Saving Lives through Stronger Sustainable Supply Chains

An overview of the Supply Chain Management System (SCMS) and the role of supply chains in saving lives

San San Min
June 2014
Every person receiving treatment is supported by

- doctors
- nurses
- care givers
- pharmacists
- dispensers
- laboratory technicians

and lots of people working in the public health supply chain
Every person being tested or screened is supported by

- phlebotomists
- laboratory technicians
- counselors
- nutritionists
- medical technicians

- and lots of data from the public health supply chain
Every person trying not to contract HIV is supported by

- epidemiologists
- behavior change specialists
- counselors

and some extraordinary efforts to support the public health supply chain
A fully functioning supply chain requires excellence in many disciplines

- Forecasting and supply planning
- Procurement
- Freight forwarding
- Logistics management information systems
- Warehousing and inventory management
- Distribution management
- Quality assurance

- SCMS provides systems strengthening and coordination services for all of these
Benefits of an integrated supply chain

- Lowers cost
- Supports sustainability
- Assures commodity availability
- Supports expansion of prevention, care and treatment
- Assures quality
- Serves all health programs, building patient confidence in the system
- Supports innovation
Behind the scenes, integrated public health supply chains support prevention, care and treatment.

1. Forecasting and supply planning (Govt., IPs*, SCMS)
2. Coordination of funding and pooled procurement (Govt., IPs*, funders, SCMS)
3. Data collection based on usage (Govt., IPs*)
4. Procurement, freight and logistics (SCMS, client, vendor)
5. Prevention, care and treatment (Govt., IPs*)
6. Warehousing and distribution (Govt., IPs*)

* IPs = Implementing Partners
The first National Supply Chain Planning workshop
  • Set out high level objectives, agreed by the stakeholders from the Ministry of Health, donor and NGO community, for strengthening the national system.
  • A short term action plans for addressing some of the more immediate challenge

A national SC baseline

A procurement feasibility study looking at access to international markets and prices.

Mapping and harmonization of the various LMIS systems.

Establish the National SC task Force and SCMS as the technical Secretariat Quantification and Forecasting
SCMS MMR Achievements to date – continued
October 2013 June 2014

Quantification and Forecasting – core competency

• Q-med tool accepted by NAP for 2015 Quantification of ARVs/RTKs, OIs and STIs for UNOPS
• Trained 19 personnel for UNOPS and its SRs
• Trained 5 CMSD core team and one medical care staff in Forecasting and Supply planning of essential medicines and equipments
• Trained 56 staff from all regions (200 bed and above hospitals) – orientation on basic/minimal data requirements and basic principles of Quantification and Forecasting
Next steps

- Finalize the NSC BL and Procurement Options and followup recommendations / action plans
- National SC strategic master plan
- Mapping and harmonization of the various LMIS systems.
- Harmonization of standardized Quantification methodologies and approaches
- Technical Support and Improvement plan for the CMSD, sub depots and transit camps
- Feasibility and Review of the Hospital Inventory Management system
- Mapping and harmonization of the various LMIS systems.
- HRCD in Supply Chain Management at all levels
- Collaboration with CDC on Lab logistics assessment, support and systems strengthening
- Continued collaboration and co-ordination with all SC stake holders and partners to harmonize and unify the various vertical systems for one public health supply chain under MOH leadership
Overview of the Myanmar National Supply Chain Baseline

June 2014
Agenda

- Background
- National Supply Chain Baseline (NSCBL) Tool
- Implementation Methodology
- High level Findings - Capability and Maturity Model (CMM) and Key Performance Indicators (KPI)
- Recommendations
- Current Activities
Background - Creating a shared, evidence based, understanding of where to focus system strengthening efforts

- National Supply Chain Management Strategic Planning Workshop in November agreed to a shared vision of an integrated national supply chain lead by the MoH.

- A key recommendation, endorsed by MOH, was to conduct a national supply chain baseline to provide a evidence-based platform that will guide future system strengthening efforts and inform areas of collaboration.

