

Lesotho National Supply Chain Assessment Report

Capability and Performance

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MINISTRY OF HEALTH



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Acronyms

ACT	artemisinin-based combination therapy
ADR	adverse drug reaction
ARV	antiretroviral
BCG	Bacille Calmette-Guerin
CHAL	Christian Health Association of Lesotho
CMM	Capability Maturity Model
DH	district hospital
DHMT	District Health Management Team
EID	early infant diagnosis
eLMIS	electronic logistics management information system
EML	Essential Medicines List
FASP	forecasting and supply planning
FEFO	first expiry, first out
FIFO	first in, first out
FP	family planning
GBT	Global Benchmarking Tool
GDP	Good Distribution Practices
GF	Global Fund
GHSC-PSM	Global Health Supply Chain-Procurement and Supply Management
HCW	health care waste
HCWM	health care waste management
HR	human resources
IM	intramuscular
IPC	infection prevention and control
KPI	key performance indicator
LeMeRA	Lesotho Medicine and Medical Devices Regulatory Authority
LMIS	logistics management information system
M&E	monitoring and evaluation
MoF	Ministry of Finance
MoH	Ministry of Health
MTEC	Ministry of Tourism, Environment and Culture
NA	not applicable
NCD	non-communicable disease
NDSO	National Drug Service Organization
NHASP	National HIV and AIDS Strategic Plan 2023–2028
NRH	National Referral Hospital
NSCA	National Supply Chain Assessment
PD	Pharmacy Department
PEPFAR	U.S. President’s Emergency Plan for AIDS Relief

PPT	plasma preparation tube
PV	pharmacovigilance
QA	quality assurance
RH	reproductive health
RHZE	Rifampin/Isoniazid, Pyrazinamide, and Ethambutol
RMS	regional medical store
RTK	rapid test kit
SATP	stocked according to plan
SCMD	Supply Chain Management Division
SCMS	supply chain management system
SDP	service delivery point
SLA	service-level agreement
SOA	state of the art
SOP	standard operating procedure
SOW	scope of work
SPM	strategic planning and management
STGs	Standard Treatment Guidelines
TA	technical assistance
TB	tuberculosis
TLD	tenofovir, lamivudine, and dolutegravir
TWG	technical working group
WHO	World Health Organization

The NSCA implementation team would like to thank the following individuals who were immensely helpful during data collection:

- Amos Makhoakye
- Lekotoane Namole
- Khosi Mohapi

Dedication: This report is dedicated to Mme Rona, who led supply chain development and public health in Lesotho for many years. May her soul rest in peace.



Executive Summary

The Ministry of Health (MoH), National Supply Chain Assessment (NSCA) Steering Committee, United States Agency for International Development (USAID), and USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project conducted fieldwork in Lesotho for the NSCA from July 31, 2023, to August 18, 2023. The NSCA measures the capability, functionality, and performance of supply chain functions at all desired levels of a national health supply chain system. The assessment toolkit collects information through three primary methods: a supply chain system mapping exercise, the Capability Maturity Model (CMM) questionnaire, and key performance indicator collection. The 11 functional areas of effective supply chains assessed by the CMM survey are shown in Exhibit I.

Exhibit I. NSCA 2.0 CMM Functional Areas
Strategic Planning and Management (SPM)
Policy and Governance
Human Resources (HR)
Financial Sustainability
Forecasting and Supply Planning
Procurement and Customs Clearance
Warehousing and Storage
Distribution
Logistics Management Information System (LMIS)
Quality and Pharmacovigilance
Waste Management

The primary objectives of this assessment were to:

- Analyze and measure the performance, operational capacity, and capability of the national public sector–financed health commodity supply chain.
- Identify the performance gaps (bottlenecks, root causes, and opportunities for improvement) to guide system strengthening investments.
- Understand how the response of the Government of Lesotho (GoL) to the COVID-19 pandemic has affected key commodity availability, specifically for but not limited to HIV and AIDS.
- Assess the ability of the GoL supply chain to absorb shocks and interruptions in the context of pandemic response.

The assessment scope was only for the public sector health supply chain, which includes the private not-for-profit entity the Christian Health Association of Lesotho (CHAL). The NSCA sampled public facilities across multiple levels of the supply chain system: health centers, special clinics, hospitals, and primary hospitals. The final sample also visited the central-level key institutions such as the National Referral Hospital (NRH), the National Drug Service Organization (NDSO), the Supply Chain Management Department (SCMD), the Pharmacy Department (PD), the Ministry of Finance (MoF), and the Ministry of Health (MoH). The NSCA assessed a total 86 sites across the country.

Assessment results are presented by each technical area, disaggregated by the relevant facility types assessed for that supply chain function. As the Lesotho Supply Chain Strategic Plan 2019/20–2022/23 is a key framing document for supply chain strategic planning and reform, reference will be at the beginning of each section to frame and better contextualize priority activities in that supply chain area as well as priorities for improvement. Each section concludes with specific recommendations to address the findings detailed within that section that are aligned with the GoL’s overall goals and objectives for its public health supply chain.

Overall, the assessment team encountered a supply chain that effectively implements foundational supply chain activities (warehousing, distribution, and to an extent LMIS) but needs additional support and focus in high-level organizational and governance areas as well as ancillary areas important to the overall public health system. Pharmacovigilance in particular was a functional area that had very low levels of capability and maturity across the entire supply chain operating environment. At the central level, higher levels of capability and maturity were documented in the procurement, warehousing, and distribution functions, while strategic planning and management and governance were areas of focus and improvement at the central level. At the service delivery level, capability maturity scores were highest in LMIS, warehousing, and human resources.

An overarching question that came to the attention of the assessment team is the supply chain’s overall governance structure. The lack of an implemented national medicines policy and the ongoing development of the Lesotho Medicine and Medical Devices Regulatory Authority (LEMERA) are critical components of the supply chain operating environment that need to be codified and aligned with existing entities. As the LEMERA comes online, it will be critical to draw clear lines of accountability, responsibility, financing, and cooperation with the National Drug Service Organization (NDSO), SCMD, and PD. Without effective, non-overlapping responsibility allocation and clear leadership, there is risk of duplication of effort and disfunction.

The assessment team found the NDSO to be an important asset to the supply chain. As the central medical stores, the organization plays a crucial role in successful operation of the national supply chain. The assessment encountered a mature warehousing and distribution operation that performed consistently and effectively. For example, through reviewing hundreds of orders, the entity was found to deliver on time more than 90 percent of the time to service delivery points—exactly the kind of reliability the supply chain needs to ensure long-term resilience.

Looking more broadly at system design, categorizing health products as Category A (contains products that have some donor support) versus Category B (contains products financed only by the GoL) is a distinction that served a particular purpose for the country when the supply chain was a nascent entity. However, at this stage in the maturity evolution of the Lesotho supply chain, that distinction is no longer a benefit to the supply chain. Harmonizing and aligning these parallel cycles will be of great benefit to the harmonization and timing of key supply chain processes, such as forecasting and supply planning and the LMIS.

Overall, the 2023 NSCA presents a detailed understanding of the Lesotho supply chain to an extent that has not been realized in over a decade. The results provide a clear guide to critical areas for focus and improvement as well as strengths and achievements of which the operators of the supply chain can be proud. As the governance of the supply chain comes more clearly into view, the GoL has an incredible opportunity to continue to drive excellence through its supply chain planning and operations. The authors of this report are confident that with effective governance and strategic supply chain reform, Lesotho can ensure a strong and resilient supply chain in the years to come.

Background

Lesotho's Public Health Context

Lesotho is a mountainous, land-locked country surrounded by South Africa. Its 2,090,482 people, referred to as Basotho, include 51 percent women, 31 percent under the age of 15, and 15 percent under the age of 5. The country is divided into ten districts, five considered highlands and five lowlands. Lesotho is classified as a lower middle-income country with a Human Development Index of 0.5272 and a Gross National Income per capita of \$3,151.30. A total 72 percent of the population live in rural areas.

According to recent figures, 42 percent of the health centers and 57 percent of the hospitals are owned by the government of Lesotho. Christian Health Association of Lesotho (CHAL) owns 23 percent of the health centers and 38 percent of the hospitals. The remaining facilities are privately owned. An extensive network of private surgeries, nurse clinics, and pharmacies provides health care, including dispensing medicines. About 90 percent of the private for-profit health facilities are situated in the four large districts of Maseru, Berea, Mafeteng, and Leribe.

CHAL is the second-largest provider of health services and the largest private-not-for-profit public health provider. The organization plays a crucial role in providing health care services to at least 40 percent of the population, most of whom live in remote areas where coverage by government-owned facilities is relatively poor. Non-governmental organizations providing health services include Lesotho Planned Parenthood Association, which has nine clinics located in urban centers around Lesotho; Lesotho Red Cross Society, which operates four clinics; and Population Services International, which operates five voluntary counseling and testing centers,

In 2022, the Lesotho Estimates Group determined that, due to the large number of Basotho accessing HIV services outside of Lesotho, the de facto population of 1,868,395, based on the 2016 Census, was the most appropriate for national estimates.

The Government of Lesotho (GoL) has many priorities beyond HIV/AIDS and related health programming, and it had ceded much of the national HIV response to U.S. President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund. The COVID-19 pandemic complicated discussions on transitioning donor-funded programs to the government. The GoL's multi-sectoral HIV sustainability working group, which should launch in the coming months, will be key in pushing these conversations forward.

The biggest public health threats facing the country today encompass communicable and non-communicable diseases (NCDs). NCDs are a major health issue for the country with cardiovascular, chronic respiratory disease, cancer, and diabetes representing a mortality burden of 1,320 per 100,000 males (2021). In total, NCDs comprised 45 percent of all causes of mortality in 2019 (Schwitters et al., 2022).

The communicable disease burden in Lesotho is also significant, with HIV/AIDS and tuberculosis (TB) being the two greatest causes of morbidity and mortality. Globally, Lesotho's TB incidence is the second highest with 724 cases per 100,000. The high percentage (72 percent) of TB patients who are living with HIV (National Tuberculosis Program, 2017) is driven by Lesotho's HIV epidemic. TB prevalence peaks among the modal HIV incidence age groups of 25–34 and 35–44 (World Health Organization, 2023). HIV/AIDS was first detected in the country in 1986. The government has been committed to providing

counseling and treatment to its population since the beginning of the disease's appearance in the country, with the Lesotho's National AIDS Prevention and Control Program being established in 1987 (Bulled, 2015). As of 2021, Lesotho also has the second highest incidence of HIV/AIDS in the world at 20.9 percent of the population ages 15–49 (The World Bank, 2023).

After Lesotho's HIV incidence peaked in 2014 at 24.9 percent, the country started implementing novel approaches to reach its population with HIV treatment and care services, first establishing a provider-initiated testing and counseling program with practitioners traveling to homes to help administer tests and start treatment. Though variably successful, the program eventually led to the adoption of universal test and start, where every individual who tested positive for HIV was enrolled in antiretroviral (ARV) therapy, no questions asked (Lesotho Ministry of Health and Social Welfare (MoHSW), 2015).

Today, ARV therapy is available free of charge to anyone who needs it. Medicines are provided through the national health care systems at clinics and health centers. Lesotho has committed to eliminating HIV/AIDS by 2030, per the National AIDS Commission. As of 2021, Lesotho has now met all 90-90-90 targets among adults (ages 15 years and older) living with HIV. The country has surpassed the overall target for 2020 to have more than 73 percent of all adults living with HIV achieving viral load suppression. As it resets its goals for 95-95-95, the country is well positioned to hit these targets ahead of its elimination goal set for 2030 (Columbia University: International Center for AIDS Care and Treatment Programs, 2021).

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Lesotho's Public Health Supply Chain

The health sector in Lesotho is still viewed as “a complicated web of vertical health programs with parallel logistics systems that manage their respective health commodities. The individual supply chain system varies in coverage, availability of information and commodities and logistics performance.” (Lesotho National Strategic Plan, 2019). ARVs are maintained in full supply with a clear ordering system, relatively available information, and clear procurement planning through government procurement.

Lesotho currently faces several challenges prioritized by the GoL and the Supply Chain Management Department (SCMD). Agency participation, such as USAID's, continues capacity building through technical assistance (TA) on forecasting and supply planning (FASP) activities to ensure uninterrupted commodity supply chain management through the GHSC-PSM project. Furthermore, the country is focused on continued strengthening of the electronic logistics management information system (eLMIS) for end-to-end data quality and visibility for Lesotho's supply chain.

