



East, Central, and Southern Africa Health Community

Rapid Situation Analysis of the Five East, Central, and Southern Africa Countries on TB Data and Commodity Management

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About SIAPS

The goal of the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program is to ensure the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. Toward this end, the SIAPS result areas include improving governance, building capacity for pharmaceutical management and services, addressing information needed for decision making in the pharmaceutical sector, strengthening financing strategies and mechanisms to improve access to medicines, and increasing quality pharmaceutical services.

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Key Words

Tuberculosis, ECSA, SIAPS, supply chain, commodity and data management, strategy

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ABBREVIATIONS AND ACRONYMS

CMS	central medical stores
ECSA	East, Central, and Southern Africa
ECSA-HC	East, Central, and Southern Africa Health Community
GDF	Global Drug Facility
Global Fund	Global Fund to Fight AIDS, Tuberculosis, and Malaria
HIV	human immunodeficiency virus
LMIS	logistics management information system
NTP	national tuberculosis program
PSM	procurement and supply management
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SOP	standard operating procedure
TB	tuberculosis
USAID	US Agency for International Development
WHO	World Health Organization

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EXECUTIVE SUMMARY

The 2013 global tuberculosis (TB) report shows that approximately one-quarter of the world's TB cases in 2012 came from the African region. The region is also reported to have the highest rates of cases and deaths relative to population. Most of the East, Central, and Southern Africa (ECSA) countries are among the 22 countries with high TB burdens, and most have reported extensively drug-resistant cases.

Although access to quality TB diagnostics and treatment remains a challenge in the ECSA region, several in-country initiatives and interventions are ongoing that have documented positive improvement, especially in TB case notification. However, the availability of key information regarding TB commodities at the country and regional levels remains a problem. Such information would advise existing regional and global mechanisms—such as the World Health Organization (WHO), ECSA Health Community (ECSA-HC), Global Drug Facility (GDF), and Global Fund to Fight AIDS, Tuberculosis, and Malaria (Global Fund)—on how best to address TB data and commodity management beyond individual countries within ECSA.

Systems for Improved Access to Pharmaceuticals and Services (SIAPS) supported ECSA-HC to strengthen regional TB commodity and data management. For that support to be effective, SIAPS needed to understand the situation on the ground and to see how ECSA can be positioned to become a regional strategic entity for TB data and commodity management. Therefore, SIAPS needed to conduct a rapid analysis to document the baseline situation of TB data and commodity management of key ECSA member states. The situation analysis focused more on system readiness to plan, coordinate, and execute supply chain functions; to provide and use data for decision making; and to establish key indicators for the TB commodities supply chain.

Key Findings

The rapid situation analysis can be summarized as follows:

- There is a lack of a regional TB data and commodity management strategy that would address cross-country TB commodity management challenges.
- Supply chain performance monitoring for TB commodities is one of the weakest areas, because none of the countries was able to demonstrate a strong monitoring system for the TB commodities supply chain.
- The gaps identified in the supply chain functions (e.g., procurement, quantification, and inventory management) are at different magnitudes; some countries are doing better than others in some specific areas.
- A significant number of committed stakeholders that support TB commodity management initiatives in ECSA member states also provide support on planning,

financing, procurement, quantification, logistics, logistics management information system (LMIS), and capacity building.

Recommendations

Because most of the countries already have technical partners supporting TB data and commodity management, the main recommendation deduced from the rapid situation analysis is to create a regional (ECSA) platform where TB programs from the member states and key stakeholders will share, learn, and monitor the TB commodities' supply chain performance and the commodity availability in general.

INTRODUCTION

Background

According to the WHO, there were an estimated 8.6 million new tuberculosis (TB) cases in 2012, killing 1.3 million people worldwide. Approximately one-quarter of the world's cases came from the African region. The African region also reported the highest rates of cases and deaths relative to population. An estimated 450,000 people developed multidrug-resistant TB; of those, an estimated 9.6% have extensively drug-resistant TB.¹ Most of the ECSA countries² are among the 22 countries with a high TB burden, and most have reported extensively drug-resistant cases.³

In 2011 and 2012, the SIAPS program, funded by the US Agency for International Development (USAID), held two regional conferences on pharmaceutical management of TB medicines in Africa. Participants identified frequent stock-outs and overstocking, which resulted from a limited capacity to effectively manage TB medicines coupled with weak coordination mechanisms as the main challenges that most programs face.

In many countries, weaknesses in TB logistics management information systems have resulted in a lack of quality data for decision making. In addition, challenges related to the management of second-line drugs are emerging and may contribute to stock-outs. Those challenges include (a) lengthy duration of drug-resistant TB treatment, (b) short shelf life of some second-line TB drugs, (c) inability to predict enrollment trends, (d) overindividualization of multidrug-resistant TB treatment, and (e) frequent regimen changes caused by various factors including adverse drug reactions and poor response to treatment. Such challenges require comprehensive country strategies as well as regional or multicountry strategies for better outcomes.