- PEPFAR and 3MDG co-funded the exercise which was conducted jointly by the MOH and SCMS.

- Information was collected through March-April 2014, validated and analyzed in May 2014 and first draft report issued in June.
The National Supply Chain Baseline - consists of two tools that assess the capability and maturity of a supply chain

**CMM**
- Measures the capability maturity of a supply chain, benchmarking against best-practice standards

**KPIs**
- Set of indicators that comprehensively measure the performance of a health supply chain

**Planning:**
- Informs *country and donor decision-making*, including *coordination* of health systems strengthening, identifying and prioritizing key functional areas for interventions.
- Serves as a *baseline, midline and endline* Baseline for supply chain performance for relevant health systems strengthening programs or interventions.
- Illustrate the impact of systems strengthening initiatives, through regular reviews.

**Performance Management:**
- Enable a diagnostic of the existing supply chain functional areas capability and performance, benchmarked against best practices.
- Drives *country ownership of supply chain performance management* by providing a framework to document performance and capability maturity over time through regular monitoring.
The CMM Tool

The CMM tool comprehensively measures the maturity of supply chain functions and the enablers that impact them.
The CMM Tool
Each capability is scored on a scale of 1-5 to assess the level of maturity of the system.

Capability Maturity Levels

- Maturity levels are based on a private sector best practice model.
- Scores of 3 or above are considered a measure of good maturity.
- CMM scores were converted from a 1-5 scale to a 0-100 percent scale:
  1 = 20%
  2 = 40%
  3 = 60%
  4 = 80%
  5 = 100%

Minimal
Informal processes and little or no systems

Marginal
Basic processes not used consistently and mostly manual systems

Qualified to function satisfactorily
Processes are defined well and documented with some technology

Advanced Practices
Processes are well defined and internal integrated technology

Best Practices
Practice continuous improvements with fully integrated technology
The KPI Tool

To measure performance of the system core KPIs, combined with context specific indicators are chosen based on country priorities, data availability, feasibility, and data quality.

### KPI Calculation

<table>
<thead>
<tr>
<th>#</th>
<th>KPI</th>
<th>Formulas</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stock out rates</td>
<td>Number of Facilities experiencing a Stock Out of one or more Tracers in the Reporting Period</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total Number of Facilities x100</td>
</tr>
</tbody>
</table>

- Formulas are defined in standardized data dictionary sheets that have been used across several countries in multiple implementations of the NSCB.
- The following data is collected using and excel based data entry sheet:
  - Day of Visit Data
  - Historical Data
  - Secondary Source Data
- A set of tracer commodities are selected across multiple product areas to understand the multiple supply chains that may be operating in a country.
Implementation - The NSCB is implemented in five phases

Preparation
- Health Sector Overview
- Environmental Profile
- Site Visit
- Logistics
- Sampling
- KPI Selection
- Orientation

Implementation
- Conduct interviews
- Complete direct observation
- Update score sheets
- Aggregate Scores
- Collect data
- Update score sheet
- Aggregate Scores

Data Analysis
- Comparison of capability and performance
- In-depth analysis of supply chain functional areas
- Excel and Access based reports

Decision-Making
- Prioritize strengthening areas to focus on future in-country support & training
- ROI costing activity
- Determine recommendation & options
- Establish baselines to measure progress

Systems Strengthening
- Implement systems strengthening and program activities
- Continuous trends and tracking through the project/ activity/ life cycle of a grant
Implementation - a statistically significant sample of 285 sites was randomly selected across all levels of the supply chain.

Facilities were surveyed by the SCMS/MOH baseline team or by Myanmar Marketing Research and Development Co., Ltd.