According to the GoL, the main challenges experienced in the supply chain system are related to other commodities, including the difference between Category A and Category B products, insufficient procurement, FASP, parallel procurement by programs to that of the NDSO, and limited financing coupled with unequal disbursement of finances. Implementing partner-driven procurement is also in place, which is at times not sufficiently coordinated by the authorities, leading to a disruption in the smooth running of supply chain activities.

To achieve sustained HIV/AIDS epidemic control, an uninterrupted supply of quality-assured commodities is needed, including ARVs, rapid test kits (RTKs), early infant diagnosis (EID) products, viral load, condoms, and tenofovir, lamivudine, and dolutegravir (TLD) commodities. In addition, tuberculosis (TB) preventive treatment, voluntary medical male circumcision, and pre-exposure prophylaxis commodities remain vital to ensure that patients don't contract TB and new HIV infections are averted.

Challenges in financial sustainability continue to cause obstacles to Lesotho's supply chain health as well. While the GoL currently funds 70% ARV procurements in the country now, certain products remain financed by donor entities. U.S. President's Emergency Plan for AIDS Relief (PEPFAR) funds currently provide for laboratory commodities to cover 75 percent of the country's need for viral load (VL) monitoring, EID, and TB diagnosis in the 10 districts. Global Fund (GF) also supports 25 percent of laboratory commodities required by the country to cover all sites in the 10 districts of Lesotho. ARVs and RTKs will be funded by GF and the MoH.

The DSD provided by the district logistics officers has had an impact on commodity visibility, including integrating COVID-19 commodities and consumables in the GoL Supply Chain Management (SCM). The COVID-19 requisition orders move swiftly from the site level through to District Health Management Teams (DHMTs) to the central medical stores through informed push, the DHIS2-based eLMIS system.

USAID proposed to conduct and implement the National Supply Chain Assessment (NSCA) to assess the supply chain's maturity, capabilities, and performance for sustaining HIV epidemic control and cross connect with other health areas integrated within the supply chain, another gap identified by GoL MoH includes condom distribution and availability in public and private spaces, tying to private-sector growth and cooperation. In 2024, PEPFAR also plans to develop a sustainable strategy for condom distribution looking into public-private partnerships.

Overview of the Supply Chain Assessment Activity

Under MoH leadership, the NSCA Steering Committee, the SCMD, the NDSO, USAID, and GHSC-PSM provided support for the requisite fieldwork for the NSCA in Lesotho from July 31 to August 18, 2023. The assessment had four primary objectives:

1. Analyze and measure the performance, operational capacity, and capability of the national public sector–financed health commodity supply chain.
2. Identify the performance gaps (bottlenecks, root causes, and opportunities for improvement) to guide system strengthening investments.
3. Understand how the Government of Lesotho’s response to the COVID-19 pandemic has affected key commodity availability, specifically for but not limited to HIV and AIDS.
4. Assess the ability of the GoL supply chain to absorb shocks and interruptions in the context of pandemic response.

The NSCA 2.0 includes three distinct elements:

1. Results in a visual representation of the country’s supply chain
2. Measures of the overall capability, resources, processes, and functionality of the country’s supply chain
3. Collection of site-level data on key performance indicators to measure supply chain performance.

Based on the findings, the GoL, in collaboration with key supply chain stakeholders, can revisit and refine strategic priorities and operational plans, leverage a shared understanding of the current context to build stakeholder support for collective action, and follow up on flagged areas of poor relative performance with targeted root-cause analyses.

The NSCA focused on those parts of the Lesotho health supply chain directly financed or directed by the GoL. The assessment team collected capability and performance metrics on the MoH (and its Departments), the National Drug Service Organization (the central medical stores), hospitals, health centers, and special clinics. Private not-for-profit service delivery facilities from CHAL were also included in the assessment. Donors play a key role in Lesotho’s public health system, especially in procuring key commodities, and their actions certainly affect the public system. However, to the extent that donors feature in the NSCA, it is to assess how Lesotho’s public health actors effectively manage relations with them, rather than to assess donor capabilities or performance directly. Similarly, the private health market is an actor in Lesotho’s health system, but one that remained mostly outside the scope of this assessment. Future assessments on donor effectiveness and the private health market would certainly be welcome complements to the NSCA. As is, the NSCA’s value is in focusing on the public dimensions, across 11 technical areas and multiple levels, to inform future public system strengthening.

The following discussion offers interpretations of the capability and performance results and translates them into recommendations for future supply chain interventions. The Summary of Findings and

Conclusions sections highlight key takeaways and suggestions for future analysis. The report annexes, provided in a second document, include the complete assessment tools and other detailed information.

Methodology

Over six months, from March to July 2023, the assessment team engaged relevant in-country stakeholders to define the scope of work (SOW), determine the tracer commodities for the assessment, and assemble and train data collection teams. This approach simultaneously aimed to strengthen buy-in and investment in the exercise from the MoH, the NSCA Steering Committee, USAID, and other key supply chain stakeholders. The team used the NSCA 2.0 toolkit to guide planning, data collection, and analysis. This section describes in greater detail the process and the assessment’s methodology.

The National Supply Chain Assessment Toolkit

The NSCA 2.0 is an updated toolkit that measures the capability, functionality, and performance of supply chain functions at all desired levels of a national health supply chain system. The toolkit includes three primary assessment elements: supply chain mapping, the Capability Maturity Model (CMM) tool, and the key performance indicator (KPI) assessment tool (see Exhibit 2). The toolkit is available for download at www.ghsupplychain.org.

Exhibit 2. Overview of the Three Elements of NSCA 2.0 Assessment	
ACTIVITY	DESCRIPTION
Supply chain mapping	The objective of mapping is to obtain an in-depth understanding of the supply chain, including the roles and responsibilities of key supply chain actors. This is achieved through facilitated group work to identify similarities and differences among various product groups flowing through the system.
CMM diagnostic tool	The CMM diagnostic tool assesses capability and processes across functional areas and cross-cutting enablers (e.g., human resources (HR), financial sustainability) using interviews and direct observation.
Supply chain KPIs	The KPIs include a set of indicators that measure supply chain performance in selected functional areas.

The toolkit also includes resources for planning and implementing the assessment activity, and for analyzing and disseminating.

Scope of Work

The SOW required the assessment team to conduct a comprehensive assessment of Lesotho’s public health system across levels: central and service delivery. Also, the assessment disaggregates data across multiple facility types: primary hospitals, referral hospitals, hospitals, health centers, and special clinics. At the central level, the team carried out assessments at the MoH, Ministry of Finance (MoF), and National Drug Service Organization (NDSO). Exhibit 2 in the following section lists all sites where data were collected in August 2023. The complete SOW is included in the Annex.

Sampling

The NSCA 2.0 was designed to assess country-level supply chain infrastructure, with disaggregation at the level of facility type. Some facility types were lumped together to account for similarities in size and capability and to reduce overall sample size. In Lesotho, the sample frame consisted of all public health facilities across the country for which the national government has a census of sites as well as service delivery facilities that are operated by CHAL.

The sampling frame thus consisted of 191 health centers, 18 hospitals, three primary hospitals, and one referral hospital. The MoH, MoF, and National Drug Service Organization were also included. The sample frame excluded fully private facilities, as this assessment focused on public-sector entities.

The assessment team determined the minimum sample size using the hypergeometric sample size formula, assuming a margin of error of +/- 10 percent, and a 85 percent level of confidence as the NSCA 2.0 guidance suggests. The team used a randomized two-stage sampling process to select health centers. The sample size was initially calculated for the number of districts, and later calculated for the number of health facilities needed, based on the above parameters and assuming a design effect of 1.6. The design effect used is based on post-assessment analysis of NSCA 2.0 pilots. Districts were selected with the probability of inclusion in the assessment proportional to the number of health facilities in each district. Within each selected district, seven health centers and two hospitals were selected at random. Also, all primary hospitals, referral hospitals, and central medical stores were selected because of their outsized importance in the supply chain.

The final sample is detailed below along with the full sample frame (see Exhibit 3). We assessed a total of 86 sites. The full list of selected sites is provided in the annex.

Exhibit 3. NSCA Sampling Frame and Selected Sample		
Facility Type	Population	Sample
Health Centers	191	56
Hospitals	18	15
Special Clinics**	15	8
Primary Hospitals*	3	3
Referral Hospitals*	1	1
Central Medical Stores*	1	1
Central-level Entities*	2	2
Total	231	86

*Denotes that this facility type was censused

**Special Clinics layer includes Filter Clinics.

Note on Special Clinics: As part of NSCA methodology, there are cases where for operational efficiency and practicality, some facility types are grouped together in the sampling stage. Such is the case for special clinics, this facility type was combined with filter clinics for the purposes of sampling. Therefore, the results of filter clinics and special clinics is presented jointly under the label “Special Clinics”.

At each selected facility, data collectors completed a capability maturity model (CMM) survey and collected data on key performance indicators. In all cases, they sought to talk with key informants most

qualified to speak on given assessment modules or technical areas (e.g., financial sustainability, warehousing and storage, policy and governance). In larger facilities, this often resulted in multiple interviews per site—e.g., with the financial officer, warehouse manager, and head pharmacist. This was especially the case for the MoH, where we conducted over a dozen interviews to fully complete the CMM assessment. Conversely, in smaller facilities, individual staff members (e.g., the lead pharmacist) often played multiple supply chain roles and thus answered multiple modules within the assessment.

Team Composition and Training

Central-level and field teams were formed and trained to conduct this assessment. Central-level interviews with the MoH, SCMD, NDSO, and subsidiary department officials were led by an assessment team comprised of four USAID/Washington Office of HIV/AIDS (OHA) staff and one GHSC-PSM monitoring and evaluation (M&E) specialist, based in Washington, with support from an MoH representative and GHSC-PSM staff based in Maseru.

At the subcentral sites, 10 three- (or four-) person teams (35 members total) traveled to 86 sites over 13 days to collect data. Senior supply chain professionals, pharmacists, and supply chain managers were nominated by the MoH to participate as data collectors in this national assessment. Additional data collectors were drawn from GHSC-PSM staff, and other USAID implementing partners. Selection was based on a set of outlined skills and credentials, including deep understanding of key health care commodities, comfort with diverse supply chain functional areas, experience with large assessments, high levels of professionalism, and significant autonomy. All data collectors participated in an intensive four-day training on the assessment tools, SurveyCTO, tracer commodities, and best practices in survey methods. On the fourth day of training, participants conducted pilot assessments of three health facilities in greater Maseru. The pilot served as a practice exercise for data collectors, a low-stakes chance to troubleshoot technology, and a final opportunity to provide targeted feedback to the assessment team to further refine the survey to the Lesotho context.

Procedures

Four weeks before the start of data collection, MoH-endorsed letters were sent to facilities to inform them that their facility had been randomly selected to participate in a national assessment of the health supply chain system. Data collectors also carried with them a copy of the notification signed by the MoH, in case of communication failure, and were trained to explain or further reinforce the purpose and value of the assessment upon arrival.

The teams collected subnational data from August 7 to 18. On average, they spent one full day assessing health centers, one to one-and-a-half days at hospitals, and two days at primary hospitals and referral hospitals, with travel days in between. One team member would lead the CMM survey interviews, while the other collected KPI data. If one team member completed their respective interview early (usually the CMM lead), data collectors would support the team member. In a handful of cases, teams included a third member to support KPI data collection at large and predictably difficult sites.

The central-level team collected data from multiple department officials within the MoH, including vertical program leads and senior finance, human resource, warehousing, procurement, customs, and regulatory officials. Access was facilitated with scheduling support by key MoH representatives and GHSC-PSM staff, and reflected relationships developed throughout the planning process with key stakeholders in the MoH. Central-level interviews were conducted over a two-week period, from

August 7 to 18. A total 30 interviews were conducted with senior central officials across central-level institutions and departments.

The CMM questionnaire measures the level of capability and functionality present in the supply chain across 11 functional areas, including storage and warehousing, distribution, financial sustainability, waste management, and human resources. Only relevant modules were assessed at specific sites, depending on their facility level. For example, health facilities were not assessed on their capabilities in forecasting and supply planning. Relevance was determined by consultations with Lesotho counterparts to understand what supply chain functions were expected at different facility types throughout the system.

The survey consists primarily of an extensive set of binary yes/no-type questions that establish the presence—or lack thereof—of a set of supply chain capabilities, processes, and best practices. The structure facilitates collecting data in a standardized way, reduces the impact of subjectivity in the assessment (compared to NSCA 1.0), and improves comparability of the results across countries and time.