USAID's East Africa Regional Office has asked SIAPS to support the ECSA Health Community Secretariat to address those recurrent TB pharmaceutical supply management issues, specifically focusing on data management and drug management.

Rationale

ECSA-HC member states have inadequate access to high-quality pharmaceuticals and other health commodities because of inefficient supply chain systems and because of the absence of enabling medicine policy and regulatory environments and of strategic pharmaceutical and commodity management information.⁴ Improving commodity management information is one of

¹ World Health Organization, *Global Tuberculosis Report 2013* (Geneva: WHO, 2013), http://apps.who.int/iris/bitstream/10665/91355/1/9789241564656_eng.pdf.

² Kenya, Lesotho, Malawi, Mauritius, Seychelles, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe.

³ Stephen Muleshe and Ann Masese, "Programmatic Management of Drug Resistant TB (PMDT) Mission to Tanzania," ECSA Health Community, 2013, http://ntlp.go.tz/index.php?option=com_docman&task=cat_view&gid=51&Itemid=.

⁴ ECSA-HC, "Technical Report of the Ninth Meeting of the Regional Pharmaceutical Forum," Nairobi, Kenya, May 5–6, 2014, www.ecsaehc.org/download/?file=rpf_report_nine.pdf.

the key steps in addressing those challenges. That step can be done through a careful and structured approach. The approach should involve (a) the identification and documentation of key data and commodity management issues related to TB commodities, (b) the development of strategies to address the issues, and (c) the outlining of a clear plan of action to implement the strategies developed to address TB data and commodity management.

Objectives

This situation analysis was conducted to get a better understanding of the TB supply chain management practices in ECSA-supported countries. The situation analysis also assessed the readiness of the TB logistics management information systems to provide the information necessary for routine monitoring of key supply chain indicators for TB medicines. Specifically, in each country, the situation analysis focused on—

- Identifying key stakeholders involved in the management of TB commodities and their respective roles
- Identifying the adopted program plans, policies, and guidelines for managing TB data and products
- Assessing quantification, procurement, distribution mechanisms, and inventory management used for TB (including coordination)
- Assessing the data elements that are related to TB commodity management and that are collected at each level of the health system
- Assessing the information flow and reporting for TB commodity management across the different levels of the health system

The findings from the situation analysis will inform the development of appropriate interventions that will bridge the gaps and serve as a basis for establishing a regional coordination mechanism for TB commodities management.

METHODOLOGY

The situation analysis targeted five focus ECSA countries: Malawi, Swaziland, Tanzania, Uganda, and Zambia.⁵

Data Collection

In consultation with ECSA-HC, data elements were identified, and an information-gathering tool (annex A) was developed. The data elements included—

- Management and coordination of TB commodity programs
- Governance issues surrounding TB data drug management
- Stakeholders' mapping and analysis
- Plans for TB program management and implementation of activities, including scale-ups and risk management
- Supply chain functions (i.e., quantification, procurement, logistics management, and management information system)
- Supply chain performance

Data were collected through the review of key documents, including strategic plans, pharmaceutical policies, guidelines, and protocols for TB management, assessments, and reports. In addition, national tuberculosis programs (NTPs) were asked to fill in any gaps that could not be found in the documents mentioned.

Analysis and Reporting

Results were presented and validated at an ECSA TB experts' forum workshop, which was conducted in Arusha, Tanzania, August 11–14, 2014. Although the assessment focused on the management of TB medicines only, the findings and recommendations would be applicable to TB diagnostics and related commodities.

Limitations

The respondent member states had limited time, funding, and availability of reports regarding TB supply chain management. Some countries did not provide feedback, and the data collected through self-reporting were unable to be validated.

⁵ Zambia's information was collected but was not included in the dissemination workshop during the ECSA TB experts forum in August 2014 because the information was not validated before dissemination,

FINDINGS

Country Profile

All five countries' TB programs have reported decreases in TB cases in the past few years (table 1). Information about funding of TB medicines could not be obtained for two countries (Swaziland and Tanzania), and it is difficult to know the basis and rationale of funding allocation and budgeting for TB medicines for the different countries assessed.