<table>
<thead>
<tr>
<th>National Supply Chain Baseline Sample</th>
<th>Total Sites</th>
<th>Significance Level</th>
<th>Sampled Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Program Warehouses</td>
<td>4</td>
<td>Statistically Significant Sample</td>
<td>4</td>
</tr>
<tr>
<td>Central Warehouse (CMSD &amp; Central Cold Room)</td>
<td>2</td>
<td>Statistically Significant Sample</td>
<td>2</td>
</tr>
<tr>
<td>Labs (NHL &amp; PHL)</td>
<td>2</td>
<td>Statistically Significant Sample</td>
<td>2</td>
</tr>
<tr>
<td>State Health Dept</td>
<td>14</td>
<td>Representative Sample</td>
<td>1</td>
</tr>
<tr>
<td>Program Regional Warehouses</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CMSD Regional Warehouses</td>
<td>62</td>
<td>Statistically Significant Sample</td>
<td>9</td>
</tr>
<tr>
<td>Transit Camps</td>
<td>11</td>
<td>Representative Sample</td>
<td>3</td>
</tr>
<tr>
<td>General Hospitals</td>
<td>38</td>
<td>Statistically Significant Sample</td>
<td>34</td>
</tr>
<tr>
<td>Specialist Hospitals</td>
<td>38</td>
<td>Statistically Significant Sample</td>
<td>25</td>
</tr>
<tr>
<td>District</td>
<td>40</td>
<td>Statistically Significant Sample</td>
<td>27</td>
</tr>
<tr>
<td>Township</td>
<td>247</td>
<td>Statistically Significant Sample</td>
<td>69</td>
</tr>
<tr>
<td>Station Hospitals</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Health Centers</td>
<td>1760</td>
<td>Statistically Significant Sample</td>
<td>44</td>
</tr>
<tr>
<td>NGO Warehouses</td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td><strong>Total Sample Size</strong></td>
<td><strong>285</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Implementation - KPIs were collected from documented records and key informant interviews

Day of visit and historical data collected for 12 KPIs

<table>
<thead>
<tr>
<th>#</th>
<th>KPI</th>
<th>Data Source(s)</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stock out rates</td>
<td>Stock Ledgers, Stock Cards</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>2</td>
<td>Stocked According to Plan</td>
<td>Stock Ledgers, Stock Cards</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>3</td>
<td>Quality Testing</td>
<td>Product Quality Testing (Post Market Survey Samples Only)</td>
<td>January 2013 - December 2013</td>
</tr>
<tr>
<td>4</td>
<td>Product Selection based on NEML</td>
<td>Procurement Contracts</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>5</td>
<td>% of International Reference Price Paid</td>
<td>Procurement Contracts</td>
<td>January 2013 - December 2013</td>
</tr>
<tr>
<td>6</td>
<td>Vendor On-Time Delivery</td>
<td>Procurement Contracts, Issue Vouchers</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>7</td>
<td>Order Fill Rate</td>
<td>Order Forms, Issue Vouchers</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>8</td>
<td>Storage Variance from Optimal Capacity</td>
<td>Stock Ledgers, Stock Cards, Physical Stock Counts</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>9</td>
<td>Cold Storage Variance from Optimal Capacity</td>
<td>Key Informant Interviews</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>10</td>
<td>Up-to-date Stock Cards</td>
<td>Key Informant Interviews</td>
<td>March 2013 – August 2013</td>
</tr>
<tr>
<td>11</td>
<td>Staff Turnover</td>
<td>Key Informant Interviews</td>
<td>January 2013 - December 2013</td>
</tr>
<tr>
<td>12</td>
<td>Key Positions Filled</td>
<td>Key Informant Interviews</td>
<td>March 2013 – August 2013</td>
</tr>
</tbody>
</table>
Implementation - stock data was collected for 19 tracer commodities across 7 product categories