Data were collected through a mix of key informant interviews, direct observation, and verification through supporting documents. Data collectors were trained to ask to speak with the facility staff best suited to respond to each module, based on the respondent’s area of operation. For example, where present, a stock manager would be considered best suited to answer questions on warehousing and storage and the lead accountant to answer questions on financial sustainability. As part of the tool, a subset of respondent answers was paired with structured requests for documentation to verify the response (e.g., logistics reports, standard operating procedures (SOPs), financial records). In the warehousing and storage module, data collectors were instructed to conduct the interview itself in the storage space and directly observe capabilities (e.g., packets, generators, safety equipment). Depending on the number of modules completed, availability of key informants, and speed of retrieving verification documents, the CMM questionnaire might take many hours to a full day to complete. Data were collected electronically using the SurveyCTO platform on individual tablets.

Exhibit 4 provides an overview of the functional areas addressed in the CMM questionnaire by type of facility. The annexes include a complete list of the facilities assessed, along with the geographic coverage in a map.

Exhibit 4. CMM Functional Area by Level in the Lesotho Supply Chain System—Noncentral Levels						
#	FUNCTIONAL MODULES ASSESSED	Health Centers	Special Clinics	Hospitals	Primary Hospitals	Referral Hospital
1	Strategic Planning and Management					✓
2	Human Resources	✓	✓	✓	✓	✓
3	Financial Sustainability	✓	✓	✓	✓	✓
4	Policy and Governance					✓
5	Quality and Pharmacovigilance	✓	✓	✓	✓	✓
6	Forecasting and Supply Planning					✓
7	Procurement and Customs Clearance					✓
8	Warehousing and Storage	✓	✓	✓	✓	✓
9	Distribution					✓
10	Logistics Management Information Systems	✓	✓	✓	✓	✓

11	Waste Management	✓	✓	✓	✓	✓
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Key Performance Indicators

KPIs are used to measure current supply chain performance. The assessment teams used the KPI assessment tool to collect granular quantitative data for a core set of indicators that are aligned with international standards for health supply chain management. KPIs included stocked according to plan (SATP) percentages (by tracer), stock card accuracy, stockout rates (by tracer), temperature excursions, and staff turnover rates. The full list of KPIs and the facility level at which they were collected is presented in Exhibit 5.

Data sources for KPI data included stock cards, the logistics management information system (LMIS), and eLMIS reports, invoices, orders, proof of delivery notes, temperature monitoring logs, and dispatch notes. Retrospective data (six months to one year) were also collected in some cases to better illustrate the consistency of past performance. Depending on the size of the facility, availability, and state of documentation, and quantity of stock on hand, KPI data collection could be a time-consuming endeavor, requiring one data collector to spend anywhere from several hours reviewing reports and counting stock to up to two full days. Data were collected on tablets using SurveyCTO.

Exhibit 5. KPIs by Level in the Lesotho Supply Chain System								
#	Key Performance Indicators	MoH	NDSO	Referral Hospitals	Primary Hospitals	Hospitals	Special Clinics	Health Centers
1	Stock data		✓	✓	✓	✓	✓	✓
2	Delivery data		✓	✓	✓	✓	✓	✓
3	Human resource	✓	✓	✓	✓	✓	✓	✓
4	Facility reporting rates			✓	✓	✓	✓	✓
5	Temperature excursions		✓	✓	✓	✓	✓	✓
6	Forecast accuracy	✓						
7	Supply plan accuracy	✓						
8	Source of funds data	✓						
9	Prices paid		✓					

In collaboration with the GoL NSCA Steering Committee, the tracer commodities shown in Exhibit 6 were selected for the NSCA. Collectively, they provide a fair representation of the commodity types that can be found in the Lesotho public health supply chain, account for unique supply chain challenges (e.g., cold chain transport), are nominally available at the health center level, and provide enough information to inform strategic decision making.

Exhibit 6. Tracer Commodities			
#	PRODUCT NAME	DOSAGE	PRODUCT CATEGORY
1	Tenofovir/Lamivudine/Dolutegravir (90-ct)	300mg/300mg/50mg	HIV/AIDS
2	Lamivudine/Abacavir	120mg/60mg	HIV/AIDS
3	Determine RTK	Not applicable (NA)	HIV/AIDS
4	Ora Quick RTK	NA	HIV/AIDS
5	Co-Trimoxazole Suspension	40mg/200mg per 5ml	HIV/AIDS

6	Male Condoms	NA	Family Planning/ Reproductive Health (FP/RH) FP/RH
7	DMPA (Depot Medroxyprogesterone Acetate) intramuscular (IM)	150mg vial/IM	
8	Amoxicillin Suspension	125mg/5ml	Essential Medicines
9	Oxytocin	10ui/ml	Essential Medicines
10	Hydrochlorothiazide	25mg	NCD
11	Metformin	850mg	NCD
12	Rifampin/Isoniazid, Pyrazinamide, and Ethambutol (RHZE)	(150mg/75mg/400mg/275 mg)	TB
13	Surgical Mask	NA	COVID
14	PPT Tube	NA	Laboratory
15	Bacille Calmette-Guerin (BCG) Vaccine	0.1 mg/ml	TB

Data Management

Each data collector was provided with an individual tablet programmed with SurveyCTO to electronically collect, enter, and upload data. All completed CMM and KPI questionnaires were uploaded daily to the SurveyCTO secure data server. After upload, the assessment team of USAID/Washington OHA supply chain advisors and one M&E specialist from GHSC-PSM reviewed submitted data daily for quality assurance (QA). In cases of data oddities or discrepancies, the specialists followed up directly with the data collection teams (through a Quality Assurance WhatsApp, supplemented by direct calls from the logistics lead) to confirm data points, resolve issues, and provide future guidance. This structured process served to verify that all answers were correctly coded and nonresponse data points removed, facilitating more efficient analysis. Further, the frequency of this data review (sometimes referred to as “cleaning”) enabled us to quickly identify unexpected issues, which were systematically addressed. After this daily review and response process, validated data were accepted by the M&E team for inclusion in the final datasets.

SurveyCTO exports data using a comma-separated values format. Data analysis workbooks that are part of the standard NSCA 2.0 toolkits were coordinately designed in Microsoft Excel to leverage this format. This minimized the data transformation process, streamlined data cleaning, and significantly increased automation of KPI calculation during data analysis. By using coding values that created clear “signal spikes,” nonresponse values were easily identified by the values populating a summary metrics page. The data analysis workbooks also produced charts, graphs, and data dashboards to enable top-line analysis that contributed to field-based debriefs for local stakeholders. Results will be discussed by examining all three components of the data collection: the supply chain map, CMM interviews, and KPI data collected.

Limitations

Strike of medical professionals in Lesotho

Shortly before the assessment team arrived in Lesotho, all medical doctors went on strike. The strike continued throughout data collection. Thus, the health care professionals who provided time and information at each site were likely nurses filling in for the doctors who normally manage the site. De

facto, each facility was understaffed during NSCA data collection and in some cases the most-knowledgeable respondent for a particular technical area was on strike and could not contribute to assessment results.

Comparing CMM and KPI scores

The NSCA 2.0 uses a two-stage cluster-sampling approach designed to yield a maximum error of ± 10 percent. We used this approach to ensure a representative sample of public health facilities and to leverage statistical principles to extrapolate the findings back to the larger population of health facility entities in the country. The NSCA 2.0 data analysis template in its current format does not calculate standard error for the numerous variables assessed with the collected data. Without the standard error, the precision of the KPI or CMM module score value is unknown (but presumably $< \pm 10$ percent).

While individual scores are meaningful, comparisons between two facility types for any CMM score or KPI are more challenging. Without calculated errors, any differences less than 20 percent (assuming the maximum possible error of ± 10 percent) cannot be stated with complete confidence. Therefore, to err on the side of caution, this report will not attempt to interpret differences between facility types within a CMM module, unless the computed difference is greater than 20 percent. Each KPI will be examined individually, by facility type, within the context of that facility type, rather than drawing comparisons across the supply chain. For facility types that were censused (provincial hospitals, referral hospitals, regional medical store (RMS) branches, central medical store, and central-level entities), no error is associated with those scores.

This does not imply that scores or KPIs are unimportant, or the underlying data are not useful. It is simply a function of sampling that limits the discrimination of small differences of scores because the precision is too low or unknown. In this case, making definitive statements about one score being higher than the other (unless the scores differ by more than 20 percent) is not appropriate. The underlying questions asked in the CMM are still insightful and will help drive analysis and recommendations.

Summary Results

Overall, we collected data from 86 sites across all levels of the Lesotho public health supply chain system, including:

- Central level (n=3), including the MoH, SCMD, and NDSO
- Service delivery points, including health centers (n=56), special clinics (n=8), hospitals (n=15), primary hospitals (n=3), and referral hospitals (n=1)

In this section, we provide a snapshot overview of collected data. The supply chain maps are presented first to establish the flow of products and information through the Lesotho public health supply chain system. Next, an overall table of CMM results, followed by select KPIs, synthesizes the assessment findings. In other sections of the report, results and findings are detailed first for each functional module and then for each level of service. Within each module, we present CMM scores first and then relevant KPIs. Discussion and recommendations specific to that module or service level follow the presentation of findings.

Supply Chain Maps: Commodity and Information Flows

All NSCA 2.0 implementations include, as a first step, a participatory exercise to comprehensively map the national supply chain. The objective is not only to obtain an in-depth understanding of the structure and processes of the supply chain but also to create an opportunity for key stakeholders to contribute meaningfully to this assessment. The activity pushes participants to go beyond distribution routes, to elaborate on the roles and responsibilities of key participants; clarify information flows; differentiate between various program streams and commodity paths; and identify strengths, weaknesses, and opportunities throughout the system.

On July 31, 20 participants convened for the one-day supply chain mapping workshop in Maseru, Lesotho. Participants included representatives from the MoH and NSCA technical working group (TWG), the national disease control programs, supply chain partners, and invited professionals (see report annex for the workshop slides, agenda, and final participant list). Participants were organized by their expertise into four working groups based on salient vertical programs, and each team was asked to produce a comprehensive map of commodity and information flows from procurement to service delivery. After the workshop, the assessment team integrated these maps into an illustration of the Lesotho public health supply chain with the goal of illuminating bottlenecks, inefficiencies, and opportunities for improvement.

Exhibits 7 and 8 illustrate the organization and elements within the Lesotho supply chain as well as the flow of commodities and information through the system. The final versions presented here have been reviewed and endorsed by the TWG.