Table 1. TB Program Information

	Malawi	Swaziland	Tanzania	Uganda	Zambia
Population	16,559,038 ^a	1.2 million	49.25 million ^b	35.4 million ^c	14.54 million ^d
Prevalence	140/100,000 ^e	556/100,000 (2013)	Not provided	175/100,000	140/100,000 ^e
Trends	Decline in TB notification since 2005 (negative stable trend)	Stable decline in TB notification	Not provided	Stable decline in TB notification	Unstable decline in TB notifications
Funding	\$1.4 M (2011), \$1.2 M (2012) and \$1.0 M (2013)	Information not available or provided	Not provided	Approximately \$4.18 M (2011), \$3.64 M (2012), and \$3.85 M (2013)	\$2 M in 2013
Regimen used	<p><i>First line</i> New TB patients (Cat I): 2RHZE/4RH</p> <p>Retreatment (Cat II): 5SRHZE/5RHE</p> <p><i>Second line</i> multidrug-resistant treatment (Cat IV): 8 (Cm-Lfx-Eto-Cs-Z/16 [Lfx-Eto-Cs])</p>	<p>New susceptible TB: 2RHZE/4RH</p> <p>Previously treated cases: 3RHZE/5RHE</p> <p>Extrapulmonary TB: 2RHZE/7(10)RH^f</p>	Not provided	<p><i>First line</i> New cases: 2RHZE/4 RH (switching from EH to RH in Sept. 2014)</p> <p>Relapse: 2SRHZE/1RHZE/5RH E</p> <p>Children: 2RHZ/4 RH IPT: INH 300/100mg—adults or children</p> <p><i>Second line</i> Regimen 1: 6ZKmLFxCsEto/18LFxCsEtoZ Regimen 2: 6ZCmLFxCsEoPAS/18 ZLFxCsEoPAS Regimen 3: 6ZKmMfxCsEtoPAS/18 ZMfxCsEtoPAS</p>	<p>New cases (Cat 1): Adult: 2RHZE/4RH Peds: 2RHZ/4RH</p> <p>Retreatment (previously treated/Cat 2) Adult: 2(RHZE)S/1(RH ZE)/5(RHE)</p> <p>Extrapulmonary: 2(SRHZ) 10(RH)</p>

a. National Statistical Office of Malawi, 2008.

b. World Bank, data on Tanzania, 2013, <http://data.worldbank.org/country/tanzania>.

c. Uganda Bureau of Statistics, 2013.

d. World Bank, data on Zambia, 2013 <http://data.worldbank.org/country/zambia>.

e. World Health Organization, *Global Tuberculosis Report* (Geneva: WHO, 2013).

f. TB meningitis, bone and joint TB, 10 months of continuous phase of treatment.

Policies, Management, and Coordination

The assessment reviewed key policies and processes that govern NTP management in each country. The findings are summarized in figure 1, and details are presented in annex B.

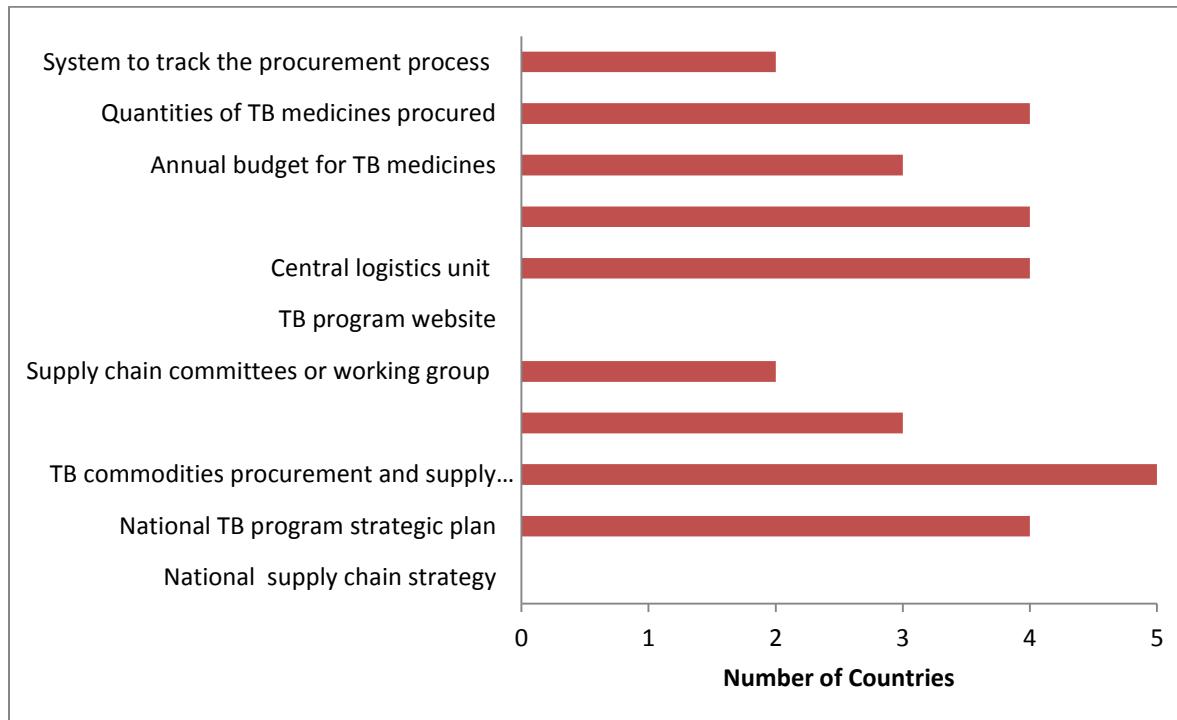


Figure 1. Policies and structures for TB medicines management

- Countries are at different levels of maturity in establishing pharmaceutical management systems with clearly defined structures (programs, departments, TB care and treatment levels, working groups, committees, and defined operational frameworks), processes (standard operating procedures [SOPs], planned activities, and procedures), and functions.
- The presence of key policies and institutional structures within the Ministry of Health are important to support the TB programs commodity management.
- All countries have in place procurement and supply management (PSM) plans for TB commodities. The PSM plans were prepared following guidelines given by the donors, such as the Global Fund. Except for Zambia, all the other countries have a national TB strategic plan that describes the management of TB medicines.
- Although policies and guidelines to support medicine management were available in all countries, only three (Malawi, Swaziland, and Uganda) have guidelines and policies specific to TB medicine management.