<table>
<thead>
<tr>
<th>Tracer Commodities</th>
<th>Product Name</th>
<th>Product Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TDF/3TC/EFV (300/300/600mg)</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>2.</td>
<td>AZT/3TC (300/150mg)</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>3.</td>
<td>EFV (600mg)</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>4.</td>
<td>TDF/3TC (300/300mg)</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>5.</td>
<td>CO-Trimoxazole (480 or 960mg)</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>6.</td>
<td>Determine Rapid Test Kit</td>
<td>HIV/AIDS</td>
</tr>
<tr>
<td>7.</td>
<td>ACT - Artemether/Lumefentrine (20mg/120mg)</td>
<td>Malaria</td>
</tr>
<tr>
<td>8.</td>
<td>Rapid Diagnostic Test Kit</td>
<td>Malaria</td>
</tr>
<tr>
<td>9.</td>
<td>4 FDC - Rifampicin (R), Isoniazid (H), Pyrazinamide (Z), Ethambutol (E)</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td></td>
<td>(150mg/75mg/400mg/275mg)</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>2 FDC - Rifampicin (R), Isoniazid (H) (150mg/75mg)</td>
<td>Tuberculosis</td>
</tr>
<tr>
<td>11.</td>
<td>Microgynon30 - Levenorgestrel (0.15mg) + Ethinyl Estradiol (0.03mg) + Ferrous</td>
<td>Reproductive Health</td>
</tr>
<tr>
<td></td>
<td>Fumarate (75mg) (Cycle)</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Medoxyprogesterone Acetate without syringes (150mg/ml)</td>
<td>Reproductive Health</td>
</tr>
<tr>
<td>13.</td>
<td>Pentavalent</td>
<td>Vaccine</td>
</tr>
<tr>
<td>14.</td>
<td>Measles (10 dose)</td>
<td>Vaccine</td>
</tr>
<tr>
<td>15.</td>
<td>Amoxicillin (250mg)</td>
<td>Essential Medicine</td>
</tr>
<tr>
<td>16.</td>
<td>Norfloxacin (400mg)</td>
<td>Essential Medicine</td>
</tr>
<tr>
<td>17.</td>
<td>RTK for HbS Antigen</td>
<td>Lab</td>
</tr>
<tr>
<td>18.</td>
<td>RTK For HCV Antibody</td>
<td>Lab</td>
</tr>
<tr>
<td>19.</td>
<td>CD4 Reagent</td>
<td>Lab</td>
</tr>
</tbody>
</table>
High Level Findings – Overall maturity and KPI performance is low across all areas with notable exceptions on product selection/quality and staff turnover.

All functional areas of the supply chain require strengthening to build maturity to positively impact performance.

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>CMM Score</th>
<th>KPI Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>National CMM Score/ Primary KPIs</td>
<td>40%</td>
<td>Stock out rates</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stocked According to Plan</td>
</tr>
<tr>
<td>Product Selection</td>
<td>51%</td>
<td>Quality Testing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NEML</td>
</tr>
<tr>
<td>Forecasting and Supply Planning</td>
<td>40%</td>
<td>Vendor On-Time Delivery</td>
</tr>
<tr>
<td>Procurement</td>
<td>46%</td>
<td>Storage Variance from Optimal Capacity</td>
</tr>
<tr>
<td>Warehousing &amp; Inventory Management</td>
<td>37%</td>
<td>Cold Storage Variance from Optimal Capacity</td>
</tr>
<tr>
<td>Transportation</td>
<td>38%</td>
<td>Order Fill Rate</td>
</tr>
<tr>
<td>Dispensing</td>
<td>37%</td>
<td></td>
</tr>
<tr>
<td>Waste Management</td>
<td>45%</td>
<td></td>
</tr>
<tr>
<td>Lab Issuing</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>Management Information</td>
<td>36%</td>
<td>Up-to-date Stock Cards</td>
</tr>
<tr>
<td>Human Resources</td>
<td>43%</td>
<td>Staff Turnover</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Key Positions Filled (CMSD, CMSSD)</td>
</tr>
</tbody>
</table>
High Level Findings - functional areas below 60% on both maturity and performance are targets for systems strengthening.

