GAVI Immunization Supply Chain Strategy

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June 4, 2014
Immunization Supply Chain: An Interconnected System Involving Flows of Goods, Funds and Data

Source: GAVI Alliance task force
Country Immunisation Supply Chains Do Not Meet WHO standards today

% of countries that reach 80% target on relevant supply chain WHO standards

1. EVM (Effective Vaccine Management) Assessments – Average score of Principal, Sub-National, Local District and Service Point Level; Source: EVM assessment for 57 GAVI countries, WHO
Immunisation Supply Chain Challenges Will Increase Due to Higher Volumes, Doses and Vaccine Cost

Supply chain requirements

- Growing volume (cm³) to vaccinate per child: 70 in 2010, 280 in 2020 (~4x increase)
- Increasing number of doses: ~6x increase
- Introduction of more expensive vaccines: $0.8 in 2010, $4.1 in 2020 (~6x increase)
- Increase in stock keeping units per year for GAVI vaccines: ~2x increase

Note: All figures relate to GAVI-funded vaccines
1. UNICEF Supply 2012 Financial report, WHO data for Pneumo and Rota vaccines, and HPV (only for girls); 2. 2010: GAVI Shipment Data; 2020: GAVI SDF Forecast; Including volume for GAVI future graduated countries; 3. Comparison based on 2013 Price; 2020 Vaccines include: Rota, Pneumo, HPV; 2010’ vaccines include: YF, Measles, DPT, OPV (UNICEF SD); 4. GAVI Background SDF Information; 2010”: estimates based on 2009 data; 2020: estimates based on 2013 forecast
Catalytic Investments Aim to Contain Cost Increase But Increased Funding Needed

Annual estimated/projected immunization supply chain costs ($m)

Country funding
- 2013 costs: 300-340
- Additional costs in 2020: 120-140
- 2020 costs before optimisation: 450-860
- Impact of system optimisation and redesign: 150-300
- 2020 costs after optimisation: 600-900

Other donors
- 2013 costs: 160-180
- Additional costs in 2020: 25

HSS funding
- Funding challenge: 270-320
- HSS funding: 280-480
- 2020 costs after optimisation: 50-100

Source: BCG Analysis, GAVI Alliance task force preliminary estimates and projections based on 53 GAVI eligible countries.

Annual supply chain costs will rise ~2.5x from 2013 to 2020.
Putting Fundamentals in Place in Every Country and Improve System Design

Supply chain managers

Supply chain management and improvement plans

Supply chain dashboards

System design

Ensure supply chain manager with right capabilities, authority and accountability is in place in every country

Support development and implementation of comprehensive supply chain management plans

Establish visibility of supply chain performance and use to improve management through dashboard

Support priority countries in improving system design

Source: GAVI Alliance Task Force
System Design

Multi-Tier - Aspirational

- Replenishment decision/distribution responsibility at each tier. Must resource each tier for inventory management and distribution.
- Each level responsible for replenishment decision, inventory management, and delivering to level below
- Requires significant human resources, infrastructure and funds at each level to create functioning system
- Devolves into ad hoc due to insufficient resources/infrastructure

Multi-Tier – Ad-Hoc

- Lack of resources/infrastructure = lack of a “system” and no regular distribution
- Health workers must use personal resources and leave posts to collect vaccines
- Ad-hoc is more expensive and less efficient, but costs are dispersed so easy to hide/ignore

Informed Push

- Replenishment decision/distribution responsibility moved up to dedicated logistics teams. Resources for inventory management and distribution consolidated and focused at that tier
- Removes burden from health workers
- Creates regular distribution
- Costs consolidated at one level, so looks expensive, but actually more cost-effective
## System Design Impact on Personnel
(Data from VillageReach cost study comparing two provinces, each with ~100 health centers)

<table>
<thead>
<tr>
<th>Multi-tier Ad-hoc Model</th>
<th>Informed Push Model</th>
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<tbody>
<tr>
<td><strong>Personnel</strong></td>
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<tr>
<td>Task diffused to 134 workers</td>
<td>Task consolidated to 6 workers</td>
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<tr>
<td><strong>Personnel Costs</strong></td>
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<tr>
<td>$75,482.23 ($40,106 more)</td>
<td>$35,376</td>
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<tr>
<td>Per diems for many health workers</td>
<td>Negotiated per diems for small number of full-time distribution workers</td>
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<td><strong>Personnel costs are 28% of vaccine logistics costs</strong></td>
<td><strong>Personnel costs are 12% of vaccine logistics costs</strong></td>
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<td><strong>Staff Days/Month</strong></td>
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<tr>
<td>348</td>
<td>138</td>
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<tr>
<td><strong>Results</strong></td>
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<tr>
<td>498,624 vaccines delivered (per year)</td>
<td>889,152 vaccines delivered (per year)</td>
</tr>
<tr>
<td>$1.50 total cost per dose of vaccine delivered</td>
<td>$1.18 total cost per dose of vaccine of delivered</td>
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<tr>
<td><strong>70% DTP-3 coverage rate</strong></td>
<td><strong>95.4% DTP-3 coverage rate</strong></td>
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- The additional 210 staff days required to run the Ad-hoc Model falls **entirely** on health workers.
- The Informed Push Model reallocates this time to health workers providing healthcare rather than collecting supplies and filing stock inventory reports.

“With informed push mothers started trusting the program . . . they come now, because they know they will find vaccines. This system solved the problems of vaccine stock-outs . . . before I didn’t have money to get public transport to go to the district to collect vaccines.” – Emilia Albino Chilaule, Alto Changane Health Center, Mozambique
Impetus for Change

- Standardized assessment tool shows similar supply chain weaknesses across multiple GAVI countries
- Need more efficient supply chains due to greater cost and size of new vaccines
- New vaccines backing up due to supply chain capacity constraints
- Growing evidence base of better results from
  - Pilot projects
  - Modelling
- Equity goals can’t be met and new vaccine investments will be wasted unless in-country supply chain challenges are addressed