- All countries have the administrative and functional structures in place to support TB commodities and data management.
- Annual procurement plans are available. However, the review and analysis did not establish how well the plans were being implemented.
- Malawi, Tanzania, and Zambia use the GDF online monitoring system to track commodities in the pipeline. However, previous communications with NTPs and the GDF show that the GDF online monitoring system is not well (or effectively) used and is mostly used on an ad hoc basis.

The absence of an NTP website (or at least a website that provides regular updates about TB programs and the fight against TB) in all assessed countries is worth noting, especially in the modern era where information sharing and the use of electronic platforms is important. The reason for that lack could be that those programs depend on the respective countries' Ministry of Health website, whose focus is to provide an overview of the health system and structure of the country. A TB program-specific website would offer frequent updates, details about program performance, and key information to advise about TB commodities management and so forth.

NTPs can benefit by establishing the supply chain strategies, TB commodity management guidelines, working groups to support the NTPs, and an entity within the Ministry of Health that will link programs, logistics units, and information related to commodity (e.g., availability, pipeline, and consumptions).

Stakeholders' Analysis

Stakeholders supporting NTPs were identified. Their roles in supporting the supply chain management of TB commodities are highlighted in table 2. Knowing who NTPs' stakeholders are would facilitate better collaboration and coordination between in-country technical intervention and any regional initiative to improve TB supply chain management

Table 2. Key Stakeholders and Their Role in TB Data and Commodity Management

	Malawi	Swaziland	Tanzania	Uganda	Zambia
Funding	Global Fund	Global Fund, MSF		Global Fund	
Quantification	JSI	CHAI, MSF, SIAPS	USAID DELIVER or SCMS	NMS, Global Fund, SURE	UNDP, WHO, TB Care, MSL, CDC
Procurement	GDF	MSF, GDF, SIAPS	GDF	GDF, NMS	UNDP
Warehousing and distribution	CMS	SIAPS, CMS	MSD	NMS	UNDP, CHAZ, MSL
LMIS	USAID DELIVER	CHAI, SIAPS	USAID DELIVER or SCMS	SURE	USAID DELIVER/ SCMS
TB commodities logistics training				USAID, SURE	UNDP

CDC = Centers for Disease Control; CHAI = Clinton Health Access Initiative; CHAZ = Church Health Association of Zambia; JSI = John Snow, Inc.; MSD = Medical Stores Department; MSF = Médecins Sans Frontières; MSL = Medical Stores Limited; NMS = National Medical Stores; SCMS = Supply Chain Management System; SURE = Securing Ugandans' Right to Essential Medicines; UNDP = United Nations Development Programme.

Quantification

Quantification involves estimating the quantities needed of a specific item, the funding required for purchasing the item, and the time that the products should be delivered to ensure an uninterrupted supply for the program. A comprehensive quantification process should involve the key players in TB medicines management (e.g., NTP, procurement and distribution agencies, and development partners). The quantification processes has three main phases:

- Preparatory phase that uses data about the number of patients, projection of new cases, regimens used, forecasting period, lead time, and consideration of the treatment guidelines and all logistics information useful for quantification, plus the use of appropriate tools for quantification
- Forecasting the future needs for stock on hand at all levels of the supply chain, expected increase or decrease in demand, and consumption trends
- Supply planning for the procurement method, lead time, and other factors

The phases were assessed, and table 3 summarizes the information gathered during the review.

Table 3. Quantification Process

Information	Countries
Quantification process, comprehensive	Malawi, Swaziland, Tanzania, Uganda, and Zambia
Tools used for quantification	Malawi—GDF tool Swaziland—Quantimed, Pipeline®, MS Excel, and QuanTB Tanzania—GDF tool, QuanTB Uganda—QuanTB Zambia—QuanTB
Frequency of updating quantification information for consumption, pipeline, and stock status	Malawi—biannually Swaziland—quarterly Tanzania—not provided Uganda—quarterly Zambia—quarterly
Countries that prepare long-term (e.g., three or more years) supply plans	Malawi and Zambia
Data quality validation	Malawi, Swaziland, Uganda, and Zambia
Quantification accuracy evaluation	

Despite the existence of the systems and structures to support quantification in the countries reviewed, enough evidence shows that the countries reviewed (and other ECSA countries) have had cases of either over-quantifying or under-quantifying, especially for the pediatric and second-line drugs.

