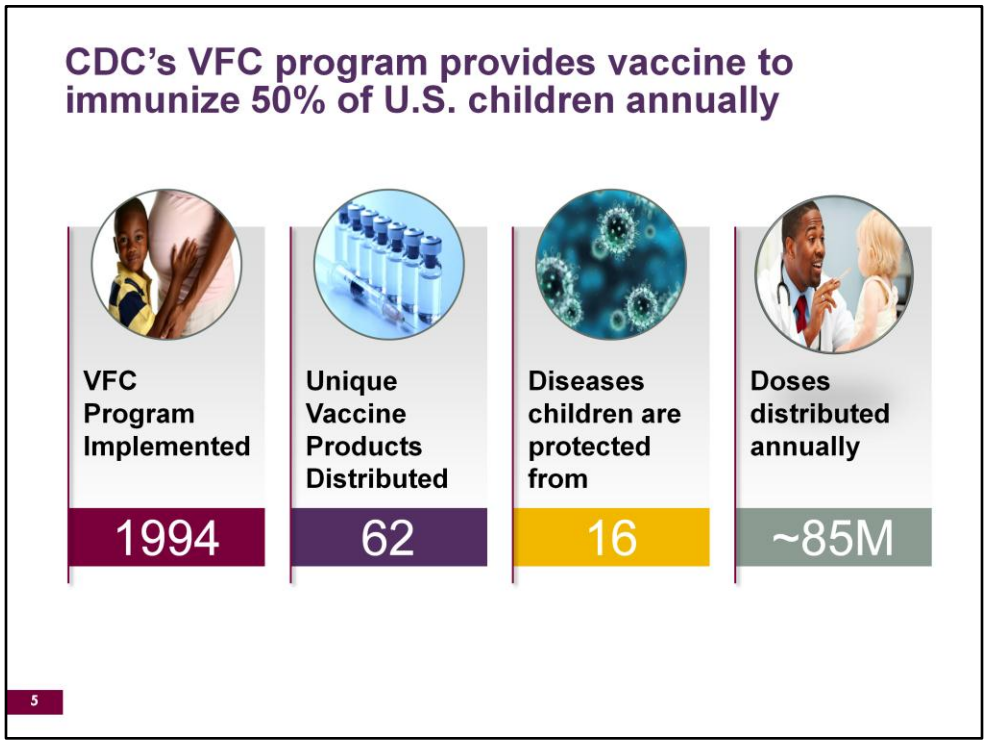
The VFC Program and VTrckS



Point 1: VFC Program

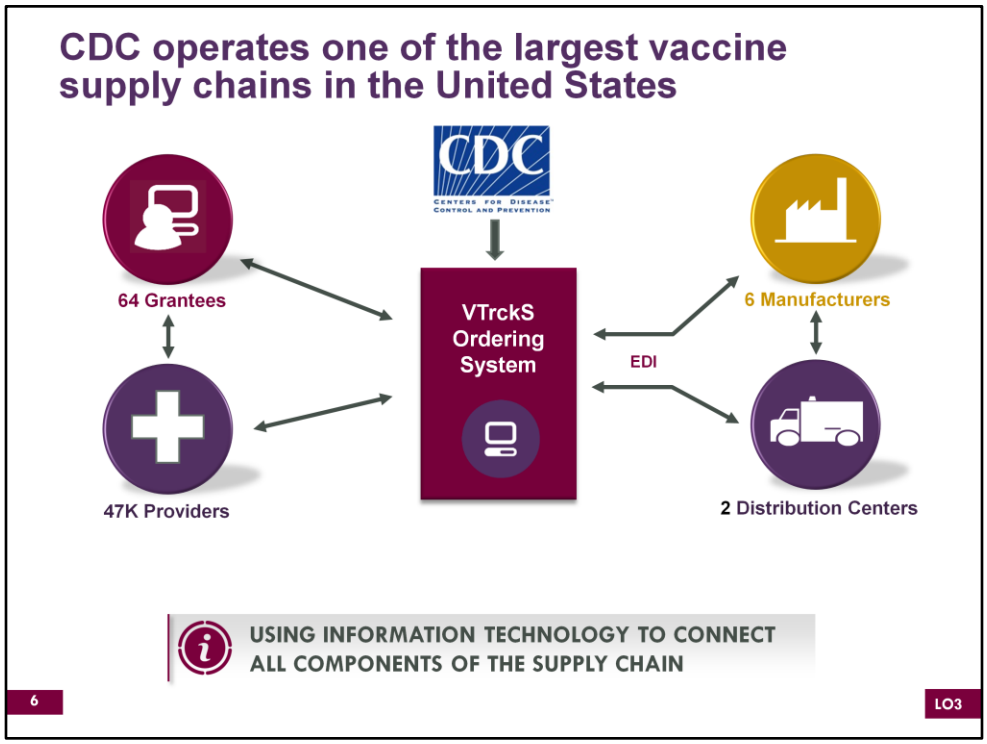
- VFC was created by the Omnibus Budget Reconciliation Act of 1993 as a new entitlement program to be a required part of each state's Medicaid plan. The program was officially implemented in October 1994.
- The VFC program is a federally funded program that provides vaccines at no cost to children who might not otherwise be vaccinated because of inability to pay. CDC buys vaccines at a discount and distributes them at no charge to private physicians' offices and public health clinics registered as VFC providers.
    - Children who are eligible for VFC vaccines are entitled to receive pediatric vaccines that are recommended by the Advisory Committee on Immunization Practices. This helps ensure that all children have a better chance of getting their recommended vaccinations on schedule.
    - Children through 18 years of age who meet at least one of the following criteria are eligible to receive VFC vaccine: Medicaid Eligible, American Indian or Alaska Native, Uninsured or Underinsured.