Exhibit 7. Map of Commodity, Information, and Financial Flow

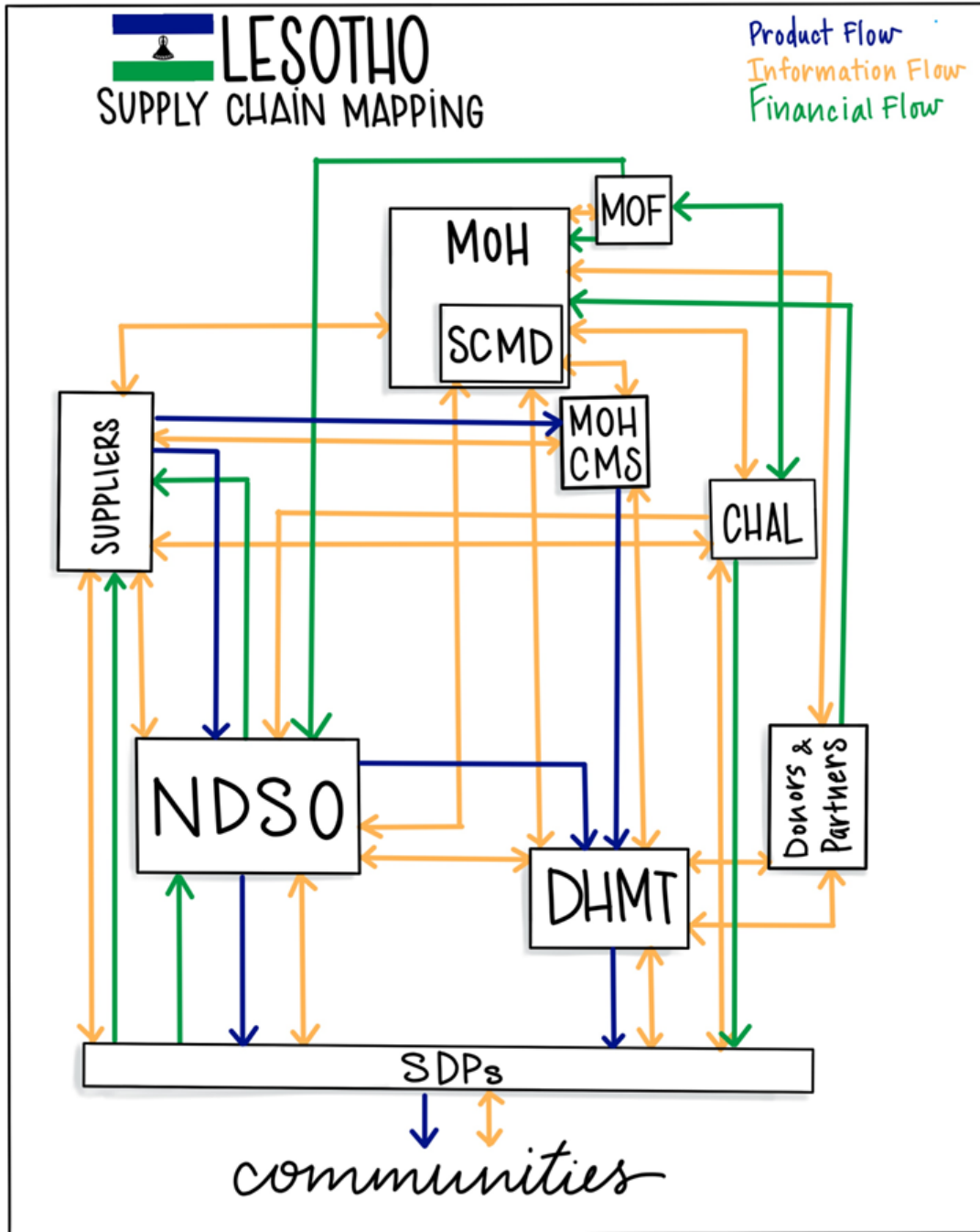
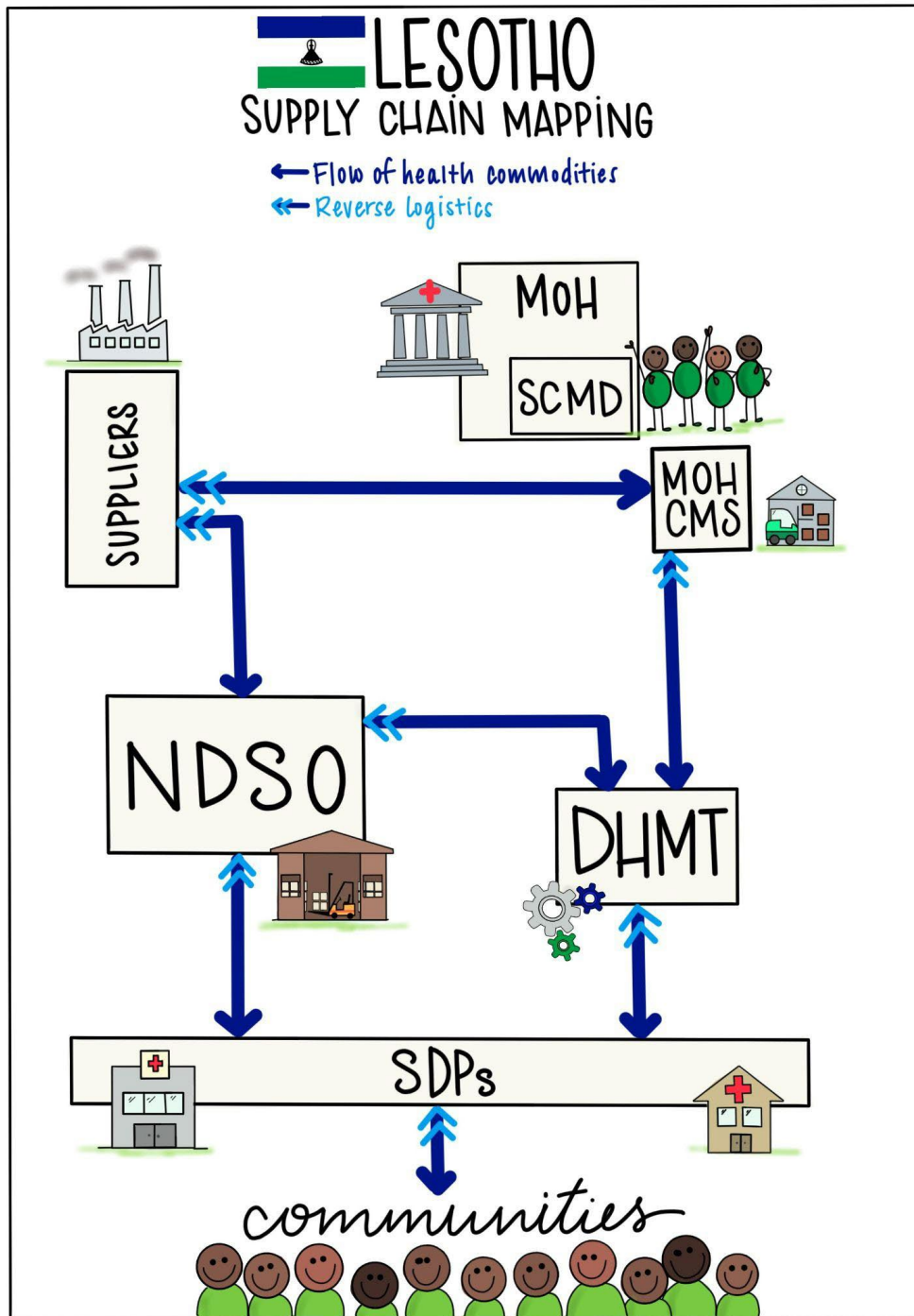


Exhibit 8. Map of Commodity and Reverse Logistics Flow



These illustrations of commodity and information flows through the Lesotho public health supply chain help to highlight several key facets and challenges of the current system:

- **Streamlined, integrated distribution operations:** Currently, the public health supply chain in Lesotho is serviced by only one warehouse, the NDSO warehouse outside of Maseru. This creates great efficiencies in the supply chain when only a singular entity can manage last-mile distribution. The small geographic footprint of the country makes this a possibility.
- **The critical coordination role of the Supply Chain Management Division:** The SCMD ensures the supply chain operates smoothly. Effective ownership and leadership in this role are essential to ensuring long-term sustainability.

Understanding the CMM Results

A review of the CMM results presented below must consider how scoring was completed. The capability and processes were assessed based on a maturity model, adapted from private-sector best practices to fit the public health context. For more information on how international benchmarks were considered in designing the CMM modules, review the NSCA 2.0 toolkit. Within each functional module, each question (or item) assessed has one of four maturity levels assigned to it, ranging from basic to state of the art (SOA); the overall CMM score for this module is the sum of scores at each maturity level. Exhibit 9 provides an overview of each level of maturity, its definition, and its overall contribution to the functional area’s overall CMM score.

This functional area overall CMM score is a composite derived from results of the questions across the maturity levels. Of a total possible 100 percent CMM score, **basic** items contribute 50 percent, **intermediate** items 30 percent, **advanced** items 15 percent, and **SOA** items 5 percent. The scores are not directly interpretable (e.g., a score of 50 percent does not indicate that all the basic items are in place in all facilities). However, they are comparable across the functional areas. The components that make up the basic level are scored separately from those associated with the intermediate level; scoring is done this way to recognize that even within a function, maturity levels may be mixed. The overall score for a single function is a composite of all basic, intermediate, advanced, and SOA scores. An overall maturity score for intermediate, then, does not necessarily indicate that every aspect of that function has achieved that level of maturity.

Exhibit 9. Definitions of Level of Maturity and Contribution to the Overall CMM Score

Level of maturity	Definition	Maximum contribution to the CMM score
Basic	Must-have policies, structures, processes, procedures, tools, indicators, reports, and resources to operate a supply chain system (e.g., a stock card as a tool for inventory management).	50%
Intermediate	Not must-haves but intermediate -level policies, structures, processes, procedures, tools, indicators (e.g., Excel).	30%
Advanced	Nice-to-have policies, structures, processes, procedures, tools, indicators, reports, and resources to operate a supply chain system (e.g., Rx solution, a stock management electronic tool).	15%
State of the art	Nonessential, SOA policies, structures, processes, procedures, tools, indicators, reports, and resources for a supply chain system (e.g., an enterprise resource planning system for stock management and control).	5%

Benchmarks in the NSCA

NSCA methodology does not benchmark scores against a set of standards to denote a specific technical area having attained a specific level. As explained above, a mix of levels is expected in the final CMM score. To help provide some structure around the analysis, the report authors use an 80 percent benchmark around which to discuss CMM scores. This benchmark has also been used in previous NSCA reports.

The logic behind this 80 percent benchmark is simple; to achieve such a score, most points must be in the basic and intermediate levels to mathematically reach 80 percent. If your supply chain has demonstrated capabilities across the basic and intermediate levels for a particular technical area, then most likely you do not need to prioritize this technical area for improvement in your next strategic planning process. Achieving 80 percent is certainly possible without completely filling basic and intermediate capabilities. This gap becomes a recommendation to focus on for that technical area. Overall, this benchmark's main purposes are to help separate technical areas that are relatively more advanced than others and allow for pragmatic prioritization in improving the public health supply chain.

Capability Maturity Model: Summary Tables

Exhibits 10 through 13 present a summary of key data findings for capability maturity metrics across the 11 technical areas and seven facility sampling disaggregation types.

Exhibit 10. Noncentral-Level CMM Scores, Average, and Ranges Presented by Level of Facility for Each Functional Module					
	Health Centers	Special Clinics	Hospitals	Primary Hospitals	Referral Hospitals
	56	8	15	3	1
Strategic Planning and Management	--	--	--	--	8%
Policy and Governance	--	--	--	--	100%
Human Resources	41% (10–73%)	56% (20–71%)	49% (8–75%)	33% (20–42%)	56%
Financial Sustainability	42% (6–80%)	45% (6–81%)	58% (16–83%)	46% (11–73%)	75%
Forecasting and Supply Planning	--	--	--	--	31%
Procurement and Customs Clearance	--	--	--	--	29%
Warehousing and Storage	43% (28–62%)	45% (29–53%)	56% (41–68%)	46% (27–61%)	57%
Distribution	--	--	--	--	--
Logistics Management Information System	49% (5–74%)	48% (35–62%)	50% (38–63%)	51% (30–63%)	34%
Quality and Pharmacovigilance	28% (0–96%)	46% (13–61%)	38% (0–74%)	17% (0–50%)	71%
Waste Management	32% (4–64%)	39% (13%–52%)	39% (17–54%)	34% (16–46%)	57%

Exhibit 11. Central-Level CMM Scores, Averages, and Ranges for Each Functional Module

	NDSO	SCMD	PD	CHAL	MoH
	n = 1	n = 1	n = 1	n = 1	n = 1
Strategic Planning and Management	70%	61%	--	18%	--
Policy and Governance	--	20%	15%	17%	30%
Human Resources	46%	46%	18%	34%	58%
Financial Sustainability	43%	57%	29%	66%	55%
Forecasting and Supply Planning	--	63%	--	--	51%
Procurement and Customs Clearance	64%	--	--	--	--
Warehousing and Storage	74%	--	--	--	42%
Distribution	74%	--	--	--	--
Logistics Management Information System	--	43%	--	--	58%
Quality and Pharmacovigilance	49%	--	14%	--	20%
Waste Management	37%	--	6%	--	16%

Note on Central Level Entities: While SCMD and PD are part of the Ministry of Health, there are cases where multiple interviews were conducted within the MOH to document capabilities within a technical area if it existed in multiple locations. For example, Warehousing & Storage module was assessed at MOH for central vaccine storage. For Financial Sustainability, the MOH Finance department was interviewed apart from SCMD and PD to understand overall fiscal processes for the Ministry. This is to ensure the most comprehensive catchment for the assessment.