Procurement

Like quantification, procurement focused on the existence of systems to support the purchase (or sourcing) of TB commodities, such as an allocated procurement budget, documentation of procurement quantities, and mechanisms to measure the suppliers' performance. Furthermore, the assessment explored the possibility of intercountry distribution of TB commodities in cases of shortage (figure 2 and annex C).

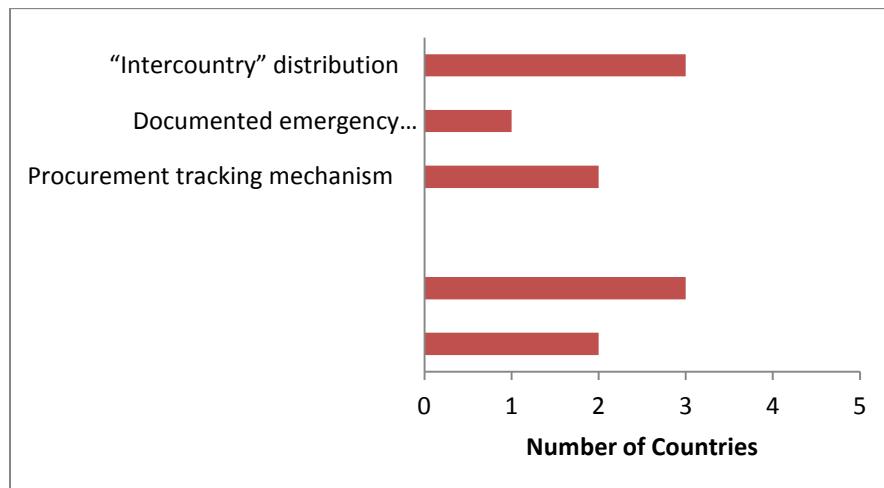


Figure 2. Procurement and pipeline monitoring

Procurement of TB commodities is one of the biggest problem areas in TB commodities management, as shown in figure 2. Only two countries have a three-year documented budget forecast for procuring TB commodities. Supplier performance monitoring is not done in any of the countries assessed.

Furthermore, three out of five countries do not have a documented protocol for emergency procurement. Three of five countries have managed to borrow TB drugs from another country because of a shortage.

Inventory Management

Inventory management is the management of the routine ordering process.⁶ That includes tracking the movement of products downstream and information upstream and all other factors associated with commodity information.

⁶ Management Sciences for Health, *MD-3: Managing Access to Medicines and Health Technologies* (Arlington, VA: Management Sciences for Health, 2012).

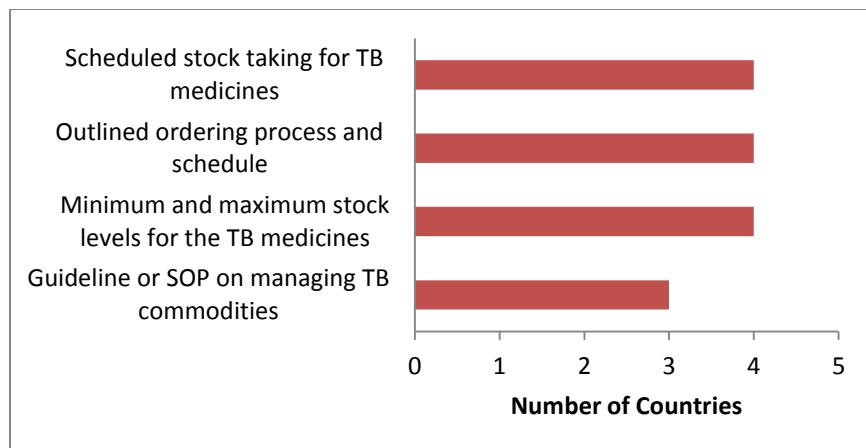


Figure 3. Inventory management

Key findings were as follows:

- All countries have a three-tier logistics system: central, regional, and district or facility.
- The central medical stores (CMS) and NTPs oversee the monitoring of procurement, storage, distribution, and stock levels. Information about stock at all levels is relayed from the districts and regions to the CMS and NTPs. Inventory is managed through physical stock counting and use of such records as bin cards, ledgers, registers, and other tools (paper based or electronic).
- Four countries reported that they have set the required minimum and maximum stock levels and have defined ordering schedules and schedules for stock taking (figure 3 and annex D). Despite the set ordering schedules, orders are not made on time in almost all countries, and distribution is sometimes done on an ad hoc basis. In some cases, the distribution quantities do not reflect the actual needs.

Inventory management is the core of supply chain management. Failure to manage inventories leads to failure in providing accurate information on commodity status, hence, an imbalance between supply and demand. Interventions to address inventory management challenges should focus on the accurate and timely capture of stock information at all levels. Anyone dealing with stock should always accurately document any transactions made in the facility, and periodic and structured stock-taking activities should be institutionalized. Reports on inventory should be well documented and shared upstream.