Point 2: There are **62 unique vaccine products** distributed through the VFC program this year.

Point 3: VFC provided vaccines protect babies, young children, and adolescents against **16 diseases** (e.g., Measles, Pertussis, Varicella, Hepatitis B).

Point 4: Approximately **85 million doses** are distributed annually through the VFC program.

With such a high volume of orders and doses being processed, it is essential to provide a vaccine tracking system that can connect all of the components of this process from ordering to shipment and delivery, to ensure providers are able to provide vaccine to their VFC eligible patients.



CDC operates one of the largest vaccine supply chains in the United States in support of the VFC Program.

Point 1: This supply chain connects 64 immunization programs; over 47,000 provider sites; six vaccine manufacturers; and 1 distributor with 2 distribution locations.

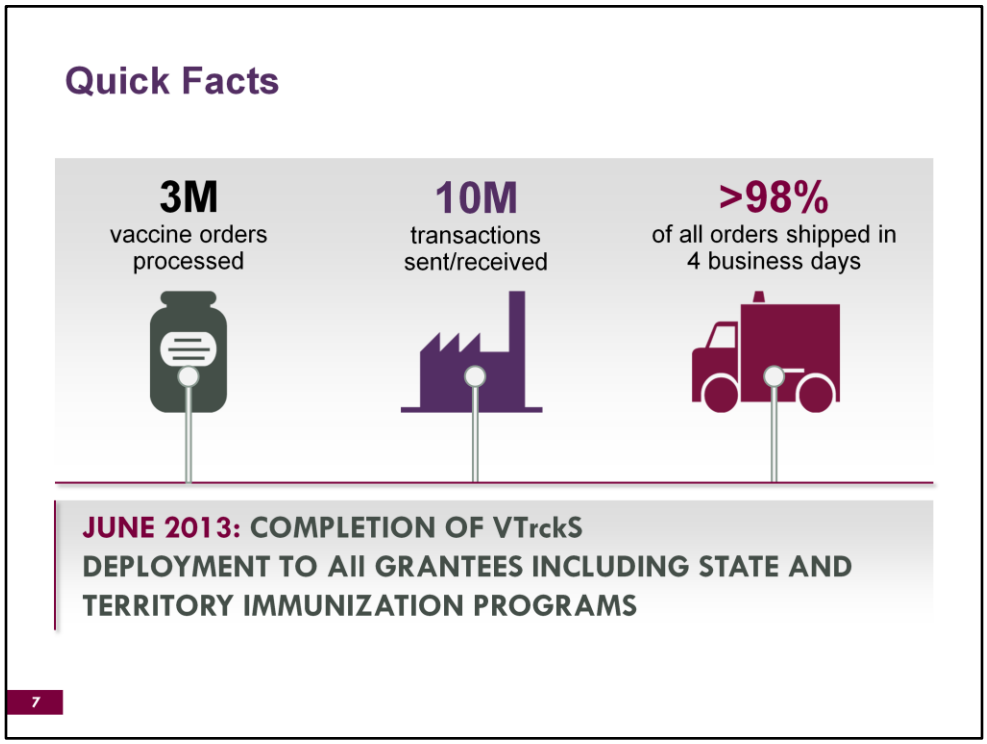
Point 2: VTrckS (vaccine tracking system) is a secure, information technology system that integrates the publicly-funded vaccine supply chain from purchasing and ordering to distribution of the vaccine for CDC grantees and health care providers.