Some significant improvements can be achieved quickly and simply through basic process improvements. Optimal maturity/performance will take longer and require heavier investments.
High Level Findings - supply chain functions have a higher maturity at central level facilities than lower tier facilities

The national average is negatively impacted by the lower tier facilities

<table>
<thead>
<tr>
<th>Capability Maturity by Supply Chain Level</th>
<th>Scores</th>
<th>Central</th>
<th>Regional</th>
<th>District/ Township</th>
<th>SH/RHC</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Selection</td>
<td></td>
<td>68%</td>
<td>52%</td>
<td>50%</td>
<td></td>
<td>51%</td>
</tr>
<tr>
<td>Forecasting and Supply Planning</td>
<td></td>
<td>50%</td>
<td>43%</td>
<td>34%</td>
<td></td>
<td>40%</td>
</tr>
<tr>
<td>Procurement Maturity</td>
<td></td>
<td>69%</td>
<td>45%</td>
<td>43%</td>
<td></td>
<td>46%</td>
</tr>
<tr>
<td>Warehousing and Inventory Management</td>
<td></td>
<td>54%</td>
<td>38%</td>
<td>34%</td>
<td>29%</td>
<td>36%</td>
</tr>
<tr>
<td>Transportation</td>
<td></td>
<td>59%</td>
<td>39%</td>
<td>32%</td>
<td></td>
<td>37%</td>
</tr>
<tr>
<td>Dispensing</td>
<td></td>
<td>40%</td>
<td>37%</td>
<td>32%</td>
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<tr>
<td>Waste Management</td>
<td></td>
<td>53%</td>
<td>40%</td>
<td></td>
<td></td>
<td>44%</td>
</tr>
<tr>
<td>Lab Issuing</td>
<td></td>
<td>65%</td>
<td>40%</td>
<td>31%</td>
<td>30%</td>
<td>35%</td>
</tr>
</tbody>
</table>
High Level Findings - Management Information and infrastructure were weakest in maturity
Key Findings – Stock levels, vendor on-time delivery and storage capacity are the weakest KPIs

*Please note that Stock out rates, Storage at Functional Capacity, Cold Storage at Functional Capacity and Staff Turnover were inverted.
Key Recommendations

- Focus on forecasting & supply planning, procurement, warehousing & distribution, and stock management.
- Ensure consistent and coordination approach to product selection, forecasting & supply planning, and procurement across all levels of the decentralized supply chain system.
- Develop a standardized process for forecasting & supply planning and train practitioners at all appropriate levels. Ensure forecast and supply plan informs budget and procurement.
- Update MoH procurement rules and regulations. Consider creating dedicated procurement units staffed with trained professionals.
- Conduct a system design exercise to determine push v. pull, frequency of resupply and appropriate Max and Min levels.
- Develop a set of SOPs for warehousing & inventory management which are benchmarked against industry best practice and streamline stock record keeping practices to limit duplication and increase utilization.
Key Recommendations

- Introduce a WMS at those facilities that require receiving, inventory management, and issuing capabilities.
- Ensure adequate storage capacity and conditions at all levels by renting or renovating or new build as appropriate.
- Update and adhere to distribution plan, monitoring both vendors and MoH.
- Occupying vacancies of sanctioned positions with supply chain professionals should be a key focus. Standardize Leverage low staff turnover with HRCD in supply chain best practice.
- Develop a five year strategy for CMSD that addresses, governance, autonomy, funding and their role in the supply chain.
- Supply Chain maturity should be leveraged from the central level and NGOs to positively impact the lower levels.
Final Thoughts – NSCB already informing systems strengthening activities and can continue to do so for years to come

- Based on the preliminary results of the NSCB, SCMS has already implemented targeted technical assistance to build maturity and performance in both Forecasting and Supply Planning and Procurement through the following activities:
  - Strengthening the forecasting of health commodities in Myanmar
  - Review of procurement and access to international prices
  - Strengthening the Ministry of Health forecasting of HIV commodities for the national program in Myanmar
  - MoH CA-UK Procurement Training
- Several hundred thousand data points were collected during this baseline exercise which can be mined for further analysis and follow-on papers.
Supply Chain Evolution and Transformation
Supply Chain Evolution and Transformation
Thank you!

Questions?