Logistics Management Information System

The LMIS review focused on the areas presented in table 4.

Table 4. Overview of LMIS

Country	LMIS Overview	Tools Used	Key Data Collected	Data Validation	Reporting Rate
Tanzania	Vertical ^a	Reporting form (cases and drugs) Stock reporting forms Supplies order calculations	Stock on hand Consumption data Number of cases Adjustment and losses	Not done	90% ^b
Uganda	Integrated	Stock cards Facility reports and order forms TB registers TB dispensing logs Distribution lists	Movement and balance Patient statistics Consumption data (dispensed to user data)	Done during supportive supervision	52%
Malawi	Integrated	Supply chain manager software; LMIS forms	Stock on hand Consumption data Adjustments and losses	Done during supervision visits	86%
Swaziland	Semi-integrated ^c	Reporting/ordering tool Rx solution Bin cards	Stock on hand Average monthly consumption Adjustments and losses Number of patients on each phase during the period	Done by CMS, which has a unit responsible to validate logistics data for TB Annual data verification exercise on site	60%
Zambia	Vertical	QuanTB and TB reporting spreadsheets	Stock status Consumption data Number of cases Stock on order	Done through supportive supervision	Not provided

Note: CMS = central medical stores.

- a. Tanzania is transitioning the TB logistics and LMIS into an integrated logistics system with support from USAID | DELIVER and Supply Chain Management System.
- b. The reporting rate of 90% is not validated; in most cases, the reports do not arrive on time.
- c. The reporting and ordering period, warehousing, and distribution and transportation are similar to essential medicines. The reporting and ordering form is similar to the one used by HIV, lab, and sexual and reproductive health commodities.

Although table 4 may give an encouraging picture of the LMIS that is up and running, a number of challenges were noted:

- The existing logistics systems' performances are centered on individuals and not on the institutions.
- Tools are not always used in compliance with the policies and required procedures.
- Data collection is not done in a timely manner.
- It was difficult to validate the reporting rates from Tanzania and Uganda; Zambia did not provide information about the reporting rate of TB medicine LMIS data.

Despite the shortcomings, this is a good starting point for strengthening information sharing and collaboration among member countries.

Capacity Building

Building a capacity for management of TB medicines was assessed by the presence of national TB logistics training (package, standardized courses) or any other logistics training at the national level that includes TB medicines and supportive supervision. Figure 4 and annex E summarize the findings.

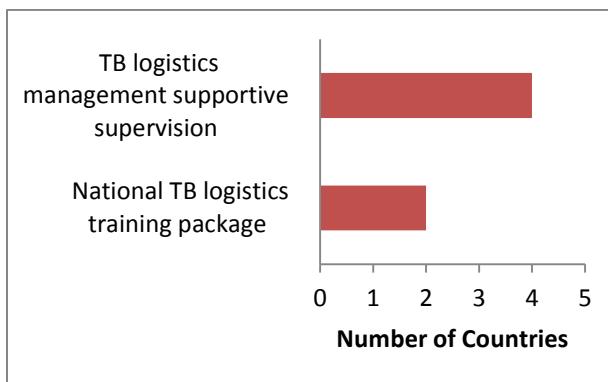


Figure 4. Capacity building

Of the five countries reviewed, only two have a TB-specific logistics management training package (materials, plan, and trainers) that is used nationwide. ECSA-HC has an opportunity to develop a capacity-building package that can be adopted or adapted by the member states when designing or updating their TB commodity management training packages.

Key TB Commodities Supply Chain Indicators

Monitoring supply chain performance is important for ensuring a continuous supply of quality pharmaceuticals. Key supply chain indicators were selected to measure the monitoring of supply chain performance in focus countries.

Table 5. Key Supply Chain Indicators Captured

Indicator	Malawi	Swaziland	Tanzania	Uganda	Zambia
Procurement lead time	6 weeks–6 months				
Order fulfillment rate	100%	100% central health facilities 82% lower health facilities		Not provided	
Stock status reporting and regular and updated report	Yes				
Stock-out rates	0	Minimal ^a		12%	Not provided
Expired TB medicines in a year	10%	Not reported			

a. No definite percentage was given.

In general, ECSA member states do not have functional systems for monitoring TB commodities supply chain performance. Only Malawi and Swaziland could provide information on most of the indicators (table 5).

Identified Challenges in TB Drugs and Data Management

Table 6 summarizes the identified gaps in TB medicines and data management in the five ECSA member states.