- VTrckS is part of a larger effort to modernize and transform CDC's vaccine delivery system known as the Vaccine Management Business Improvement Project (VMBIP)
- It is a web-based, centralized vaccine tracking system
- Its scope includes order entry and order management, forecasting, budget management, and contract management

Point 3: VTrckS was developed out of a need to upgrade CDC's vaccine management legacy systems dating back to 1993 that include the Vaccine Management System (VACMAN) , National Immunization Program Vaccine Tracking System (NIPVAC) , and Vaccine Ordering and Forecasting Application (VOFA).

Point 4: VTrckS is integral to supporting current and future requirements for effectively managing and distributing publicly-funded vaccines.

Point 5: Once fully deployed, VTrckS will support ~100,000 end users located at ~47,000 participating provider sites.

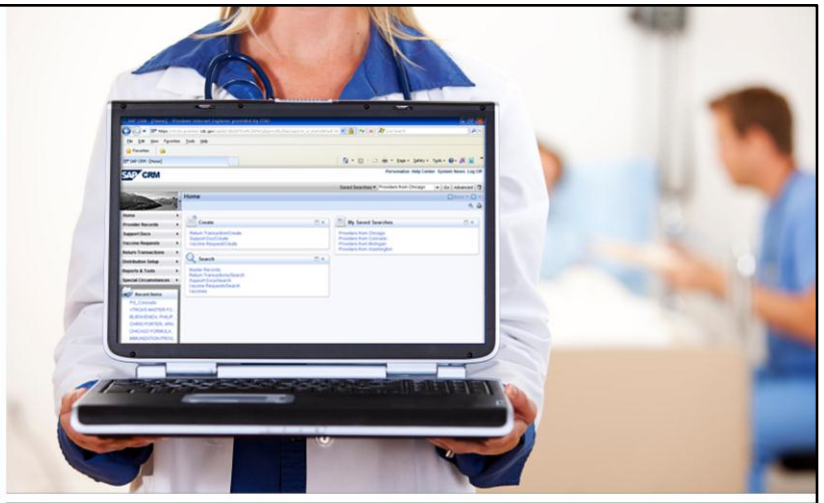


Point 1: Over 3 million orders have been processed through VTrckS to date (since December 2010 VTrckS Go-Live).

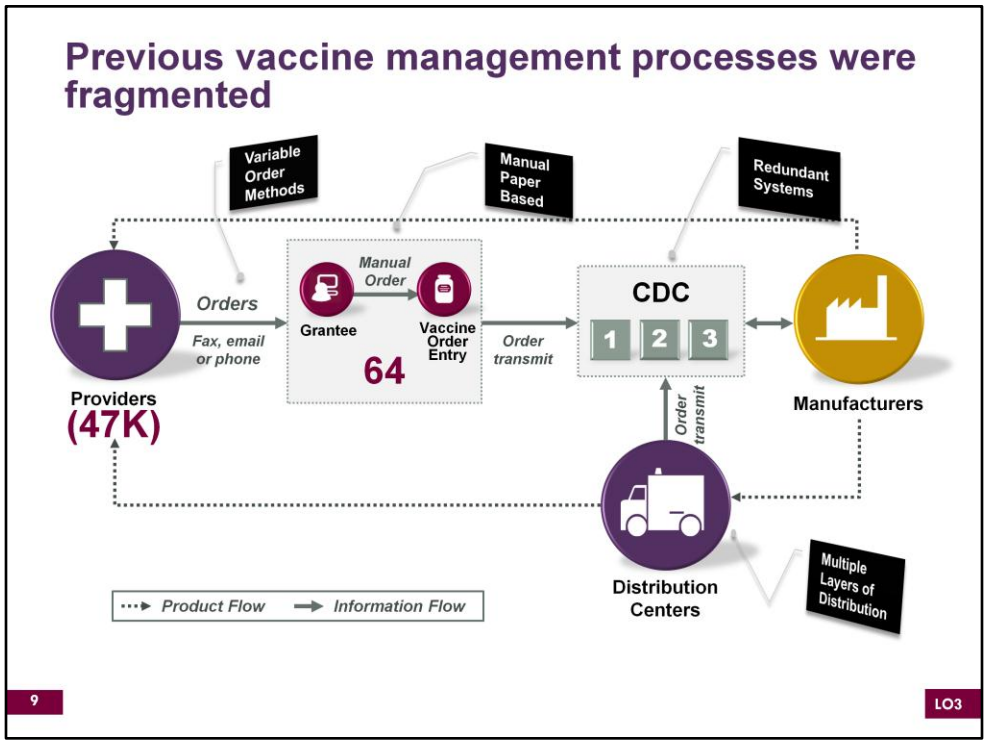
Point 2: A high volume of transactions or messages (e.g., orders) flow through VTrckS (via the EDI hub) on a daily basis. Over 10 million inbound/outbound transactions have been sent/received since VTrckS went live December 2010. Further discussion of EDI hub on slide 12.

