Today’s topics

- Ron Pankiewicz, Village Reach
- GAVI Supply Chain Strategy
- Logistics requirements
- Logistics processes
  - Forecasting
  - Delivery
  - Ensuring product quality

Readings and Assignments

- Logistimo
- SMS For Life (to assigned)
- Assignment 5: Design a data collection system for a Visibility & Analytics Network
- Assignment 6: Develop a syntax for an SMS reporting system

GAVI Supply Chain Slides

Immunisation supply chain: an interconnected system involving flows of goods, funds and data

- Immunisation planning
- Data
- Records
- Reports
- Analysis
- Global supply chain
- Manufacturing & packing
- Global/country interface
- Shipping
- Vaccine delivery & waste
- Country supply chain
- Vaccine management
- Service delivery
- Health centres
- Sub-national stores
- National alone
- Supplies

ACCELERATING IMPACT 2016–2020

- Faster delivery
- More funds
- More impact
- Faster delivery
- More funds
- More impact

Gavi Alliance partners jointly developed a strategy, approved Gavi Board in June

The challenge will get greater: higher volumes, doses and vaccine cost
Supply Chain and Logistics

• Supply chain 101
  – Push process
  – Pull process

Global health logistics

• Large scale public sector
  – National scale distribution
  – Usually externally sourced products
  – Commercial or non-commercial goods
  – Multiple financing models
• Local logistics
  – Regional or NGO distribution of goods

Private sector

• We will ignore the private sector, but...
• Some LMIC engage private sector in logistics
• Some goods are available both in public system and in the markets
  – Parallel public and private networks

Basic logistics models

• Multiple levels
  – National
  – Regional
  – Facility
Logistics Requirements

• Requirement derived from country workshops and visits
• Country independent requirements
  - What is common across countries

Business processes

Computing and logistics

• Tracking
• Visibility of Inventory
• Management of Transactions
• Warehouse management
• Forecasting
• Alerts
• Supply chain optimization

Global health logistics vs. corporate

Proctor and Gamble
• Daily deliveries
• Centralized control
• Thousands of products
• End to end visibility

Tanzania EPI
• Quarterly or monthly deliveries
• Decentralized system
• Small number of products
• Single level visibility

Logistics challenges

• Service delivery – stocks not available
• Other issues
  – Overstock
  – Delivery timing
  – Lost stock and spoilage
  – Transportation costs
Causes of stock outs

• Insufficient overall supply
• Misallocation
• Lack of funds
• Lack of transport
• Demand variation
• Delay in transport
• Improper ordering
• Spoilage
• Leakage

Visibility and analysis

• Goals
• Components
  – Planning
  – Delivery
  – Quality of product
  – Quality of supply chain

Planning

• How do you know how much stuff to order

EPI Forecasting

Vaccine demand =
Doses * Population * Coverage * Supply Period / (52 * (1 – Wastage))

Min Stock =
Doses * Population * Coverage * Reserve Period / (52 * (1 – Wastage))

Max Stock = Vaccine demand + Min Stock

Delivery

• Receive order
• Approve order
• Arrange transport
• Pack order
• Send shipment
• Receive shipment
• Verify / record shipment
• Unpack shipment
• Store shipment

DVDMT Reporting
Bar coding

Stock data reporting
- Regular reports of stock levels to SMS sent to a server
- SMS for Life
  - Reporting project supported by Novartis
  - Weekly reports of supplies of Malaria medication
  - Pilot studies show significant drop in stock outs
  - Scales quickly (reach 5000 health facilities 7 months)
  - Reported costs: “operational cost of less than 80 USD per health facility”

SMS for Life
The mobile phone credit was an incentive to motivate health workers to send the message on time and also to recognize the additional tasks they had to perform for the pilot above their normal workload.

Product quality
- Product spoilage
- Product expiration

Supply chain quality
- How good is the supply chain infrastructure

Cold chain equipment inventory
1. Health facility data
2. Refrigerators, freezers, cold room, cold box data
3. Vaccine and equipment reference data
Cold chain capacity analysis

• Maximum volume of storage necessary to store all vaccines
  – VFIC: Volume per fully immunized child
  – POP * VFIC / Supply Interval

Temperature monitoring

Supply chain optimization

US Vaccine Supply Chain

• 1994: 64 distribution networks, 430 depots
• 2008: single distribution network, 4 depots

Supply chain modeling

Next week

• Patient Support