Table 6. Summary of Identified Gap in TB Medicines and Data Management

Planning related

- Slow planning process leading to delays in implementing the plan
 - Inadequate data to make informed decisions especially about—
 - Commodities consumption data
 - Procurement lead times, which, in turn, affect all commodities logistics
 - Uncoordinated responses to emergency situations because of the lack of a formalized contingency strategy for commodity shortages
 - Dependence on funding pledges rather than on actual funding
 - Lack of best-practice guides and sharing of lessons learned from countries that have done well in TB data and commodity management planning
-

Procurement related

- Delays in procurement
 - Uncertainties in funding leading to anticipations and irrational procurement adjustments
 - Lack of transparency in providing procurement expenditure updates
 - Long procurement lead times
 - Lack of or weak procurement coordination between the NTPs, procurement agents (e.g., central medical stores), and suppliers (GDF and others)
 - Weak or no system to capture records about previous procurement
 - Weak or absent systems to monitor supplier performance
-

Inventory management related

- Lack of or weak accountability of stock levels at all levels
 - Absent or inaccurate inventory data for TB drugs
-

Logistics or distribution related

- Storage challenges, especially at facility level
 - Funding
-

LMIS related (e.g., reporting rate, tools, guidelines)

- Low reporting rate
 - Incompleteness and inaccuracy of reports (logistics)
 - Challenges in using second-line LMIS tool (sought for change in the tool)
 - Lack of funds to print updated tools
 - Different levels of LMIS maturity and advancements
 - Data quality assurance
 - Accountability
 - Practices
-

Stock-out related

- Funding
 - Procurement
 - Quantification
 - Distribution
 - Irrational use
 - Poor inventory management
-

Expiries related

- Wrong quantification
 - Delays in procurement
 - No disposal facility for expired and damaged health commodities
 - Late facility reporting
-

HR challenges

- Limited capacity of TB program staff members to execute logistics management
 - Lack of capacity at facility level in quantification
 - High staff turnover
-

Monitoring TB drugs data and drugs management performance

- Weak monitoring systems
 - Absence of key performance indicators to monitor specific TB supply chain functions
-

RECOMMENDATIONS

Because most of the countries already have technical partners that support TB data and commodity management, the main recommendation deduced from the rapid situation analysis is to create a regional (ECSA) platform. That platform will enable TB programs from the member states and key stakeholders to share, learn, and monitor the performance of the TB commodities supply chain and commodity availability in general.

Moreover, ECSA member states need a regional platform that will facilitate doing the following:

- Provide the avenue for sharing best practices.
- Have a central or regional entity that will coordinate multicountry response to TB commodity shortages.
- Harmonize systems to allow easier cross-border collaborations dealing with regimens, product movements, patient management, and information sharing.
- Establish a resource center for technical, financial, and programmatic information sharing and learning.
- Capture, analyze, use, and disseminate TB commodities supply chains to prevent stock-outs and wastage.
- Monitor TB supply chain performance.

Those recommendations can be achieved if ECSA-HC develops a comprehensive regional strategy to improve TB data and commodity management for its member states.

CONCLUSION

Countries have established pharmaceutical management systems (at different levels of maturity) with clearly defined structures (programs, departments, TB care and treatment levels, working groups, committees, and defined operational frameworks), processes (SOPs, planned activities, and procedures), and functions. With such differences in performance and supply chain maturity, a regional platform is needed to facilitate countries' sharing information about TB data and best practices for commodity management. ECSA-HC can offer a perfect platform to support member states' TB programs to address TB supply chain issues.

Priorities include data, procurement, regulatory, planning, management, coordination, and financing of TB commodities. In addition, capacity building is still a challenge.

ANNEX A. DATA COLLECTION TOOLS

Country Profile

Total population (2013)
TB prevalence trends (over the past three years)
Total number of patients (by treatment regimen and age)
Total number of new cases in 2013
TB medicines used (types and regimen)

Management and Coordination at the Country Level

Document whether an NTP work plan and budget are developed annually, and involve key stakeholders. If information is available, provide a summary of the process and of who is involved in the process.
What is the annual budget dedicated for the management of TB medicines?
Is there a system for tracking TB medicine purchases? If yes, is the system manual or automated? Please name the system.
On a separate sheet, please provide the list of TB medicines purchased (with quantities, cost, and donor or payer) in 2011, 2012, and 2013
Briefly describe the TB PSM plan development process for the Global Fund. What is the NTP's role during this process?
What types of information does the TB program provide to the procurement unit to support TB medicine quantification?
Does the TB program receive a report from the procurement unit about the status of the TB medicines procured? If yes, how often is the report sent?
Does the national TB program have a website? If yes, does the website report data about TB commodities and logistics information?

Policy and Governance

Is there a national health supply chain strategy document? If yes, is the document readily available?
Are there established policies and guidelines about TB data and drug management?
Are there SOPs, job aids, or other tools to guide TB program management?
Are there established committees or working groups to support TB supply chain activities? If yes, provide the name, roles, and responsibilities of each group and the availability of terms of reference.
Is there a central data management unit (e.g., logistics management unit) that collects data related to the TB commodities, the aggregate and use for procurement, and the quantification and distribution of TB commodities?

Stakeholders' Analysis (Drug and Data Management at Different Levels in the Country)

List all stakeholders, their roles and responsibilities, and their funding levels.
What is the funding for the procurement of TB medicines (if possible, include actual figures or percentages for the past three years).