Exhibit 12. Heat Map, Capability Maturity Model, Non-Central Facility Levels

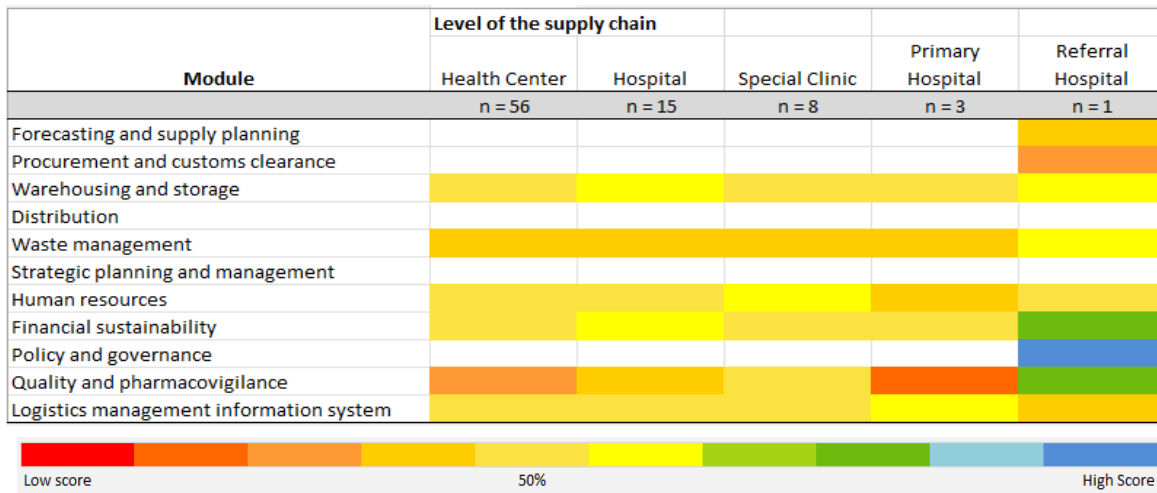
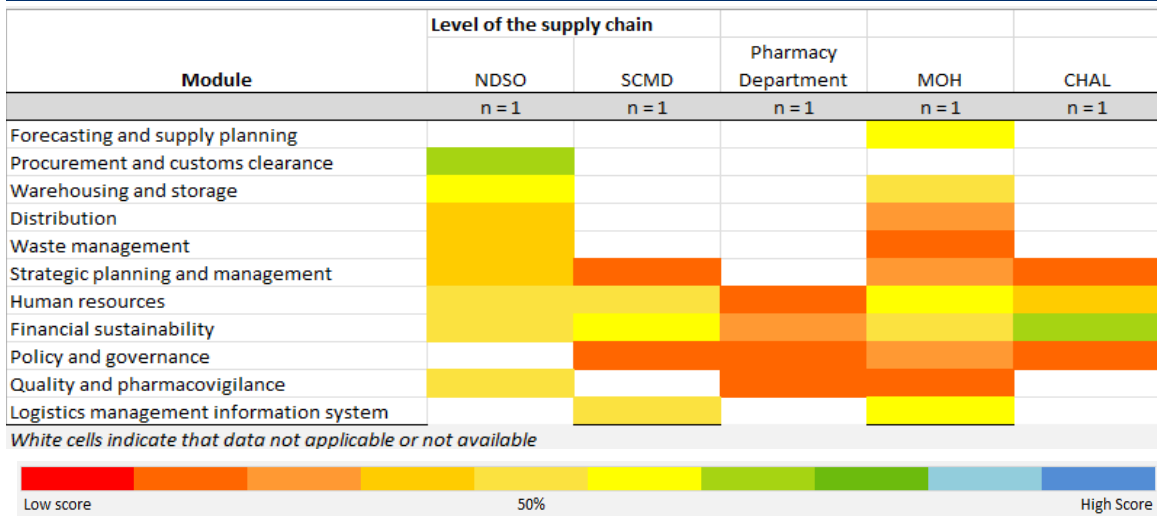


Exhibit 13. Heat Map, Capability Maturity Model, Central Facility Levels



Select KPIs: Summary Table

Exhibit 14 details a selection of key performance indicators that were measured across all subnational levels of the supply chain. Any stock-related indicator values are an average of all assessment tracer products.

Exhibit 14. Select Key Performance Indicators, Average, and Ranges Presented by Level of Facility					
	Health Center	Special Clinics	Hospitals	Primary Hospitals	Referral Hospitals
	n = 56	n = 8	n = 15	n = 3	n = 1
Stocked According to Plan (SATP) (all tracer commodities)	37% (14%–68%)	55% (21%–100%)	39% (22–67%)	37% (0%–78%)	--- ^x
Stockout on day of assessment (average of all tracer commodities)	14%	10%	5%	8%	13%
Average number of stockout days for 181-day period*	13.6 days (9%)	8.6 days (5%)	6.7 days (4%)	10.5 days (7%)	12.8 days (7%)
Average duration of a stockout, given that there was a stockout	5.6 days	5.0 days	3.4 days	7.1 days	12.9 days
Stock card accuracy: percentage of facilities at 100 percent accuracy	64%	65%	57%	56%	23%
Stock card accuracy: average deviation from 100 percent accuracy across facilities (no deviance = 0) **	20%–225%	4%–376%	10%–197%	8%–73%	0%–300%
Stock cards up to date: percentage of facilities with stock card up to date	61%	21%	37%	42%	33%
Waste from damage, theft, and expiry: damaged, lost, and expired stock as a percentage of the total stock available	1%	1%	0%	2%	0%
Staff turnover ratio	0%	32%	5%	0%	0%

* The first number in this row of the table refers to the average number of days the commodity was out of stock on average across the facilities during the six months of September 2021 through February 2022. This period included 180 days. The number in parentheses is the percentage of days the commodity was out of stock, on average. Thus, $46.3/180 = 27$ percent.

**This indicator compares the stock quantity on a stock card and/or in an inventory management software with the quantity of a physical inventory conducted during a site visit. Care needs to be taken when interpreting this indicator. Results close to zero indicate good relative accuracy, while results far from zero indicate poor relative accuracy, but do not necessarily imply large inaccuracies in absolute volume terms.

^x At the time of data collection, the referral hospital did not report having minimum and maximum inventory levels to use in calculating the SATP metric.

Analysis, by Functional Module: Capability Maturity and KPI Results

This section systematically presents context, findings, and analysis across each of the 11 technical areas assessed in the NSCA.

Strategic Planning and Management

Strategic planning and management ensure that supply chain priorities are identified, roles and responsibilities clarified, goals and changes directed, and frameworks for monitoring progress and performance established. SPM is the purview of the MoH, but all health system levels are responsible for understanding their role in the strategic plans. Major areas that were factored into the scoring for this CMM module are the existence of strategic plans; appropriate monitoring mechanisms, such as formal oversight committees that have broad stakeholder inclusions; and clear plans for private-sector engagement (see Exhibit 15).

Exhibit 15. Examples of Scored Strategic Planning and Management Capabilities

Basic	<ul style="list-style-type: none"> Presence of an approved supply chain strategic plan (or awareness of it for lower-level entities) Monitoring of supply chain implementation plan and presence of specific subsections Formal biannual assessment of supply chain risks
Intermediate	<ul style="list-style-type: none"> Strategic planning process that includes stakeholder mapping exercise Presence of a supply chain implementation plan Biannual updates to the supply chain strategic plan or implementation plan Actions to reform the supply chain system included in the strategic plan or implementation plan. Coordination or engagement with the private sector to improve the supply chain within the last year
Advanced	<ul style="list-style-type: none"> Monthly meetings of stakeholder groups to review supply chain performance. Presence of a risk management and mitigation/prevention plan Formal strategy for using public-private partnerships to improve supply chain performance
SOA	<ul style="list-style-type: none"> Formal and continuous assessment of supply chain risks

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

Three core strategic documents relate to supply chain in the national lens for Lesotho: the National Pharmaceutical Strategic Plan, the Lesotho National HIV and AIDS Multi Sectoral Strategic Plan, and the MoH National Supply Chain Strategy.

Out of these, two strategic plans are in the process of being updated at this time:

- **Lesotho National HIV and AIDS Multi-sectoral Strategic Plan 2023/4–2027/8**
- **MoH National Supply Chain Strategy (2019/20–2022/23)**

The Lesotho National HIV and AIDS Strategic Plan 2023–2028 (NHASP) provides a framework for further scaling up HIV prevention and achieving the goal of an AIDS-free generation. The NHASP aims to reduce new HIV infections among adults, adolescents, young people (15–24 years), and children (0–14 years) by 80 percent by 2028, reduce AIDS-related deaths by 80 percent by 2028, and eliminate HIV

stigma and discrimination. The plan seeks to achieve this through micro-targeting districts and populations based on evidence on HIV burden and service coverage gaps. It also prioritizes strengthening the community response and establishing a long-term plan for increasing investment in community-based interventions, scaling up integrated HIV services with other health services, and developing cost-efficient approaches for HIV service delivery.

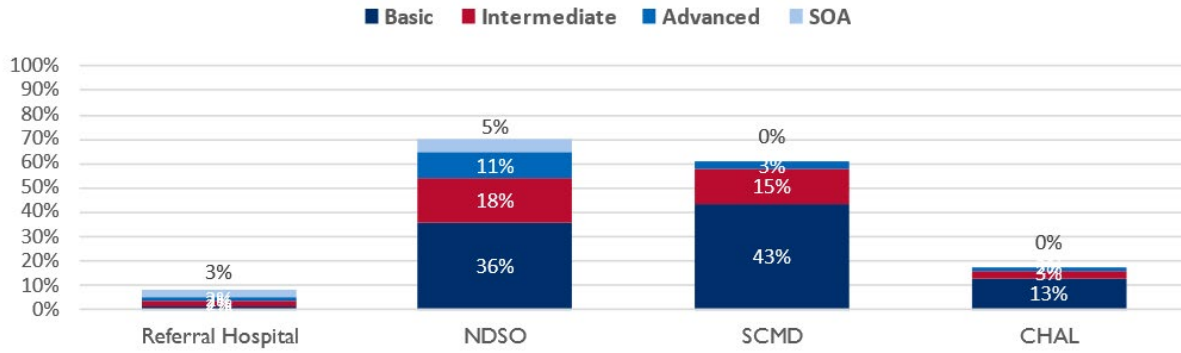
The MoH National Supply Chain strategy saw its first iteration in 2019, with the support of donors, implementing partners, and consultations to produce a document focused solely on supply chain objectives for the country. The document is reviewed every five years in accordance with the SCMD timelines for strategy review. Current strategic objectives of the supply chain management system (Supply Chain Strategic Plan 2019–2023) are to:

- Support the establishment of relevant policies and structures for supply chain management at all levels
- Improve coordination among supply chain players and functions.
- Strengthen capacity and performance of staff in supply chain management at all levels.
- Strengthen quantification and forecasting of medicines, medical technologies and devices.
- Strengthen the financing mechanisms to ensure an effective and efficient supply chain management system (SCMS).
- Ensure effective procurement processes and supplier performance management that are to the advantage of the supply chain mission at all times.
- Strengthen logistics management information systems to generate quality and timely available data for decision making.
- Support quality and proper handling of health products (supply chain management activities) throughout the supply chain.
- Ensure the quality of the commodities in the country at all times.
- Streamline the distribution system for all health commodities using an informed push distribution approach (push and pull).
- Strengthen good governance within the SCMS.

2023 NSCA Findings and Analysis

Strategic planning and management capabilities were assessed at four central-level facilities (referral hospitals, CHAL, the NDSO, and the SCMD). Results are provided in Exhibits 16 and 17.

Exhibit 16. Strategic Planning and Management Capability



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent), and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

Exhibit 17. Strategic Planning and Management Capabilities Maturity Scores and Select Question Responses

	Referral Hospital	NDSO	SCMD (MoH)	CHAL
n =				
Overall maturity score (range)	8%	70%	61%	18%
Presence of an approved supply chain strategic plan	⊘	✓	✓	⊘
Is the supply chain strategic plan updated yearly or more often?	⊘	⊘	⊘	⊘
Stakeholder mapping exercise	⊘	✓	✓	⊘
Presence of a supply chain implementation plan	⊘	✓	✓	⊘
Supply chain implementation plan is monitored (timeframe)	⊘	✓	✓	⊘
Supply chain reforms are being implemented	⊘	✓	✓	⊘
Formal structure exists to monitor supply chain performance at this level	⊘	✓	✓	⊘
Existence of performance monitoring plan tracking supply chain performance	⊘	✓	⊘	⊘
Existence of a risk management and mitigation/prevention plan	⊘	✓	✓	⊘
Coordination or engagement with private-sector companies	⊘	✓	✓	✓

Strategic planning capabilities

Results from the strategic planning and management module yielded unique insights into Lesotho's approach to the supply chain, and its current capabilities. Strategic planning is primarily conducted at the central level by the MoH through the SCMD. Every five years, a national HIV strategic exercise is conducted by the MoH, which informs its approaches to HIV programming in Lesotho. While covering a large swath of programming types, supply chain is explicitly mentioned within the larger plan, indicating that it has relevance in the country's programmatic activities in the HIV space. Similarly, in 2019, the SCMD developed its first National Supply Chain Strategy plan to specifically address issues and challenges within the supply chain space, noting areas of improvement, and the current landscape. Within the NDSO's organizational structure, warehousing, procurement, and distribution strategy integrate seamlessly into supply chain strategies for the organization. Given that they are the sole central medical warehouse, they hold significant influence in the way that those concepts work in Lesotho.

