Strengthening the Supply Chain in Emerging Regions

By Paul Dowling and Azeb Fisseha

Ethiopia is working to reverse geographic disparities in the availability of essential medicines. Generally speaking, emerging regions—Afar, Benshangul Gumez, Gambella and Somali—see more stockouts than other regions even as the Integrated Pharmaceutical Logistics System (IPLS) has greatly improved the overall availability of essential medicines nationally.

While the intent of IPLS when it was developed in 2008 was to have a standardized and integrated system implemented in all the regions of Ethiopia, to date, however, the main focus of attention has been the larger and more densely populated regions—Amhara; Oromia; Southern Nations, Nationalities, and Peoples’ Region (SNNP); and Tigray—and the city administrations—Addis Ababa, Dire Dawa, and Harari.

The table below shows data from supportive supervision visits conducted by the Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project, which is funded by the U.S. President’s Emergency Plan for AIDS Relief through the United States Agency for International Development. The supervision examined tracer medicine availability for various programs from April to June 2017, disaggregated by sites in major and emerging regions. As seen in Table 1, stockouts are consistently higher across programs and tracer items for facilities in emerging regions than for those in major regions. (continued on page 2)

Table 1. Data Supervision Visits, April–June 2017

<table>
<thead>
<tr>
<th>Program</th>
<th>Item</th>
<th>Percentage of Facilities Stocked Out</th>
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<tbody>
<tr>
<td>HIV/AIDS</td>
<td>Rapid Test Kit (screening)</td>
<td>Major Regions: 5.5</td>
</tr>
<tr>
<td>Family planning</td>
<td>DMPA (injectable)</td>
<td>Major Regions: 2.2</td>
</tr>
<tr>
<td>Maternal health</td>
<td>Oxytocin</td>
<td>Major Regions: 1.6</td>
</tr>
<tr>
<td>Child health</td>
<td>Zinc 20 mg dispersible tabs</td>
<td>Major Regions: 2.5</td>
</tr>
</tbody>
</table>
New Distribution Hubs and Increased Staffing

The Federal Ministry of Health and regional health boards are working to change this disparity. New Pharmaceuticals Fund and Supply Agency (PFSA) hubs are now open in Assosa (Benshangul), Gambella, Jijiga (Somali), and Semera (Afar). JSI and the AIDSFree Project have expanded their support to those regions with field staff to support PFSA and RHB implementation of IPLS. IT support staff have been provided to each hub in the four regions to support PFSA information systems. Recent technical support given includes:

- Provided IPLS gap filling training to 77 pharmacy staff working in health centers and hospitals in the Gambella (33) and Afar (42) regions. The training will be provided to staff working in the other two regions in the coming months.
- Trained 111 graduating pharmacy technicians of health science colleges in Jijiga and Gode in Somali region, and 34 graduating students of the Pawe Health Science College in Benshangul on IPLS Pre-Service Training (PST). PST allows graduate pharmacy technicians to support IPLS implementation as soon as they are hired.

New Mobile Reporting System Supports HIV Testing

By Paul Dowling

To boost HIV testing in the country, AIDSFree Ethiopia has developed a new technological solution that allow humans to interact with computers through voice and keyboard touch pad entries.

The approach is called Integrated Voice Response, and the new system allows public and private testing sites to more easily and efficiently report their stock status of HIV test kits.

Building on an Existing Platform

The system is an extension of the mBrana mobile system, developed for vaccine inventory management with funding from the Bill & Melinda Gates Foundation. Users will report their stock on hand for the three types of HIV test kits—screening, confirmatory, and tiebreaker. Responses are linked to the Supply Chain Dashboard, allowing decision-makers to quickly identify problems, such as sites that report stockouts, and take action.

Eliminating test kit shortages is critical to the Government of Ethiopia’s Catch Up campaign for HIV testing, and the system is initially being deployed to public and private testing sites in 20 priority towns. In September 2017 more than 400 testing sites from the 20 towns—more than half of them private—reported their stock status.

The system is being deployed in collaboration with the Global Health Supply Chain Procurement and Supply Management project (GHSC-PSM), who is providing user support.
Extending Vaccine Visibility to Woredas with the mBrana Mobile Platform

By Kalkidan Kassahun and Paul Dowling

A mobile-based logistics information and management system for vaccines is being implemented throughout Ethiopia.

Why Go Mobile?