Point 3: At least 98.75% of all orders ship in 4 business days. Thus far in 2012, CDC has shipped **98.9%** of all orders within 4 business days.

Point 4: VTrckS is currently being deployed to grantees (i.e., state and territorial health departments/immunization programs), and is set to deploy to all grantees by June 2013.

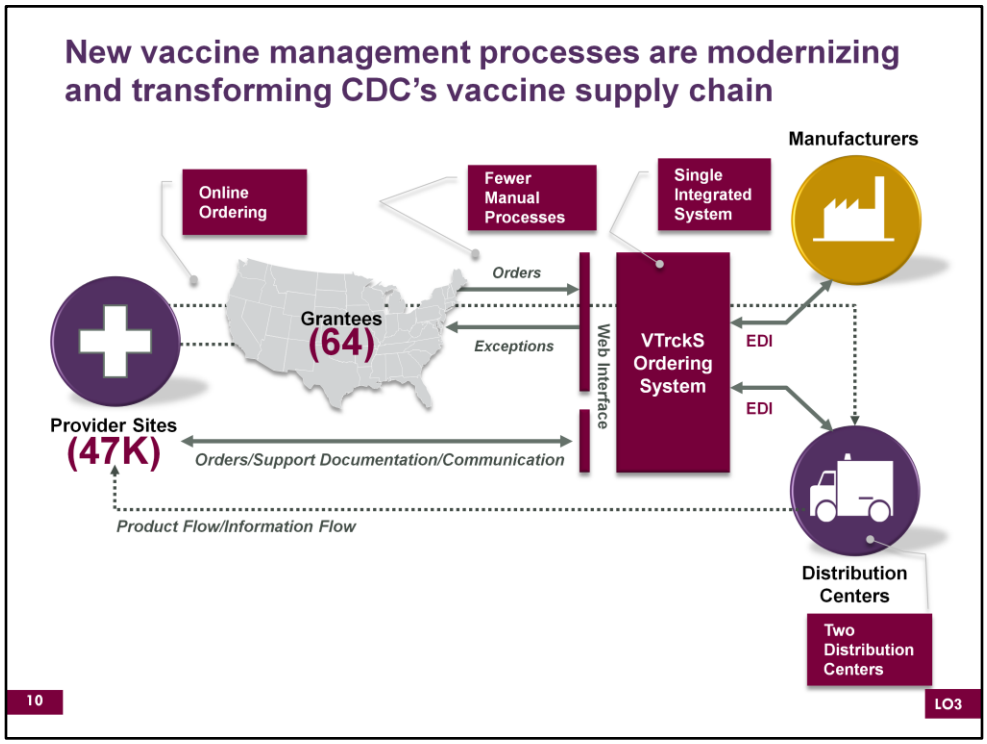


VTrckS Functionality and Benefits



Challenges with Previous Vaccine Management Processes

- Included variable ordering methods such as fax, phone, mail, and file transfer
- Focused on low technology which were highly manual and paper-based
- Required data to be processed by multiple systems and infrastructure (VACMAN, VOFA, and NIPVAC which was discussed on slide 6)
- Provided less visibility into inventory and ordering
- Resulted in lower accountability requirements



Point 1: VTrckS supports improved vaccine management processes by offering a secure system that provides improved visibility into vaccine order and shipment status and health care provider inventory

- Fewer Manual Processes - This integrated, real-time system enhances the ability to manage all aspects of the vaccine supply chain while reducing manual processes. Examples: monitoring of spend plan on a daily basis if needed; development of vaccine formulary by provider or provider groups; and visibility into status of vaccine returns to the manufacturers
- Online Ordering - Standardized and automated system supports on-line provider ordering directly into VTrckS or via the grantee's External Information System (ExIS)
- Single Integrated System supports end-to-end vaccine management - 1 centralized electronically managed vaccine inventory, 1 centralized funding account for vaccine purchase, 1 supply chain, and 2 distribution locations to support the flow of vaccine.

