Immunization Supply Chain Strengthening

2015 Vaccine Industry Consultation
Copenhagen, 26-27 October 2015
Session Topics

- Why do immunisation supply chains matter?
- GAVI Alliance immunisation supply chain strategy
- UNICEF supply chain strengthening with governments
- Current country level activities
- Introduction to poster session
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Immunisation supply chain risk will increase due to higher volumes, doses and vaccine cost.

Growing volume (cm³) to vaccinate per child

- 2010: 70 cm³
- 2020: 280 cm³

Increasing number of doses

- 2010: ~4x
- 2020: ~6x

Introduction of more expensive vaccines

- 2010: $0.8
- 2020: $4.1

Increase in stock keeping units per year for GAVI vaccines

- 2010: ~5x
- 2020: ~2x

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.
On average 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
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In response, the Gavi Alliance has developed an Immunization Supply Chain Strategy that is built around 5 evidence based fundamentals:

- System design
- Continuous improvement plans
- Supply chain leadership
- Better cold chain equipment
- Data for management

If we help countries put in place the supply chain fundamentals...

...then vaccines will be

- **Available**: In the right place at the right time
- **Potent**: Providing a high level of immunity
- **Efficient**: Resources going further

...and systems will be

...helping to achieve improvements in:

- **Vaccine coverage & equity**
- **Under-5 mortality**
Developing capacity of supply chain leaders and strengthening human resources for iSC management

HR Assessment for EVM
Defining standards and KPIs

Competency Framework
Mapping roles to required competencies

ToRs and Profiles of SCMs in the public and private sector

Supply Chain Leadership Curriculum (STEP 1,5,3)

Organisational Behaviour and Change Management Framework

Performance Management Guide/References

HR Strengthening/Capacity Development Planning

National Logistics Working Group Co-ordinating Implementation

Ongoing activities in Kenya, Rwanda, Tanzania Burundi, Uganda, Ethiopia, Nigeria, Namibia, Nepal, India, DRC

Landscape Analysis
Regional Centres of Excellence
Advocacy and Comms
Enabling Environment
Private Sector
Technical Assistance
<table>
<thead>
<tr>
<th>E1. Vaccine arrival</th>
<th>Posts filled</th>
<th>Recruitment</th>
<th>Working Conditions</th>
<th>Job Descriptions</th>
<th>Competency Levels</th>
<th>Training</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2. Temperature monitoring</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
</tr>
<tr>
<td>E3. Storage capacity</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
</tr>
<tr>
<td>E4. Buildings &amp; equipment</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
</tr>
<tr>
<td>E5. Maintenance</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
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<tr>
<td>E6. Stock management</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
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<tr>
<td>E7. Vaccine distribution</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
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<td>E8. Vaccine management</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
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<tr>
<td>E9. Information systems</td>
<td>Posts filled</td>
<td>Recruitment</td>
<td>Working Conditions</td>
<td>Job Descriptions</td>
<td>Competency Levels</td>
<td>Training</td>
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### SUPPLY CHAIN COMPETENCY FRAMEWORK

- Conducting a ‘competency mapping exercise’ for iSCM is an initial key step for developing a capacity development plan.
- The competency framework helps to map roles and functions in the supply chain to the required skills and competencies.

#### Define the supply chain organization by education/qualification/background

<table>
<thead>
<tr>
<th>National</th>
<th>Regional</th>
<th>District</th>
<th>Facilities</th>
<th>Community</th>
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</thead>
<tbody>
<tr>
<td>Pharmacists</td>
<td>Lab Technicians</td>
<td>PH Nurse</td>
<td>Nurse</td>
<td>CIW</td>
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<tr>
<td>Medical Doctors</td>
<td>CC Technicians</td>
<td>Health Officer</td>
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<tr>
<td>Health Officers</td>
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<tr>
<td>PH Specialists</td>
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<tr>
<td>Nurses</td>
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<td>Data Officers</td>
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</table>

#### Define who does what; the designation within the SC org and the required SC skills and competencies for the role/function

- Technical and Managerial skills, competencies and behaviours (1,2,3,4,5,6)
STRATEGIC TRAINING EXECUTIVE PROGRAMME for SUPPLY CHAIN LEADERS (STEP 1.5.3 model)

- **Pre-course**: 5 Days
  - Intensive leadership training in classroom

- **Continued learning and mentorship**: 3 Months

Course cover 5 areas/domains:

- People Management
- Project Management
- Communication
- Problem Solving
- Personal and Professional Development
Enabling countries to get the right equipment in place: A new cold chain financing facility

