Meet Our Speakers

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Conflicts of Interest

CAPT Kimberly Elenberg, DNP, MS
• Has no real or apparent conflicts of interest to report. Views are those of the speaker and not DoD or its components.

Roma Sonik
• Has no real or apparent conflicts of interest to report.
Agenda

1. DoD Vaccine Distribution Challenge & Data-Driven Solutions
2. Use Cases in practice
3. The future of enterprise clinical-supply chain integration: Where are we headed?
Learning Objectives

• Discuss how optimal supply chain management practices (e.g., between logisticians and supply chains) can minimize and address issues that may arise with vaccination rollouts
• Explain one way that data from supply chain can be integrated to healthcare data
• Identify three ways in which COVID-19 highlighted the urgent need to optimize supply chain management practices
Vaccination campaign had nationwide, time-sensitive goals

- **Goals of Operation Warp Speed**: Nationally deliver 300 million doses of a COVID-19 vaccine by January 2021
- Collaboration across HHS, DoD
- **DoD Goals**: 2.6 Million administrations by May 1st; prioritize availability in accordance to tiered approach
- Required collaboration across departments, agile deployment, and frequent feedback
DoD Mission & Context:

- Ensure **military readiness and provide information for decision support** to Secretary of Defense
- Ensure **continued execution of missions**
- **Protect** DoD Personnel
Vaccine distribution introduced new and varied challenges to the Department

1. **Open Loop to Closed Loop (Feedback Mechanisms)**
   - **Challenge:** COVID-19 Vaccine allocations provided through CDC and HHS; orders and internal controls required to optimize limited supplies

2. **Vaccine-Specific Requirements: Ultra-Cold Storage**
   - **Challenge:** identifying facility locations and meeting material flow requirements between stages of vaccine distribution

3. **Destination Site Distribution**
   - **Challenge:** Shipping vaccine outside of the U.S. and non-traditional vaccine distribution
Pulling Together Real-Time Operational Information
Advancing Analytics (Advana)

Common Operational Pictures Facilitate Decentralized Collaborative Planning and Assist all Echelons to Achieve Situational Awareness

- Cloud infrastructure
- Multi-tenancy support
- Fully-staffed service desk
- Sensitive data handling
- Information Fusion
- Data Sharing/ Prediction
COVID-19 Vaccine Distribution for new technical solutions

1. Open Loop to Closed Loop (Feedback Mechanisms)
   - **Solution:** Visibility into supply distribution to maximize utilization and availability
   - **Technical Tools:** Site-level comparisons of distribution and administration by commander

2. Vaccine-Specific Requirements: Ultra-Cold Storage
   - **Solution:** Identification of enterprise-wide storage capacity, administration capabilities, and eligible population
   - **Technical Tools:** Identify freezer sites, generate a radius function to determine the recipient population in area
   - Reverse supply chain capability to support reallocation
   - Develop a micro planning tool to identify optimal amounts of each type of vaccine to meet community needs and local storage capabilities

3. Destination Site Distribution
   - **Solution:** Support handoffs between multiple logistics partners despite multi-stage and multi-period logistics
   - **Technical Tools:** Creating/utilizing tools (e.g. SLEP) to standardize and track non-traditional administrations from ships, retirement homes, and other DoD specific requirements
   - Build out systems and tracking mechanisms to piece together gaps in data; variables made difficult to rely on data alone
COVID-19 Vaccine Distribution and Administration Tool
Health Organization Logistic Management Systems Need to be Agile

Ordering
- Capturing Service requirements
- Transmit to CDC VTrckS for ordering
- HHS Tiberius reflects allocation of vaccine orders received and shipped
- Tiberius platform validates and sends information, including stock source, to the DoD

Inventory
- CONUS and OCONUS have unique staging requirements
- Provider sites may be sites of opportunity
- Pandemic response required joining many systems: USAMMA-DOC, the Defense Logistics Agency, the Joint Medical Asset Repository and the Federal Shelf Life Extension Program mobile medical software

Patient Administration
- Personnel Data for all three components
- Initial tiered distribution guided by CDC eligibility criteria
- Transitioning electronic health record, varied Service immunization tracking systems, data from doses administered on the economy
- Adverse events reporting
- PII/PHI
Vaccine Application Features

- **Organization-Driven Architecture**
  Common linkages across sources, driven by organizational accountability structures

- **Agile Software**
  Allows quick-build out of visualizations and quick ingest of large amounts of data

- **Live API Integration & External Sources**
  FedEx/UPS API source for live integration

- **Drillable Detail**
  Transaction-level detail creates data accountability and generates user trust

- **Frequently updated data**
  Common cadence, frequent reloads, and clear date stamps

- **Documented Logic & Clear Definitions**
  Requires in-app documentation and user alerts for transparency
Development process for Vaccine Distribution and Administration Tool

The Advana development ethos: Iterative and agile development process allowing for flexibility in rapidly-changing environments

- Standardizing, unifying, and linking constantly-shifting data sources
- Identifying key metrics of interest despite program goals pivoting; force readiness and force health protection
- Partnering with experts to identify gaps in logic
Integration of disparate data sources generate unique insights:

- 2 Refreshes daily
- 23+ Data tables/sources
- 450+ Users
**Application Use Cases:**

**Military Treatment Facility Utilization Rates**

- Identify vaccine utilization at provider sites (treatment facilities or expeditionary forces)
- Tie to policies, on-site practices, and organizational process-improvements
- Tracking each site’s allocation, distribution, and administration created accountability
- As mission changed, insight remained clear: Minimized waste; optimized utilization; allowed redistribution prior to expiration

**Takeaway:** Site-level common picture allows leaders to pivot resources and deduce operational benefits
Application Use Cases: Key Demographic Insights

- Identify key demographics for support
- Phased-approaches by age group allows for planning on demand by tier
- Ensure equitable access and availability of vaccine and respond to expansion of new demographics as tiers progress

**Takeaway:** demographic-level data linked to supply chain creates actionable insights
Application Use Cases: National Support

- While providing FEMA Vaccine Mission Support across the States and Territories, insight into Military Treatment Facility utilization rates allowed the Department’s COVID-19 Task Force to monitor impact to the ability of DoD providers to administer vaccines.

- Takeaway: understanding internal processes allows for continued external support.
The vaccine application was leveraged for a number of use cases

1. Facility Utilization Rate
   Identification of site-level performance

2. Vaccination by Demographic
   Identifying gaps in accessibility & uptake rates

3. DoD-Supported Community Vaccination Centers
   Providing support for national efforts
Data insight allowed leadership to make key decisions about vaccine distribution.

95% utilization

Policy Insight
Insight to drive additional policy actions - 3 Policies or Genadims passed*

Provide support outside the Department
Able to support FEMA, MHS management, and national efforts because of insight to own programs

Identify key areas of improvement
Specific demographic uptake rates/hesitancy to target, replicable processes, or missing links
Impact of Supply Chain and Healthcare Data Integration

**Coordinated Response**
Enterprise planning is streamlined and smarter

**Agility**
Fast response and quick pivoting in changing environments

**Maximize Impact**
Reduce waste, meet unique needs of each community
Medical Logistic Data Management and IT System Preparedness

- Integrating clinical systems and supply chain systems creates accountability, encourages equitable health responses, and allows for agile response.
- Feedback and closed-loop mechanisms allow for responsive operations management despite massive scale.
- Data sharing encourages communication and streamlined responses across disparate providers.
- Optimized responses and cross-enterprise collaboration require visibility into internal systems.
Our Team & Key Contributors

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Questions?
Thank you!

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