Point 2: VTrckS stakeholders have benefited in other ways

CDC Benefits

- Increased visibility and monitoring of the national vaccine inventory
- Increased safety response: Vaccine lot numbers can be tracked to specific provider sites in response to a vaccine recall – previously the information was sent by grantees. Now, CDC has this information "at their fingertips" through VTrckS
- Better visibility and integrated management of vaccine purchase contracts, state vaccine budgets and grantee spend plans

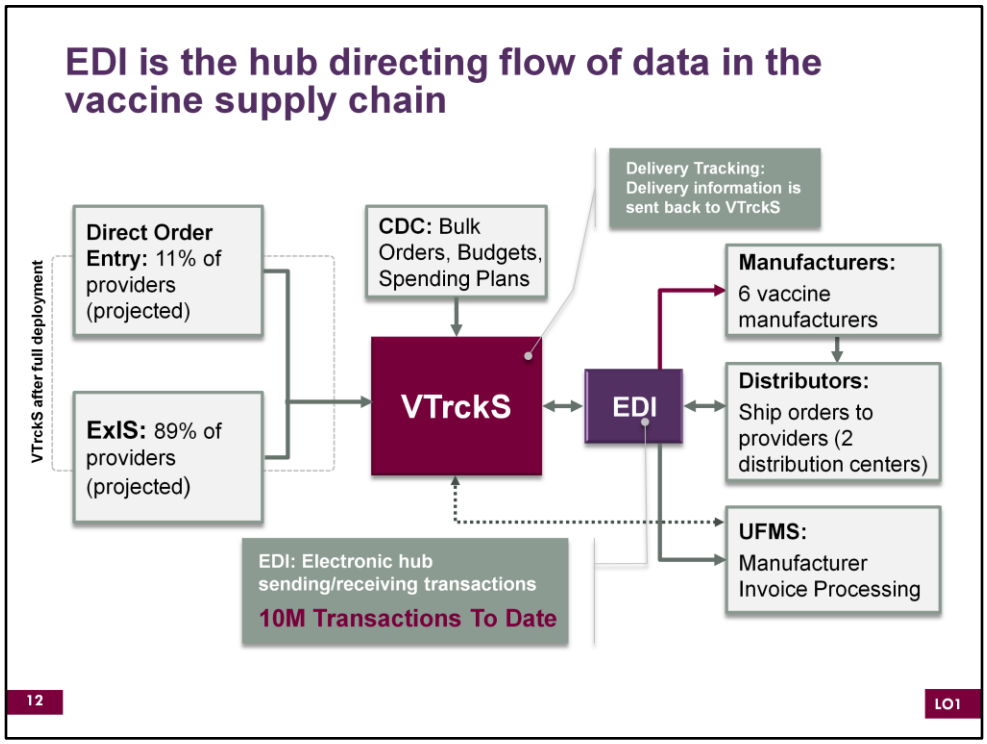
Grantee Benefits - including increased grantee autonomy to manage vaccine processes in VTrckS

- Vaccine Order Review - Flexible business rules facilitate order review allowing grantees to evaluate provider orders if they do not pass pre-determined criteria set by the grantee or CDC (e.g., number of doses ordered, how many times a provider orders within a specified time period, type of vaccine ordered)
- Ability to develop and manage spend plans and vaccine formulary
- Real time inventory visibility and order status
- Increased accountability at provider location with requirement of submitted inventory on hand and returns data
- Ability to upload vaccine orders from their ExIS to VTrckS

Provider Benefits

- Easy online shopping cart style ordering process
- Increased ability to manage provider delivery data online
- Ability to track vaccines from the time the order is placed to delivery at their facility
- Ability to submit support documentation including inventory on-hand, doses administered, and temperature logs

VTrckS Electronic Data Interchange



What is EDI?

- Electronic Data Interchange (EDI) is the hub that directs the flow of data between all of the systems/components involved in this high-volume vaccine supply chain.
- Without its EDI component, VTrckS could not efficiently process such transactions as sending vaccine orders to our manufacturers and distributor, receiving confirmations back to verify orders and shipments, or manage inventory.
- EDI support services are provided by CDC's Management Information and Services Office (MISO). Services include:
  - Robust architecture for EDI messaging to/from vaccine manufacturers and the distributor – Biztalk infrastructure support for development, testing, staging, and production; also, infrastructure to support recovery
  - Expanded data exchange capabilities – New message types to manufacturers (e.g., returns, return changes, credit memos)
  - Integrated internal controls – (e.g., report that shows messages that have not been acknowledged by a trading partner)
  - Reporting and monitoring tools – Inquiries/reports that show the total number of messages by message type, by trading partner