The average scores for capabilities of strategic planning and management capabilities across all health levels maintained in the basic range, indicating the existence of strategic plans and documents for supply chain strategy. Notably, the NDSO has scored 70 percent, indicating that it has met many of the criteria for basic, intermediate, and some advanced maturity capabilities. As said, in regard to strategy and program planning, this work is particularly done at the central levels (the SCMD and MoH). As a result, referral hospitals have lower scores within strategic capacity in the NSCA. Furthermore, strategy and implementation plans are not directly shared at lower levels of the health supply chain. This further connects to the larger themes observed throughout the assessment, in that supply chain strategies, initiatives, and general activities are seen as supplemental to the general day-to-day work at the facility level. While stock levels and demand for products are communicated at all levels, understanding and knowledge of a supply chain strategy are uncommon. This information is not meant to imply that a national or subnational strategy should be shared at all levels; it indicates only that these levels of the supply chain have low capacity to enact or engage with strategic planning and related documentation. Further information would be required to determine if such an effort is needed.

The NDSO has confirmed ownership of a strategic implementation plan called the Strategic Resource matrix, as well as annual work plans that derive from the primary strategic document. This primary document is updated every five years. The current strategic plan is not completely costed, but there is presence of a financial department and analysis of revenue streams that influence the organization's capacity to implement aspects of the strategy itself. While there is presence of a supply chain implementation document, the plan is updated and serves as more of a business strategy, as the NDSO is categorized as a for-profit entity. The structure of the plan is tiered, with all departments within the NDSO consolidating operational plans into the central strategic resource matrix. This compartmentalization allows for adaptability within the larger strategy document as well as easier identification of areas for improvement or recommendations. The top risks identified for strategic planning within the NDSO were noted as human resources, and also political and financial sustainability. Given that a primary financial strategy involves cost recovery fees associated with warehousing and procurement of managed commodities, this revenue can largely be dependent on the ability to maintain a steady stream of incoming commodities.

Having a 40 percent coverage of health facilities, CHAL has an integral role in Lesotho's supply chain capability and capacity. However, CHAL's strategic planning and management remain out of the hands of the organization. Its focus remains mission and values driven, which inspires the functionality and purpose of the organization. Currently, this holistic approach to health has not yet noted supply chain management as a focal point of the organization. Given that funding comes from a consortium of various international organizations, the influence of strategic planning is tied to their benefactors and investors. While the donations received provide funding for procuring commodities to some degree, the role of procurement does not serve as a bridge to the other health facilities within Lesotho, or the SCMD and MoH. Furthermore, many CHAL facilities are not exclusive to health facilities or services, given that many compounds also comprise a church and school. Many supply chain activities are non-existent in the day-to-day operations of the health facility, therefore generating a lower score on strategic documentation.

For the MoH/SCMD, components of supply chain implementation can be found in the MoH National HIV Strategic Plan, as well as the national Supply Chain Strategy authored by the SCMD. The MoH mentions supply chain in the National Strategy; however, most of the information and effort are within the SCMD strategy. The assessment registered a cumulative score of 61 percent for the SCMD, indicating many of the basic and intermediate capabilities are in place. The strategy housed by the SCMD

includes all components of a basic supply chain, encapsulating the essential core elements of strategic planning and implementation of a strong supply chain (LMIS, finance, forecasting and quantification, etc.). However, the assessment revealed that certain aspects of supply chain management are not yet included in the current strategy, including Strengths, Weaknesses, Opportunities, and Threats, or SWOT, analysis and comprehensive milestones. While issues are highlighted in an effort to resolve challenges and bottlenecks within the supply chain, the framing of resolution of issues could not be assessed as a holistic approach to supply chain implementation strategy. Currently, the three top risks noted by the supply chain for the SCMD are HR, finance, and donor issues.

Supply chain plans

Supply chain plans are reviewed quarterly by the SCMD and foster participation from supply chain stakeholders from the NDSO and GHSC-PSM. Supply planning is heavily influenced by the information in informed push, the eLMIS system of Lesotho.

Public-private partnership

For public-private partnerships, the most value has come from training and external certifications as they pertain to supply chain management. There are currently partnerships in areas of waste management, as local waste processes enlist assistance from third-party logistics providers to gather waste through LMD, although this is more closely affiliated with environmental compliance rather than supply chain management.

Supply chain risks

Exhibit 18 indicates the major risks experienced in the supply chain at the central level. Data for supply chain risk are not included for the subnational level.

Exhibit 18. Top Risks Experienced in the Supply Chain					
	NDSO	SCMD	PD	MoH	CHAL
Human Resources	✓	✓			✓
Economic				✓	
Political	✓			✓	
Donor Issues		✓			
Other					✓

Recommendations

The NSCA indicates that Strategic Planning and Management have a strong base maturity at the central level among three entities: the SCMD, NDSO, and, to a smaller degree, MoH. While the current strategies and implementation plans serve as a strong base for influencing how supply chain is oriented in country, Lesotho may benefit from reinforcing the core areas for supply chain management mentioned throughout the report and consistently evaluating not only existing and chronic challenges in the supply chain, but also forward-facing solutions on progress and future states.

- **Review and update strategies with more frequency to adapt to dynamic shifts in the supply chain.** Currently the strategy for the National Supply Chain strategy of the SCMD is

five years. Given the growth rate of supply chain activity and overall maturity in Lesotho, more frequent reviews may be beneficial to account for major shifts in the supply chain. From ARV procurement being transitioned to the MoH and NDSO gaining advanced warehousing capacity, these changes are significant enough to impact how the supply chain is managed in country and can happen in well under a five-year period.

- **Engage the private sector and/or collaborative partnerships.** This assessment revealed a lack of engagement with the private sector to accomplish supply chain goals. While benefits to outsourcing supply chain responsibilities are not guaranteed, there could be missed opportunities. It may be beneficial to map what opportunities Lesotho can leverage with private-sector assistance if challenges remain in the GoL to push forward better supply chain practices for the country. The push to deeply assess and better leverage and understand practices that may benefit the supply chain may reap notable benefits.
- **Use regulatory authority advocacy to empower MoH to fully realize its self-defined vision and mission for the supply chain.** The establishment of Lesotho Medicines and Medical Devices Regulatory Authority is an important milestone for the pharmaceutical system and the public health supply chain. The SCMD, PD, and LEMERA should work closely together to clearly define non-overlapping mandates and areas of cooperation for further enhancing the supply chain.

Supplemental Exhibit

Exhibit 19. SPM: Distribution of Questions and Assignment of Weight Across Capability and Facility Levels

MODULE	BASIC (50%)		INTERMEDIATE (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Referral hospital (1)	30	1.7%	18	1.7%	9	1.7%	2	2.5%
NDSO (1)	36	1.4%	13	1.2%	6	2.5%	1	5.0%
SCMD (1)	36	1.4%	13	1.2%	6	2.5%	1	5.0%
CHAL (1)	36	1.4%	21	1.4%	10	1.5%	1	5.0%

Note that interpretations of the scoring, and discussions of “differences” in the scores, need to be recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending upon the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Policy and Governance

Clear policies, guidelines, and oversight are important to ensure that public health systems are procuring essential medicines, practicing effective medicine, and revising policies to reflect changing best practices and onboarding new technologies. For the supply chain, national policies and governance should inform the full system, from procurement to patient treatment, ensuring that all actors operate based on standardized guidance. Major areas that were factored into the policy and governance capabilities scoring in this assessment are outlined in Exhibit 20, including the existence of a national medicines policy with supply chain components, an active oversight committee with broad representation from all

levels of government and civil society, drug registration lead times, and Standard Treatment Guidelines (STGs).

Exhibit 20. Examples of Scored Policy and Governance Capabilities

Basic	Existence of a national medicines policy that includes objectives for supply chain management. Five-year updates of national policies related to supply chain management. Existence of national STGs and a National Essential Medicines List Existence of a process for registering new drugs, products, and technologies Publicly available list of registered drugs and products
Intermediate	Quarterly meetings by a supply chain oversight and governance body to discuss supply chain issues. Adaptation of national STGs from universal clinical guidelines
Advanced	Existence of a formal, high-level body that provides oversight and governance for the supply chain
SOA	Civil society is a part of the formal supply chain oversight and governance body

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

The MoH in the last decade has had several challenges with the development, revision, and approval of national policies as well as enactment of legislations related to medicine regulation. As of this assessment, several health bills and strategic documents are in various stages of development. The GoL understands that the enactment of legislation will ensure that all medicines circulating in Lesotho conform to the agreed standards of quality and safety by establishing an autonomous Medicines Regulatory Authority that will regulate, license, and inspect health facilities. The Medicine and Medical Device Control Bill that was drafted in 2008 is currently awaiting approval by the Parliament. Drugs of Abuse Act 2008 has been used for control of narcotics and psychotropic drugs since 2008, and implementation of the section for cultivation and extraction of cannabis products for medicinal use and research purposes began in 2017.

The latency on drug policies resulted in lack of coordination of partners, fragmentation in the implementation of programs, and weakened accountability. Some contributing factors to the delays include absence of a framework outlining the process to be followed for the approval of strategic documents, along with high staff turnover at the senior level (policy and technical units), which affects consistent guidance on the required processes. For now, the Department of pharmacy and the laboratory Department provide guidance on medicine, medical technologies, and devices regulation, while the Department for supply chain management ensures harmonization of multiple ordering systems for medicines and the review of all procurement and supply chain manuals and guidelines.

The stated desire of the MoH decentralization plan was to free the central level to execute its policymaking more fully, strategic planning, resource mobilization, and monitoring and coordination duties. The MoH is well-versed in the potential benefits, in terms of cost, efficiency, and effectiveness, of an integrated supply chain and is one of the pilot Ministries implementing the decentralization policy.

A National Essential Medicines List (EML) provides guidelines for the products that are to be distributed in Lesotho, the current version of the EML was produced in 2006 and is publicly available. A total 255 medicines are currently on the disseminated 2005 EML. The NDSO bought 265 essential medicines products from July through September 2013, 122 of which were listed on the EML. Selection of medicines for the EML is not undertaken through a written process. A mechanism is in place aligning the EML with the STGs. National STGs for the most common illnesses are produced/endorsed by the MoH in Lesotho. These were last updated in 2005 and include specific STGs covering primary care, secondary care, and pediatric conditions, although they may not be widely available throughout the system, which

may hamper implementation. Additionally, the STGs were undergoing review at the time of the assessment. A draft version of the document was written in May 2012 but has yet to be disseminated.

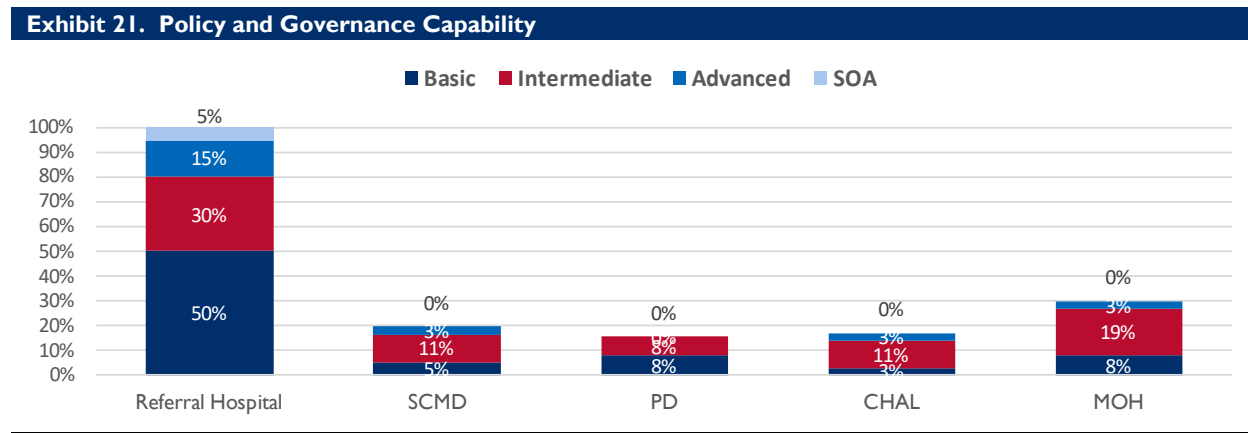
Each of these elements is supported by the information gained during the current assessment. The government supply system department in Lesotho is based on a central medical store at the national level known as the NDSO. There are no public warehouses as such in the secondary tier of the public sector distribution, although some DHMTs do receive and distribute pre-packaged parcels for the health facilities in the district (“in-transit” function). Other products that the DHMT might store for distribution include HIV test kits and related products. Hospital storerooms may also serve the function of intermediary warehouse/storeroom, as can the hospital laboratory for HIV reagents and related products. Legal provisions exist for licensing wholesalers and distributors in the private sector. A list of Good Distribution Practices (GDP) GDP certified wholesalers and distributors does not exist in the private sector.