<table>
<thead>
<tr>
<th>What will the platform do?</th>
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<tbody>
<tr>
<td>• <strong>Cold chain equipment is an essential component</strong> of the vaccine supply chain that suffers serious challenges currently</td>
</tr>
<tr>
<td>• The platform will <strong>address cold chain equipment challenges</strong> in three ways:</td>
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</table>

<table>
<thead>
<tr>
<th>How will it work?</th>
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<tbody>
<tr>
<td>• The platform will support the <strong>purchase, delivery, installation and training</strong> of higher-performing CCE devices</td>
</tr>
<tr>
<td>• Specifically, the platform will support eligible countries using a <strong>tiered co-investment model</strong> depending on a country GNI segment</td>
</tr>
<tr>
<td>• In addition to providing funding to countries, the platform will <strong>involve all key stakeholders</strong> to improve the CCE market situation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>How will countries apply?</th>
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<tbody>
<tr>
<td>• The platform <strong>application is in line with the HSS process</strong> and includes additional information covering the platform</td>
</tr>
<tr>
<td>• Specific country application process will be <strong>adapted to the country situation</strong>:</td>
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1 Fund re-allocation only possible if either CCE or SC are part of the country HSS objectives
Supporting the development and implementation of comprehensive supply chain improvement plans

**Continuous improvement plans**

- **Advocacy and in-country preparatory phase**
  - New cEVM approach
  - In-country preparation and advocacy to stakeholders

- **Comprehensive EVM assessment**
  - Comprehensive iSCL performance assessment
  - Multi-year national strategy for iSCL strengthening

- **Implementing for change**
  - iSCL technical working groups to implement and monitor action plans

**CEVM Improvement Plan**
- Strengthen the link with GAVI HSS

**“One EPI plan”**
- Overall Health priorities and objectives
Immunisation Supply Chain Fundamentals

System Design

What is the impact of introducing new vaccines, presentations, or outreach and campaign strategies?

How much storage, transportation, and personnel is needed?

How much safety stock should be held?

Should I use a push or pull model?

What is the optimal presentation, session strategy?

What is the best location for a warehouse?

How many levels should there be in the supply chain?

What is the cost to achieve 80%, 90%, 100% coverage rates?
1. Supply chain systems must adapt to changing requirements, challenges, technologies, opportunities.

2. Programmes need guidance, tools, evidence, and engagement mechanisms to respond to this new reality.
## Country Examples

<table>
<thead>
<tr>
<th>Country</th>
<th>System Design</th>
<th>KPI's</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thailand</td>
<td>Vendor-Managed Inventory Strategy</td>
<td>- Closed vial wastage&lt;br&gt;- Open vial wastage&lt;br&gt;- Distribution Issues</td>
<td>Implemented</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>Route Optimization Strategy</td>
<td>- Resource utilization&lt;br&gt;- Storage capacity</td>
<td>Rolling out by woreda</td>
</tr>
<tr>
<td>Benin</td>
<td>Informed Push, Network, Distribution Strategy</td>
<td>- EVM scores&lt;br&gt;- Cost&lt;br&gt;- CCE Up-time</td>
<td>Expanding pilot</td>
</tr>
<tr>
<td>Mozambique</td>
<td>Informed Push, Network, Distribution Strategy</td>
<td>- Vaccine availability&lt;br&gt;- Cost/Dose Administered</td>
<td>Expanding pilot</td>
</tr>
<tr>
<td>USA</td>
<td>VMI, LMIS Strategy</td>
<td>- On-time, in full orders&lt;br&gt;- Customer complaints</td>
<td>Implemented</td>
</tr>
<tr>
<td>Schwann’s</td>
<td>Network optimization Strategy</td>
<td>Schwann’s&lt;br&gt;- Inventory turns&lt;br&gt;- Order response time</td>
<td>Implemented</td>
</tr>
</tbody>
</table>
UNICEF & WHO collaboratively developed guidance on Dashboards for immunisation Supply Chain (DISC)

DISC includes:

- Advocacy piece: describes dashboards and their benefits
- Planning and using dashboards: suggests steps in planning & implementation, and continuous improvement activities
- Standardized primary supply chain indicators: detailed reference sheets including definitions, visualization and action examples
- Case studies around use of dashboards in supply chain:
  - Nigeria
  - Mozambique
  - India
  - Ethiopia
  - Pakistan
UNICEF & WHO can support use of data and dashboards in countries via Technical Assistance