EDI Processes

1. The process begins with the submission of data (e.g., vaccine orders) from the grantees and providers into VTrckS

- VTrckS supports two methods for data submission:
  - **Direct** – Providers/Grantees enter orders directly into VTrckS
  - **External Information System (ExIS)** – An ExIS is an external information system that captures and stores vaccine inventory and order information. Providers enter orders into their grantee's ExIS (e.g., immunization registry) and the ExIS then interfaces with VTrckS. ExIS uploads include: Provider Master Data, Inventory On Hand, and Provider Orders. ExIS downloads are available for downloading shipment information from VTrckS into the grantee's ExIS

2. All Orders (transaction details) are processed through VTrckS.

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3. EDI (Electronic Data Interchange): Functions as an electronic hub to send and receive transaction details to and from other systems in the supply chain.

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4. Order requests are sent to the manufacturer (e.g., for direct-ship orders – frozen vaccine) or to the distribution center for non-direct ship orders. Orders are then shipped to the provider. Delivery dates and tracking information is sent back to VTrckS for reference

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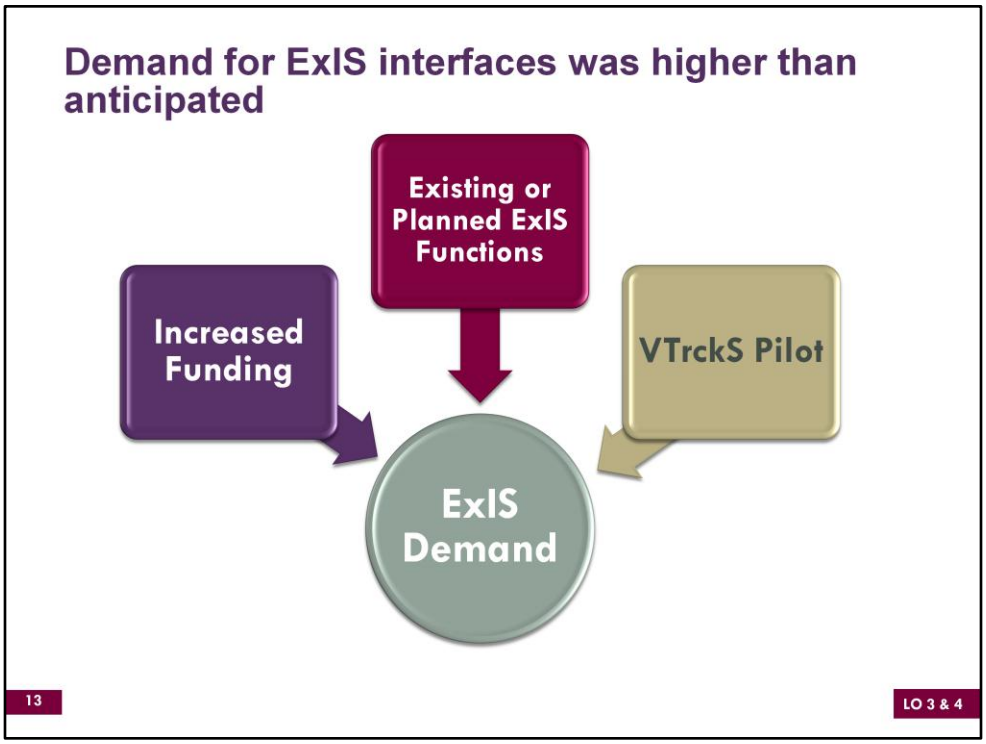
5. CDC places orders with vaccine manufacturers to replenish inventory at the distributor that will be used to fulfill provider orders. Invoices are sent from the manufacturer to United Financial Management System (UFMS) directly. VTrckS confirms receipt so that invoices can be paid. UFMS is an HHS System and the financial system of record.



Point 1: VTrckS Pilot Project

- VTrckS was piloted with 4 grantees, 2 VTrckS Direct and 2 ExIS. As a result of the pilot, grantees became more aware of the capabilities of the system. To date, 45 of the 64 grantees have declared their intent to submit data to VTrckS via an ExIS.

Point 2: Existing or Planned ExIS Functions

- Before the pilot, a number of grantees already had or were planning to support online vaccine ordering and inventory tracking through their ExIS (e.g., an immunization registry).
- For these grantees, the ExIS solution made a lot of sense since it would eliminate the need for providers to learn another system to order vaccine and track inventory. Building on to their existing system also means that they can maintain a single point of contact with providers.