Mobile platforms offer significant advantages over other types of supply chain systems. They are often cheaper to set up and operate, and because so many people are familiar with mobile devices, user acceptability is high.

Together with the Pharmaceuticals Fund and Supply Agency (PFSA), JSI Research & Training Institute, Inc. (JSI), with funding from USAID, has developed a warehouse and inventory management platform for use at PFSA warehouses and health facilities—the Health Commodity Management Information System, or HCMIS—and is now deploying a new mobile platform to complement HCMIS, mBrana. The mBrana mobile system, a logistics management information and inventory management system, was developed with financial support from the Bill & Melinda Gates Foundation and is currently being deployed for vaccine management at woredas (districts) throughout Ethiopia. mBrana is fully integrated with the HCMIS system and provides insight into stock levels at the central and regional/hub levels (all the way down to woredas), in addition to the quantities of vaccines issued to health facilities. The system also reinforces use of the standard Vaccine Request Form (VRF). Woreda EPI coordinators use mBrana to check their stock levels, order vaccines from their PFSA hubs, and issue vaccines to health facilities, expediting all three processes.

In 2016, mBrana was deployed to 52 woredas (most in the Tigray region) receiving vaccine supplies from the Mekelle PFSA hub. It was recently expanded to an additional 80 woredas and 7 zones in Amhara, served by Bahir Dar, Gonder and Dessie PFSA hubs, for a total of 139 sites nationally.

Benefits of mBrana

The major functionalities of mBrana include:

- Woredas can generate and submit a VRF to a PFSA hub electronically.
- Woredas can track the status of their VRFs.
- EPI coordinators can check their vaccine stock status anytime and anywhere.
- EPI coordinators can manage vaccine receipts from PFSA and issue supplies to health facilities.
- Users with access to the Supply Chain Dashboard can see the vaccine stock status at any woreda.

Preliminary Recommendations to Improve Maternal and Child Health Logistics System

By Woinshet Nigatu

Integrating all maternal, newborn, and child health commodities into the Integrated Pharmaceutical Logistics System (IPLS) that serves Ethiopia is among the top recommendations of a recent assessment of maternal and child health commodity logistics.

Facing a Commodities Shortage

The Ethiopian government’s goal of reducing child and maternal mortality face challenges because of the limited availability of essential maternal, neonatal, and child health (MNCH) commodities.

Among these challenges:

- Little readily available data on stock status
- No standardized system for MNCH commodities supply chain management
- No national supply plan, leading to shortages and ad hoc requests to partners and stakeholders for resources.

These challenges lead to limited availability, stockouts, and shortages of commodities at health facilities.

Stakeholders including the Pharmaceuticals Fund and Supply Agency (PFSA), the Federal Ministry of Health (FMOH), and other partners strongly believe that strengthening the supply chain at each level for MNCH commodities needs greater attention. However, there is no clear agreement on a strategy or the steps needed to strengthen the supply chain.
To address these challenges, AIDSFree Ethiopia, PFSA, the FMOH, and other partners, through the Maternal Newborn and Child Health Logistics Technical Working Group (MNCH LTWG), decided to conduct a quantitative and qualitative MNCH commodities logistics system assessment. The goal of the assessment was to provide stakeholders with a comprehensive view of all aspects of the MNCH logistics system and to help prioritize system strengthening efforts.

The assessment consisted of interviews of key program and supply chain partners representing PFSA (central and hub levels), FMOH, UNICEF, regional health bureaus (RHFs), and woreda health offices. In addition, evaluators monitored tracer commodity availability at health facilities.

Key Findings

Quantification: Forecasting is done under the joint leadership of PFSA and FMOH with technical support from partners; however, follow-up on implementing the supply plan, including coordination needs strengthening.

Logistics Management Information System: While there is a paper LMIS for IPLS commodities linking facilities to hubs, MNCH commodities are usually not included, so there are no data on demand or stock on hand from health facilities. PFSA uses an automated LMIS—the HCMIS—at its central and hub warehouses with data flowing into commodity dashboards providing live data on MNCH stocks. However, dashboard usage is low. In addition, there is little visibility of stocks procured and distributed by UNICEF, a major supplier of child health commodities

Obtaining Supplies/Procurement: Funding for MNCH program commodities is often donor-dependent, with UNICEF (for child health) and UNFPA (for maternal health) the major funders. The government recently developed a new “reimbursement protocol” supported with US$10 million in 2014/15. The protocol assumes in-kind reimbursement of commodities used by hospitals for delivery services. However, it hasn’t been fully implemented. Some MNCH commodities are procured through revolving drug funds, meaning clients must pay for them, and the FMOH also provides some funding for MNCH commodity procurement. Although there is strong commitment to financing MNCH medicines currently this does not always translate into funds.