<table>
<thead>
<tr>
<th>Planning</th>
<th>Implementation</th>
<th>Continuous improvement</th>
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<tbody>
<tr>
<td>• Advocate for data use &amp; dashboards</td>
<td>• Develop &amp; obtain buy-in for implementation plan</td>
<td>• Implement a feedback loop/mecanism</td>
</tr>
<tr>
<td>• Identify focus supply chain areas &amp; relevant indicators</td>
<td>• Identify funding sources</td>
<td>• Automate data collection and dashboard generation</td>
</tr>
<tr>
<td>• Assess existing information systems, data availability and data collection/reporting processes</td>
<td>• Develop tools, data collection processes, etc.</td>
<td>• Assess data burden to reduce data collection requirements in HFs</td>
</tr>
<tr>
<td>• Develop short- or long-term goal for data use</td>
<td>• Implement pilot and analyze pilot data</td>
<td>• Implement data quality audits and support improvement of data</td>
</tr>
<tr>
<td>• Establish or support committees to oversee the implementation</td>
<td>• Make scale-up plan based on pilot findings</td>
<td>• Revise tools, simplify data collection process, etc.</td>
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Consult stakeholders

• Identify relevant stakeholders to engage throughout the planning, implementation and continuous improvement
• Continuous stakeholder consultations/engagement
By 2020 immunisation supply chains will efficiently provide potent vaccines to all

Support sustainable improvements in coverage and equity
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UNICEF is engaged in a variety of national supply chain modalities

### Examples of UNICEF engagement in national supply chains

<table>
<thead>
<tr>
<th>Definition of Need</th>
<th>Budgeting &amp; Planning</th>
<th>Procurement</th>
<th>Delivery &amp; Clearance</th>
<th>Inspection</th>
<th>Warehousing, Distribution &amp; Reorder</th>
<th>Utilisation</th>
<th>Monitoring &amp; Evaluation</th>
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<tbody>
<tr>
<td>a</td>
<td></td>
<td>UNICEF</td>
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<tr>
<td>b</td>
<td></td>
<td>UNICEF</td>
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<td></td>
<td>UNICEF</td>
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**Different modalities of national service delivery**

**Strengthening together** (a, b, c, d)

**Optimising UNICEF** (light grey: a, b, c, d)
Support government initiatives with short term targeted support

In such cases the goal is to work closely with UNICEF country offices and governments to strengthen and optimize key segments of supply chains for targeted products to reduce costs, stock-outs, wastage, improve performance –

- and help achieve results in Results Areas:
  1 (Health), 2 (HIV/AIDS), 3 (WASH), 4 (Nutrition), 5 (Education)
Support government initiatives to achieve long term results
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Supply Division engagements with Governments strengthening supply chain capacities

Goal is to improve performance:

- Reduce stock-outs
- Lower transportation costs
- Timely delivery
- Reduce waste
- Reach all children

Predominantly health supply chains
Implementing a National Supply Chain Strategy in Zambia

- National Supply Chain Strategy developed by MoH and partners and endorsed by Minister of Health; aligned with the National Strategic Health Plan
- Govt and partners are implementing supply chain strengthening initiatives that support the national strategy under the 8 strategic pillars:

<table>
<thead>
<tr>
<th>Quantification and Product Selection</th>
<th>Quality Assurance and Rational Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement</td>
<td>Commodity Security, financing and resources mobilization and M&amp;E</td>
</tr>
<tr>
<td>Logistics</td>
<td>Human Resources for Health in Supply Chain</td>
</tr>
<tr>
<td>Information System</td>
<td>Public Private Partnerships</td>
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</table>
Developing the next Pharmaceutical Supply Transformation Plan in Ethiopia

- In 2008 the Ethiopian Government conducted a country wide Business Process Engineering (BPR) process to improve the performance of all of their government offices, regional offices, and state owned companies.
- The Pharmaceutical Fund & Supply Agency (PFSA), was one the early achievements of this BPR process and the supply chain master plan that resulted from it.
- UNICEF supported the handover of procurement and inventory management activities to PFSA and continues to support capacity development activities.
- The next Pharmaceutical Supply Transformation Plan is being developed with 4 strategic thematic areas:
  - Excellence in Supply Chain Systems Capacity
  - Excellence in Supply of Pharmaceuticals
  - Excellence in Fund Management
  - Excellence in Leadership and Governance
The Supply Chain Ends Here
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Poster Sessions

- EVM – Effective Vaccine Management
- ViVa – Visibility for Vaccines
- VAR - Vaccine arrival reports
- CCE – Update on Cold Chain Equipment
- Bar Coding projects