Point 3: Increased Funding

- 32 immunization programs are receiving federal funding to create an interface between their ExIS and VTrckS.

ExIS Functionality/Process for Providers and Grantees

- **Providers**
  - Record inventory on-hand
  - Order vaccines
- **Grantees**
  - Approve orders
  - Generate and upload data files
  - Upload and download shipment data
  - Manage rejected orders
  - Reconcile orders

Benefits to using ExIS approach

- Autonomy: Grantees can build in their own controls and requirements
- Providers already or will soon enter orders and track inventory through their ExIS
  - No retraining for providers on VTrckS
  - Eliminates double data entry for grantee staff
- Grantees have their own process in place to grant providers access to their ExIS
- ExIS supports program's reporting needs

VTrckS in a Public Health Crisis

This new technology improves our ability to respond to a public health crisis

- Ability to quickly allocate vaccines
- Enhanced monitoring and tracking
- Proactive management of national shortage
- High-value decision making

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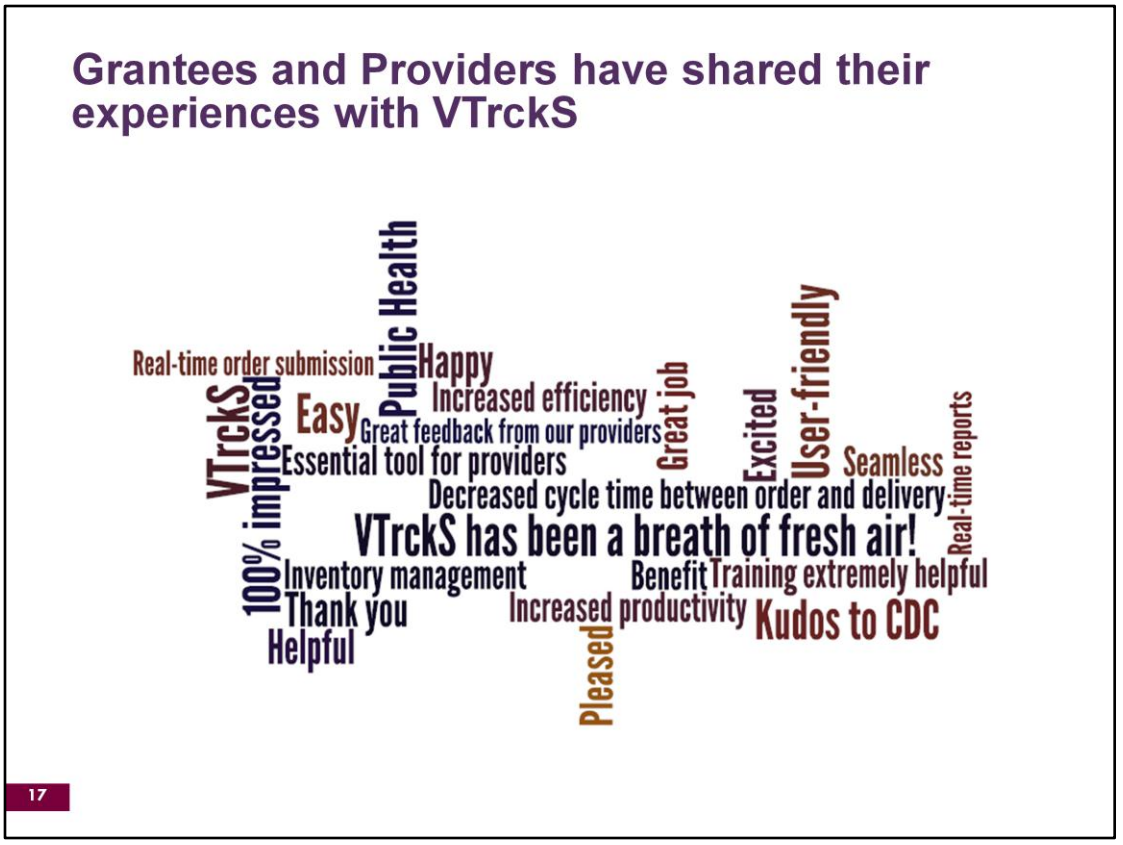
LO2

Point 1: Improved visibility into provider inventory levels allows CDC to quickly support allocation of vaccines with limited supply to grantees. In most cases, the vaccine would be re-allocated from the distributor to identified providers.