Inventory Control Procedures: While inventory levels (maximum and minimum) exist on paper they are rarely applied or adhered to. Partly this is due to shortages linked to funding: it is difficult to adhere to inventory levels for items which are not in full supply (supplied according to demand/need). There are no redistribution guidelines for MNCH commodities, and redistribution (in the event of overstocks and or shortages) within regions or woredas is reportedly seldom done.

Transport and Distribution: MNCH commodities are not fully integrated into IPLS; instead, facilities frequently pick them up directly from local woredas. (Other, integrated commodities are delivered directly by PFSA.) Resupply quantities are not based on consumption/demand, but on centrally-determined allocations.

Availability: Only 42 percent of SDPs visited had all of the essential child health commodities available. However, availability of maternal health supplies was even lower: only 8 percent of SDPs had all items available. For individual items, stockout rates at time of visit varied from a low of 9 percent for oxytocin to a high of 85 percent for misoprostol.

While the study recommendations are still being formulated, one clear recommendation is that to the greatest extent possible all MNCH items should be fully integrated into the IPLS. IPLS, with its standard forms, LMIS, and delivery vehicles distributing to many SDPs, offers significant advantages over other systems. The trend of the past few years has been for integration of more and more items into IPLS: TB, family planning, and malaria. This should also happen for MNCH commodities to improve both supply chain performance (availability) and efficiency.

While the study recommendations are still being formulated, one clear recommendation is that MNCH-related items should be fully integrated into the IPLS. The system, with its standard forms, LMIS, and delivery vehicles distributing to many SDPs, offers significant advantages over other systems. The trend of the past few years has been for integration of more and more items into IPLS: TB, family planning, malaria and this should also happen for MNCH commodities to improve both supply chain performance (availability) and efficiency. Linking UNICEF and PFSA’s data systems would also help performance by increasing visibility for all commodities regardless of their funding source.
Using the Look-Ahead Seasonality Index Helps Save Lives That Would Be Lost to Malaria

By Sami Tewfik

Ethiopia is implementing a sophisticated malaria medication resupply approach that takes into account dramatic seasonal fluctuations in demand for the commodity. The strategy will help incorporate malaria commodities into Ethiopia’s Integrated Pharmaceutical Logistics System (IPLS).

Taking the Long View

Seasonality is one of the major challenges in integrating malaria commodities into a country supply chain. During the rainy season, when malaria transmission typically increases, the demand for and use of malaria medicines and tests will also increase. Resupply based on recent historical consumption (for example, the past three months) will almost certainly underestimate annual demand if it is calculated at the beginning of the malaria transmission season and overestimate it if calculated toward the end of the season.

To address these concerns, the U.S. President’s Malaria Initiative (PMI) continues to support the efforts of the Ethiopian Pharmaceuticals Fund and Supply Agency (PFSA) to integrate malaria commodities into the national Integrated Pharmaceutical Logistics System (IPLS) in a way that incorporates seasonality into resupply. As part of malaria integration into IPLS, PMI and its technical partner, Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project, supported the development of a new model to calculate malaria commodity resupply needs accounting for seasonality. The look-ahead seasonality index (LSI) accounts for the higher consumption of malaria commodities during the peak malaria transmission season and lower consumption during the off-peak season.

Hub-Specific Calculations

AIDSFree and PFSA developed LSIs for each PFSA hub using 2010–2015 malaria case data. Resupply quantities were adjusted by multiplying the historical consumption by the LSI. The use of the LSI is expected to minimize stockouts during the peak transmission season, and overstocks and possible expiries during off-peak seasons.

Six of 17 PFSA hubs are using the LSI currently to adjust resupply; the index is being introduced into the remaining hubs. In addition, LSI calculations are automated in PFSA’s management information systems and this is being piloted in three hubs.

To learn more about the LSI and its use, visit jsi.com.