Aside from the use of the NDSO as a procuring, receiving, and distributing agent, and the EML and STGs, a general policy prescribes direct pull from or push by the NDSO. In cases of pushing, programs and NDSO agree on distribution lists that are based on previous consumption. In practice, different units/programs may set their own procedures for information gathering and distribution. For example, facilities can send their requisitions for some products directly to the NDSO for order fulfillment; for ARVs, requisitions must first pass through the program for approval before they are passed on to NDSO for fulfillment.

At lower levels of the supply chain, referral hospitals have access and use the national pharmaceutical guidelines to provide guidance for operations on medicine regulations. Based on the findings from the assessment, this has proven to be a comprehensive and robust approach. At health facilities and lower, the assessment did provide much additional insight into policies and regulations at a service level.

2023 NSCA Findings and Analysis

Exhibits 21 and 22 show the NSCA results for Policy and Governance scores for four central-level institutions and one applicable service delivery point, the National Referral Hospital (NRH).



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent,) and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

Exhibit 22. Policy and Governance Capability Scores and Basic Items in Place					
	Referral Hospital	SCMD	PD	MoH	CHAL
n =	1	1	1	1	1
Overall maturity score (range)	100%	20%	15%	30%	17%
Percent of basic items in place (range)	100%	11%	16%	16%	5%

For this section, it is important to reiterate the role of job aids and their equivalent to what the assessment has noted as policies and guidelines. In the space of supply chain, job aids provide written guidance on procedures in supply chain practices. These aids can encompass all supply chain functions in a facility, including stock keeping, commodity management, waste management, and emergency procedures.

With the exception of the referral hospital, the tool revealed basic scores across the central level in Policy and Governance of the supply chain. Several factors impact this, as noted in the background section. More notably, the organizational structure and concepts related to supply chain are viewed as lower priority for the MoH. The SCMD is responsible for commodity management, forecasting and quantification, and coordination roles within the supply chain of Lesotho. However, developing medical policies that affect the supply chain proves to be challenging, as this activity involves multiple ministries and governmental legislative actions. The SCMD has formally documented management policies or guidelines for the supply chain system components within its manageable control.

For the referral hospitals, there was evidence that management policies and guidelines for the supply chain system were formally documented, including all areas of the supply chain covered: waste management, quality assurance, storage procurement, forecasting and quantification, supply planning, inventory management, LMIS, financing, HR, and other core areas.

Policies and guidelines are unique to each organization, however. For example, the assessment noted advanced scores for the referral hospital. The national standards and treatment guidelines are updated every two years. The Pharmacy Department is responsible for the National Medicines Policy. The policies are medicine focused and therefore do not cover policies or guidelines for the supply chain system in Lesotho. Bodies and committees are in place that provide oversight to the supply chain. For the MoH and SCMD, these are appointed at the government level. The committees meet quarterly between the MoH, SCMD, and CHAL.

Recommendations

For policy and governance, the main objective should be to enforce establishment of a regulatory framework and guidance to influence key decisions in supply chain management. Until this happens, the state of Lesotho's supply chain will be exposed to high risk and instability.

- **Develop a National Medicines Policy.** The policy will vastly improve the state and health of supply chain independence, impacting how supply chain products are managed at all levels.

Supplemental Exhibit

Exhibit 23. Policy and Governance, Distribution of Questions, and Assignment of Weight Across Capability and Facility Levels

MODULE	BASIC (50%)		INTERMEDIATE (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Referral Hospital (1)	9	5.6%	1	30.0%	1	15.0%	1	5.0%
SCMD (1)	19	2.6%	8	3.8%	5	3.0%	1	5.0%
PD (1)	19	2.6%	8	3.8%	5	3.0%	1	5.0%
CHAL (1)	19	2.6%	8	3.8%	5	3.0%	1	5.0%
MoH (2)	19	2.6%	8	3.8%	5	3.0%	1	5.0%

Note that interpretations of the scoring, and discussions of “differences” in the scores, need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Human Resources

Effective supply chains require significant human resources across a wide range of technical areas, all levels of the health care system, and all geographic areas of the country to ensure that quality health commodities are distributed safely and promptly. The NSCA outlines core HR supply chain capabilities and performance metrics to assess the extent to which facilities have the needed resources, supply chain functions have formally allocated responsibilities, and staff have the necessary training, knowledge capacity, time, and scope to support supply chain operations. Major areas that were factored into the scoring for this CMM module are the presence of appropriate supply chain functions in job descriptions, regular capacity-building efforts for staff, and mechanisms for supportive supervision and performance improvement (see Exhibit 24).

Exhibit 24. Examples of Scored Human Resource Capabilities

Basic	At least two capacity-building sessions (e.g., LMIS, waste management, reporting) within the last year SOPs or training guides/materials
Intermediate	Human resource workforce plan that projects future needs for supply chain personnel Unified supply capacity-building plan Supportive supervision of supply chain functions within the last year Presence of appropriate supply chain functions in job descriptions
Advanced	Quarterly staff performance reviews Most (51–99 percent) staff have participated in capacity training in the last two years. Database tracking of staff’s attendance at capacity-building sessions in supply chain management Advanced supply chain–specific capacity-building programs available in country (e.g., e-learning, certificate, diploma programs)
SOA	Participation by all staff in supply chain capacity training within the last two years Bachelor’s degree or master’s program in supply chain available in country

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

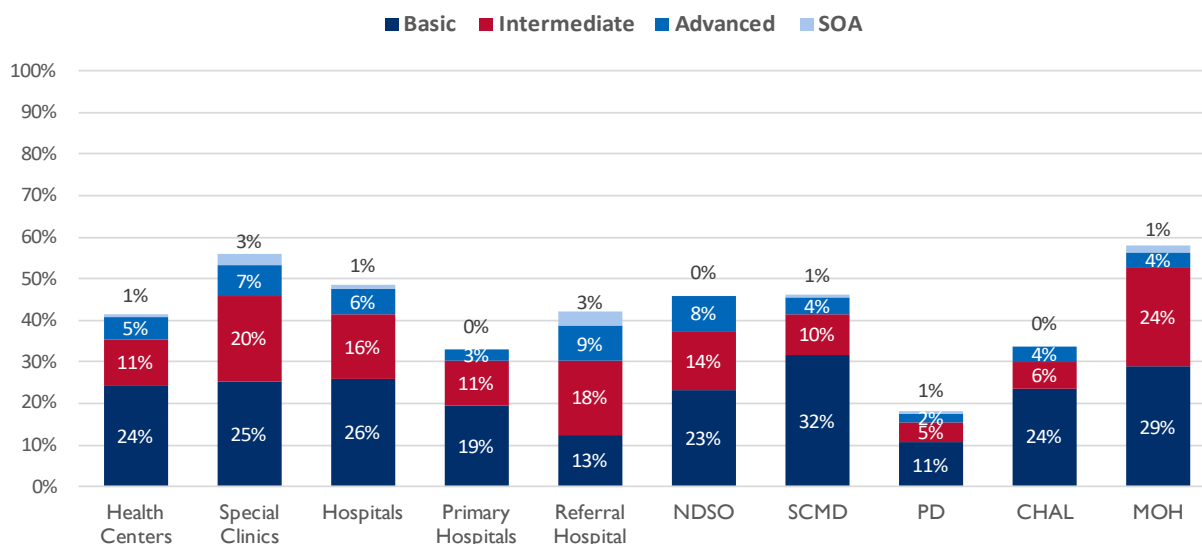
In Lesotho, the supply chain workforce is a recognized and critical component of the public health supply chain. The Lesotho Supply Chain Strategic Plan (2019/20–2022/23) includes a strategic objective focused on HR. More specifically, the plan aims to “strengthen capacity and performance of staff in supply chain management at all levels.” In 2017, the MoH through its National Health Policy 2017 recognized a general lack of public health supply chain human resources for the system to operate optimally. The country’s strategic plan acknowledges that “*this strategic plan will serve as an opportunity to put the human resources agenda on the table as there is a real need to strengthen the structure in quantity and quality of staff if it has to play its role fully.*”

At the time of this assessment, Lesotho lacked supply chain professionals at all facilities within the public health system with the exception of NDSO. Most supply chain responsibilities at the site level were fulfilled by clinical colleagues (pharmacists, pharmacy techs, or nurses) who realized that supply chain tasks were a necessity. Some colleagues had participated in supply chain training, but their primary responsibilities were clinical in nature.

2023 NSCA Findings and Analysis

HR results for maturity model scores and the percentage of facilities reporting key capabilities are displayed in Exhibits 25 and 26. Most of the scores average at least some basic maturity in capabilities and maturity. The module will be examined by its components—supply chain job description formalization, frequency and prevalence of capacity-building opportunities, and supportive supervision—and relevant KPIs will be discussed.

Exhibit 25. Human Resources Capability Maturity Model Scores



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent), and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

The indicators are interesting, as they offer a better understanding of the human resources at each type of site. At health centers we expect there to be fewer than three people with supply chain responsibilities. We also expect that approximately one position in any two health centers will be vacant (16 percent of six people is roughly 1) and that the vacant position will remain vacant for more than six months, as the staff turnover rate considers only six months of data. Thus, at health centers, 0 percent of people have left in the last six months, but vacancies for the positions are at 16 percent. This creates a large and long-term gap for the sites dealing with the vacancy. This can be juxtaposed with the special clinics, which have a huge staff turnover rate, at 32 percent, but at the time of measurement, only 2 percent of positions were vacant, meaning that the special clinic level does not have difficulty filling supply chain positions. Hospitals have a significantly larger staff, at 12 people per site, but with a staff turnover rate of 5 percent that means in any given six-month period one person from any given two hospitals has left their position. Alone that does not seem detrimental, but considering the vacancy percentage of 19 percent, which implies that at any given time, two of the 12 positions are vacant but are likely to be filled quickly with new people, it begs the question: how long do colleagues remain at hospitals before cycling out, and what could be done to keep those positions filled with dedicated staff for longer? The primary hospitals and referral hospital have the opposite situation, where very few, if any, positions are vacant and they have no staff turnover, meaning that when staff are hired by either institution, they often remain in those positions.

HR monitoring metrics also indicate that staff often retain their positions, as some levels in the system showed no staff turnover in the previous six months considered, even at sites that had larger staffs with supply chain responsibilities, such as referral hospitals.

Exhibit 26. Human Resources KPIs, Maturity Score, and Basic Capabilities in Place

	Health Centers	Special Clinics	Hospitals	Primary Hospitals	Referral Hospital	NDSO	SCMD	PD	MoH	CHAL
n =	56	8	15	3	1	1	1	1	1	1
Overall maturity score (range)	41% (10–73%)	56% (20–71%)	49% (8–75%)	33% (20–42%)	56%	46%	46%	18%	58%	34%
Percent of basic items in place (range)	48%	52%	51%	39%	25%	46%	63%	21%	58%	47%
Average number of supply chain positions**	2.8	2.6	12.4	3.3	36	_x	_x	_x	_x	_x
Staff turnover ratio	0%	32%	5%	0%	0%	_x	_x	_x	_x	_x
Percent of positions vacant	16%	2%	19%	0%	3%	_x	_x	_x	_x	_x
Average number of women per facility with supply chain responsibilities	1.9	3	1.9	2.7	24	_x	_x	_x	_x	_x
Percent of women with supply chain responsibilities that are under 25 at this level	8%	13%	25%	33%	0%	_x	_x	_x	_x	_x

**Defined as a staff member spending 50 percent or more of their time spent on supply chain tasks

_x Indicates that these data were not collected at that facility

Digging a little deeper we find on average, supply chain responsibilities at the health center, special clinic, and primary hospital are managed more than half the time by women, and often, 8–33 percent of those women are under 25 years old. Investing in this population through apprenticeships or other training-to-employment responsibilities may serve the health system, filling staffing gaps at lower levels where they are needed.

Central-level institutions

Lesotho does support human resources for the public health supply chain through a line item that is included in the government’s budget. When asked about the budget line item for supply chain personnel, a portion of health centers, hospitals, special clinics, and referral hospitals all acknowledged that the GoL paid for some, if not all, the costs related to supply chain personnel. Likewise, the Pharmacy Department, MoH, and SCMD all knew that there was a line item for supply chain personnel. The exception was the primary hospitals as well as the NDSO and CHAL; the latter two are outside the GoL system as a parastatal and a faith-based organization, respectively. Thus, it makes sense that they would not be well-versed in the GoL’s budgetary allotment for supply chain staff, while the primary hospital is an outlier from the other levels of the system.