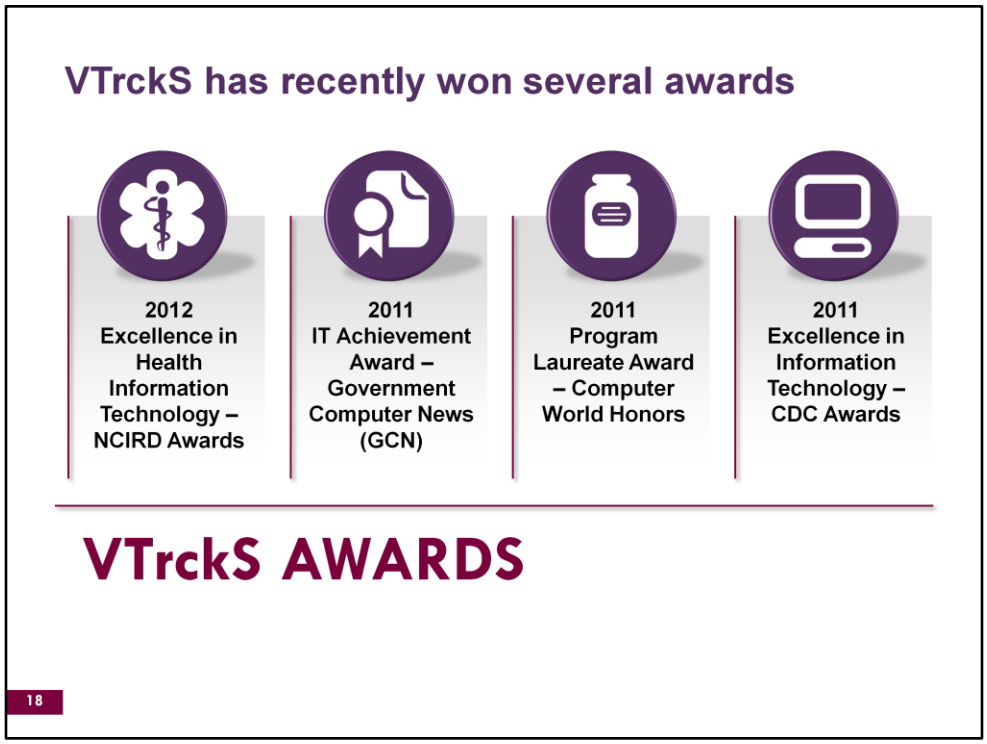
Point 2: Enhanced monitoring and tracking of ordering patterns at the health care provider level allows for improved modeling of vaccine need and use across grantees and providers, specifically in response to a vaccine shortage or a disease outbreak.

Points 3 & 4: This type of proactive management of a national shortage is just one example of how the ability to obtain real-time accurate reporting shifts the focus of public health resources from low-value data gathering efforts to high-value decision making.

VTrckS Wrap-up



Grantees have dedicated their time, resources, and energy to ensuring a successful transition to VTrckS for their staff and providers. As they deployed onto this new vaccine tracking system, they shared a few accolades with the CDC VTrckS team, recognizing the benefits VTrckS technology has to offer not only at the grantee level but also to their providers.



VTrckS has also been recognized by our external peers and working partners

2012 NCIRD Excellence in Health Information Technology: ***Grantee Budget Management Implementation*** recognized for providing outstanding planning and functionality within the CDC's Vaccine Tracking System (VTrckS)

2011 IT Achievement Award by Government Computer News received for driving down costs and empowering end users

2011 Program Laureate Award by Computer World Honors recognized for the innovative use of IT to conduct research and improve access to healthcare

2011 CDC Excellence in Information Technology Award recognized for excellence in information technology efforts that contribute to the effectiveness of a program, office, or center.

Additional Resources – Contact Information

- Paul Abamonte, VTrckS Change Management Team, CDC
  - Email: PAbamonte@cdc.gov
  - Phone: 404-639-8584
- www.cdc.gov/vaccines/programs/vtrcks/about.html

Appendix A: Learning Objectives

- LO1 - Define how electronic data interchange (EDI) is being used as an electronic hub to connect multiple delivery systems within the most complex vaccine supply chain in the United States
- LO2 - Describe how technology is enabling the CDC to project national vaccine demand based on actual data to quickly provide tactical support in the case of a nationwide epidemic
- LO3 - Describe how technology is being used to support nationwide standardization of vaccine ordering and delivery while still providing individual state immunization agencies autonomy to manage local health providers
- LO4 - Discuss why the demand for using external interfaces to link state immunization systems to VTrckS was much greater than ever anticipated and how that is affecting the support and roll out of VTrckS