Figure 1. Calculated Look-Ahead Seasonality Indexes for Ethiopia

Note the max LSI of c.2.5 around August/September meaning resupply quantities would be higher, whereas around February/March an LSI of about 0.5 means lower resupply quantities are needed.
Quantification of Health Commodities for the Maternal Health Program in Ethiopia 2017–2019

By Woinshet Nigatu

The Federal Ministry of Health (FMOH) has completed a quantification exercise to ensure it is meeting its goals of having a constant supply of quality medicines available for maternal health. Quantification consists of forecasting the future needs for medicines, and based on the forecast and what medicines are already available or on order, developing a supply plan. The activity estimates commodity needs and also costs to help budgeting. The activity included all of the essential maternal health supplies for various conditions including antenatal care, active management of third stage of labor, post-partum hemorrhage, postpartum sepsis, severe pre-eclampsia and eclampsia, and caesarian section.

A $30.6 Million Funding Need

According to the forecast, the total estimated annual funding requirement for maternal health commodities for 2017 is US$30.6 million. Donors, including the United Nations Population Fund (UNFPA), UNICEF, and the FMOH through Sustainable Development Goal resources, will contribute to the planned procurement.

The activity was led by the FMOH and Pharmaceuticals Fund and Supply Agency, with technical support from USAID’s Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project. Other participating agencies were UNICEF, WHO, UNFPA, the Clinton Health Access Initiative, the Integrated Family Health Program, JSI/Last 10 Kilometers, the Columbia Institute of Reproductive Health Training, and USAID’s Global Health Supply Chain Program—Procurement and Supply Management.

Now that the quantification is final, a supply plan has been developed and resource mobilization to ensure funding is ongoing.

Supportive Supervision Updates

By Abebe Bogale

Field staff of the Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project provide ongoing supportive supervision to health facilities throughout Ethiopia. The supervision supports the Pharmaceuticals Fund and Supply Agency’s (PFSA’s) implementation of the Integrated Pharmaceuticals Logistics System (IPLS).

Three critical indicators from recent visits are summarized below:

- Use of the Internal Facility Report and Resupply Form (IFRR) (Figure 2 on the following page)
- Use of Report and Request Form (RRF) (Figure 3 on the following page)
- Stockouts of tracer contraceptives, antiretrovirals, and malaria medicines (Table 2) on the following page.

Use of the IFRR and RRF are important process indicators for IPLS. The term Phase I, II, and III refers to IPLS implementation. Phase I and Phase II sites are sites where IPLS has long been implemented (predominantly sites offering ART and/or other HIV services), while Phase III sites are generally newer sites.

In general, the use of the RRF is widespread in all facilities, while use of IFRR is much less so.
Supportive Supervision Updates

Figure 2. Percentage of Facilities Using Internal Report and Resupply Form in at Least 80% of Major Dispensing Units, April 2016–March 2017

Figure 3. Percentage of Facilities Using Report and Requisition Form, April 2016–March 2017

Table 2. Percentage of Visited Service Delivery Points (Hospitals and Health Centers) Stocked Out of Selected Contraceptive, ARV, and Malaria Medicines, October 2016–June 2017

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<thead>
<tr>
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<tr>
<td><strong>Contraceptives</strong></td>
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<tr>
<td>Injectables</td>
<td>3.0</td>
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<td>Combined oral pills</td>
<td>4.0</td>
<td>4.0</td>
<td>5.0</td>
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<td>Male condom</td>
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<td>Implant</td>
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<tr>
<td>IUCD</td>
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<td>1.3</td>
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<td><strong>HIV</strong></td>
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<tr>
<td>Efavirenz 600MG/tab</td>
<td>7.1</td>
<td>7.1</td>
<td>5.4</td>
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<tr>
<td>Efavirenz-Lamivudine-Tenofovir disoproxil 600+300+300MG/tab</td>
<td>2.1</td>
<td>1.0</td>
<td>1.1</td>
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<tr>
<td>Lamivudine-Zidovudine-Nevirapine 150+300+200MG/tab</td>
<td>2.1</td>
<td>1.2</td>
<td>0.5</td>
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<tr>
<td>Lamivudine-Zidovudine-Nevirapine 30+60+50MG/tab</td>
<td>6.8</td>
<td>3.4</td>
<td>3.1</td>
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<td><strong>Malaria</strong></td>
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<tr>
<td>Any ALu presentation (i.e., none available)</td>
<td>3.0</td>
<td>5.2</td>
<td>4.0</td>
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<tr>
<td>Chloroquine tablet</td>
<td>25.1</td>
<td>28.0</td>
<td>32.0</td>
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