Selection

Presence of TB treatment guidelines and date of last review
Treatment guidelines review process

Quantification

Describe the forecasting process, including the level, data sources, and responsible entities.
Please name or mention tools used in the forecasting of TB medicines.
How frequently are forecasts updated? What triggers the process?
Are long-term (e.g., three or more years) supply plans prepared?
Is there a system in place to validate the quality of data used for forecasting? If yes, which procedure is used to validate the quality of data used for forecasting?
Is there a system in place to validate the accuracy of the data, calculations made, and results generated? If yes, explain the procedure used to validate the accuracy of the TB medicine quantification process (e.g., quantification accuracy review at the end of the year).

Procurement and Pipeline Monitoring

What was the annual budget for the past three years for the procurement of TB medicines? (Please provide the budget for three consecutive years, if available.)
Document the procurement quantities and budget allocated in cases of government procurement and GDF procurement.
Explain any supplier performance measurement system in place (e.g., timeliness, 100% supply, good communication and coordination, product recalls).
Describe any procurement tracking mechanism in place to monitor the process of procurement vs. targets (e.g., procurement milestones).
Does the NTP have any documented emergency procurement of TB?
Has there been any “intercountry” distribution of medicines because of a stock-out problem? How was it done?

Inventory Management

Is there a national guideline or SOP about managing TB commodities?
What are the minimum and maximum stock levels set?
What is the ordering frequency by facility (monthly, quarterly, or annually)?
How many times per year is the TB commodities stock taking done, and are any reports available?

Logistics Management Information System (LMIS)

Overview of the existing LMIS, whether integrated or specific for TB commodities
Types of tools used
Key data captured
The owner (who manages the LMIS)
Data quality validation
Reporting rates at different levels (e.g., district, regional/provinces/county, and national)

Capacity Building

Is there a national TB logistics training package or national logistics training program that includes TB commodities?
Is TB included in the logistics supportive supervision?

Key Supply Chain Indicators

Procurement lead time
Order fulfillment (percentage)
TB stock status reporting rate (at different levels—facility, regional, district, county)
Stock-out rates
Quantification vs. actual consumption
Percentage of expired TB commodities in a year

Identified Challenges in the TB Commodities Supply Chain Systems

Planning related
Procurement related
Inventory management related
Logistics or distribution related
LMIS related (e.g., reporting rate, tools, guidelines)
Stock-out related
Expiries related
Human resources related

Recommendations

Improvement Documented in the Previous Three Years

ANNEX B. POLICIES AND STRUCTURES

Presence of	Country
National TB program strategic plan	Malawi, Swaziland, Uganda, and Zambia
Established policies and guidelines about TB data and drug management (or SCM)	Malawi, Swaziland, and Uganda ^a
Supply chain committee or working group focusing on management of TB commodities supply	Swaziland and Uganda ^b
Annual procurement plan for TB commodities and availability of any documentation to support the existence of the process	Malawi, Swaziland, Uganda, and Zambia
Data about annual budget for TB medicines readily available	Malawi, Uganda, and Zambia
Data about purchased medicines (figures and quantities) at the TB program	Malawi, Swaziland, Uganda, and Zambia
TB commodities procurement and supply management	Malawi, Swaziland, Tanzania, Uganda, and Zambia
Formal mechanism to track and obtain feedback from procurement unit about the pipeline medicines	Malawi and Zambia
Central logistics unit responsible for logistics data for health commodities	Malawi, Swaziland, Tanzania, and Zambia
TB program website	None

a. Tanzania has general pharmaceutical management policies and guidelines.

b. There are general and HIV SC working groups, but the SC working group for TB was not found to exist in Tanzania.

ANNEX C. PROCUREMENT SYSTEM

Information	Country
Information or document detailing the past three years' budgets for procuring TB medicines	Malawi, Uganda
Information readily available about documented procurement quantities and budget	Malawi, Uganda, and Zambia
Formal supplier performance management system in place	None
Procurement tracking mechanism in place	Malawi and Zambia
Documented emergency procurement of TB in the NTP	Malawi
Data about whether there has been any "intercountry" distribution	Malawi, Swaziland, and Zambia

ANNEX D. INVENTORY MANAGEMENT SYSTEM

Information	Country
National guideline or SOP about managing TB commodities	Malawi, Swaziland, and Zambia
Setting of “minimum and maximum” stock levels for TB medicines	
Clearly outlined ordering process and schedule	Malawi, Swaziland, Uganda, and Zambia
Scheduled stock taking for TB medicines	

Note: No information about inventory management was collected from the National TB and Leprosy Program in Tanzania.

ANNEX E. TB COMMODITY MANAGEMENT CAPACITY BUILDING

Presence of	Country
National TB logistics training package or national logistics training that includes TB commodities	Swaziland and Uganda
TB logistics management supportive supervision	Malawi, Swaziland, Uganda, and Zambia