When asked about supply chain staff recruitment policies, the NDSO provided a recruitment policy, while none of the other groups queried were able to do so. However, the same central-level group did not have a job description for the head of logistics while CHAL and the MoH did. When lower-level facilities were asked about job descriptions for pharmacy and stores personnel, the majority of referral hospitals, special clinics, and hospitals reported that those did exist with appropriate qualifications included. This is in contrast to health centers and primary hospitals, which reported that 26 and 33 percent, respectively, had the same resource.

Central-level respondents from the NDSO, MoH, and CHAL all responded that some specific supply chain functions were explicitly included in their job descriptions. Among the three institutions responding, MOH maintained the highest standard for inclusion of supply chain functions with their job descriptions, which was closely followed by the NDSO and distantly followed by CHAL. However, when one considers the areas that each body is responsible for, the inclusion of certain skills and exclusion of others in job descriptions does make sense.

At the central level, the NDSO, SCMD, MoH, and CHAL all reported having SOPs and training guides/materials, whereas the PD reported having none of these items. However, the PD did report that it evaluated capacity building, as did the SCMD and MoH. The NDSO did not evaluate capacity building but did maintain a database to keep track of which colleagues had taken specific capacity-building sessions.

Dedicated supply chain staff

The referral hospital had a similar trend of including supply chain functions in job descriptions that were necessary to complete site-based supply chain tasks, including procurement, storage and inventory management, LMIS, ordering and reporting, and waste management. Most of these skills would be required to perform routine tasks at a referral hospital (see Exhibit 27).

Exhibit 27. Supply Chain Functions and Job Descriptions					
Supply chain functions are included in the job descriptions for at least one site personnel, including:	Percent of facilities reporting:				
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital

Storage and inventory management	22%	53%	88%	33%	100%
LMIS	18%	47%	81%	33%	100%
Ordering and reporting	22%	60%	88%	33%	100%
Waste management	15%	27%	68%	33%	100%
Medicine quality assurance	11%	40%	88%	33%	0%
None of the above	0%	0%	0%	0%	0%

Lower-level facilities demonstrated a wide range of required supply chain skills within their job descriptions. Special clinics were found to be the most comprehensive, with 80-plus percent reporting that storage and inventory management, LMIS, ordering and reporting, and medicine quality assurance were all included in the job descriptions for pharmacy and stores personnel. This is in stark contrast to health centers (11–22 percent), hospitals (27–60 percent), and primary hospitals (33 percent) including the same supply chain competencies.

Supply chain capacity-building training

Despite the discontinuity between skills planning and skills needed, the site level overwhelmingly reported capacity-building sessions were held in the previous year. Two-thirds or greater from health centers, hospitals, special clinics, and primary hospitals reported receiving stores and inventory management as well as LMIS training. Just behind those were training in waste management (47–67 percent), medicine quality assurance (40–67 percent), and treatment guidelines (34–67 percent). The only lagging area of training was changes in national policy, for which 0–47 percent of sites reported receiving training.

Exhibit 28. Supply Chain Capacity-building Materials Available within Service Delivery Facilities					
	<i>Percent of facilities reporting:</i>				
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
Standard operating procedures	85%	73%	100%	33%	0%
Training guides or materials	49%	47%	86%	0%	0%
Other job aids. Please specify:	26%	13%	27%	0%	0%
None of the above	7%	13%	0%	33%	100%
I don't know	4%	7%	0%	33%	0%

Beyond formal training, lower-level sites did employ independent learning tools such as SOPs (73–100 percent), training guides/materials (47–86 percent), or other job aids (13–27 percent), as detailed in Exhibit 28. The exception to this was noted at the primary hospitals and referral hospitals. One-third of primary hospitals reported having SOPs, but nothing else, and referral hospitals reported that they had none of these training materials. A high percentage of health centers, hospitals, and special clinics reported evaluating capacity building at 78, 67, and 83 percent, respectively. The opposite was reported in primary and referral hospitals, of which 33 and 0 percent reported evaluation of capacity building, respectively. Areas covered in capacity-building sessions are shown in Exhibit 29.

Exhibit 29. Areas Covered in Capacity-Building Sessions in the Last Year					
	<i>Percent of facilities reporting:</i>				
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
Stores and inventory management	77%	67%	74%	100%	0%
LMIS	72%	67%	67%	67%	0%
Ordering and reporting	75%	60%	67%	100%	0%
Waste management	61%	67%	47%	67%	0%
Medicine quality assurance	43%	40%	67%	67%	0%
Treatment guidelines	34%	40%	67%	33%	0%
Changes in national policy	7%	0%	47%	0%	0%
None of the above	10%	20%	26%	0%	0%

When asked what percentage of colleagues had participated in capacity-building sessions, most health centers, hospitals, referral hospitals, and special clinics indicated that someone currently working at their site had received formalized supply chain training in the previous two years. Details are provided in Exhibit 30. The exception was the primary hospitals, which either had no formal training, did not know the answer to the question, or reported that some colleagues had participated.

Exhibit 30. Proportion of Staff Participating in Capacity-building Sessions in the Last Year					
	<i>Percent of facilities reporting:</i>				
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
None	4%	0%	26%	33%	0%
Minimal (1–25%)	24%	27%	27%	0%	100%
Some (26–50%)	37%	27%	0%	33%	0%
Most (51–99%)	13%	13%	0%	0%	0%
All (100%)	10%	27%	47%	0%	0%

All respondents were then asked if there were any critical barriers to participating in supply chain management capacity building. They were allowed to identify more than one root cause as barriers. The reasons provided most often by sites in the lower level of the health system were workload and finances, in that order (see Exhibit 31). From the central level the same two reasons were provided, but in the reverse order of finance and then workload.

Professional development opportunities, supporting cultivation of the skills needed at the site level, are available across the central level, except CHAL and the Pharmacy Department. The NDSO, SCMD, and the MoH all provide structured on-the-job as well as classroom training. The NDSO and SCMD go a step further by providing mentorships, coaching, and diploma programs in supply chain. Individually, NDSO also provides e-learning opportunities, while the SCMD supports staff with supply chain certificate and undergraduate program support.

Professional development at the site level is less ubiquitous. Most sites reported not having a staff development plan for current employees. The lack of this plan at the site level implies that if they identified a skills gap, they would not be able to readily train existing staff to fill that gap. Coupling the professional development opportunity disparity with the lack of supply chain skills listed in job descriptions means that many sites may not realize what skills they are missing nor which skills they need to improve their own performance.

Exhibit 31. Critical Barriers to Supply Chain Management Capacity-building Programs					
	<i>Percent of facilities reporting:</i>				
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
Finances	55%	67%	16%	33%	0%
Workload	51%	60%	29%	67%	0%
Skilled trainers	23%	33%	7%	0%	0%
Time	18%	27%	19%	0%	0%
Materials	14%	27%	7%	0%	0%

All sites were asked about their performance review practices. Initial questions related to the frequency of performance reviews. In the lower levels of the health system the most popular answer was that performance is never reviewed; however, responses in this area were highly varied, with most health centers (59 percent) and hospitals (74 percent) reporting that they did review performance annually or even more frequently. This is in stark contrast to the referral hospital, which reported that performance reviews never took place. Harmonizing this practice would benefit the system, making performance reviews more predictable for staff and aligning with best practices.

Continuing the discussion around HR performance development the sites were asked about actions following a performance review. Most sites throughout the system reported that some action followed a performance review, either providing incentives or implementing an individualized development plan.

Supervision

Professional development and site performance improvement can be supported in many ways, one of which is supportive supervision (see Exhibit 32). Across all levels of the health system, 81 to 100 percent of sites reported having had at least one supportive supervision visit in the past 12 months, and more often than not, that visit was conducted by the MoH. Furthermore, all central-level entities

agreed that the MoH had provided supportive supervision to lower-level sites. When asked which entity was responsible for conducting supportive supervision, responses were varied. District pharmacy staff garnered the majority of responses while the NDSO stated that it had 100 percent responsibility for providing supportive supervision to all sites. However, almost all sites asked said that they did receive immediate feedback after a supportive supervision visit and moreover, corrective actions were taken following a site visit, indicating a commitment to continuous quality improvement.

Exhibit 32. Supportive Supervision	Percent of facilities reporting:				
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
Supply chain staff received supportive supervision in the last year	96%	87%	81%	100%	100%
Staff received immediate feedback after supportive visits	94%	80%	81%	100%	100%
Corrective actions are taken following supervision visits	93%	80%	81%	100%	100%

Recommendations

NSCA findings point to the following recommendations:

- **Continue to invest in supply chain staff.** Provide training and possibly incentives to entice staff to stay in their positions, especially at the health center, special clinic, and hospital levels.
- **Consider** recruiting young women to work in the supply chain. These recruits could be especially beneficial at lower levels of the system, where there are HR gaps or where positions remain unfilled for a long time.
- **Socialize the MoH workforce plan.** Inform the existing cadre and encourage others to join the public health workforce.

Supplemental Exhibit

Exhibit 33. Human Resources: Distribution of Questions and Assignment of Weight Across Capability and Facility Levels	BASIC (50%)		INTERMEDIATE (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Health Centers (56)	18	2.8%	14	2.1%	7	2.1%	3	1.7%
Hospitals (15)	18	2.8%	14	2.1%	7	2.1%	3	1.7%
Special Clinics (8)	18	2.8%	14	2.1%	7	2.1%	3	1.7%
Primary Hospital (3)	18	2.8%	14	2.1%	7	2.1%	3	1.7%
Referral Hospital (1)	21	2.4%	17	1.8%	8	1.9%	3	1.7%
NDSO (1)	23	2.2%	27	1.1%	10	1.5%	6	0.8%

SCMD (1)	16	3.1%	24	1.3%	9	1.7%	6	0.8%
PD (1)	16	3.1%	24	1.3%	9	1.7%	6	0.8%
CHAL (1)	16	3.1%	24	1.3%	9	1.7%	6	0.8%
MoH (1)	16	3.1%	24	1.3%	9	1.7%	6	0.8%

Note that interpretations of the scoring, and discussions of “differences” in the scores, need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Financial Sustainability

Effective supply chains require sufficient and predictable funding streams, supported by sound financial management practices. The NSCA assesses financial sustainability across all levels of the health system to ensure that 1) supply chain operations are sufficiently funded, 2) facilities practice good financial management techniques, and 3) any financing gaps are identified. The CMM module places greater emphasis and scoring value on using prudent financial management and understanding operating costs rather than the self-sufficiency of the entity to finance itself. While it is difficult to get a high score without having some degree of self-sufficiency, the intent of the module is to understand how facilities manage the funds they receive. Exhibit 34 provides examples of scored financial sustainability capabilities.

Exhibit 34. Examples of Scored Financial Sustainability Capabilities

Basic	<p>Supply chain costs (e.g., products, warehousing, distribution, personnel, overhead, service delivery) are recorded and records maintained.</p> <p>Government or facility revenue/costs contribute minimally to total supply chain operations budget/health commodities (less than 25 percent).</p> <p>Budgets are prepared annually.</p> <p>MoH financial unit regularly prepares and submits financial reports/profit and loss statements.</p> <p>MoH financial unit regularly measures liabilities/cash cycle or cash flow/depreciation/conducts audits/inventories capital assets yearly.</p> <p>Process exists for submitting unbudgeted requests.</p>
Intermediate	<p>Facility’s funding strategy explicitly includes supply chain costs.</p> <p>Government/facility revenue is a source of funding for supply chain operations.</p> <p>Government or facility revenue/costs contribute some to total supply chain operations budget/health commodities (between 25 percent and 50 percent).</p> <p>Donor support is routinely tracked by MoH.</p> <p>Budget includes lines for miscellaneous funds</p>
Advanced	<p>Government or facility revenue/costs contribute most of supply chain operations budget/health commodities (51–99 percent).</p> <p>No commodity budget shortfall occurred in the past year.</p> <p>Funding can be reallocated at the management level.</p>
SOA	<p>Government or facility revenue/costs contribute all of supply chain operations budget/health commodities (100 percent).</p>

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

For the purpose of financial management, the SCMD technically does not have control over how much its budget will be annually. While it is technically allocated money under the MoH through the MoF, it has to pass through at least two separate entities to secure funding each year, causing some uncertainty in how national supply chain operations can function consistently. While strategy and implementation plans are in place for the supply chain, most of these activities assume a steady or guaranteed source of funding to generate progress on various milestones and benchmarks causing potential setbacks to planned deliverables.

SCMD uses commodity management forecasting to develop and request funding from the MoH. MoH financial obligations must be dispersed across all sub-sectors within the Ministry, including the SCMD. All these funding obligations per department must be within the overall ceiling allocated per the MoF. Various external factors can notably influence how much each department receives each year, which also generates notable risk for supply chain activities. This is acknowledged in the strategic supply chain plan:

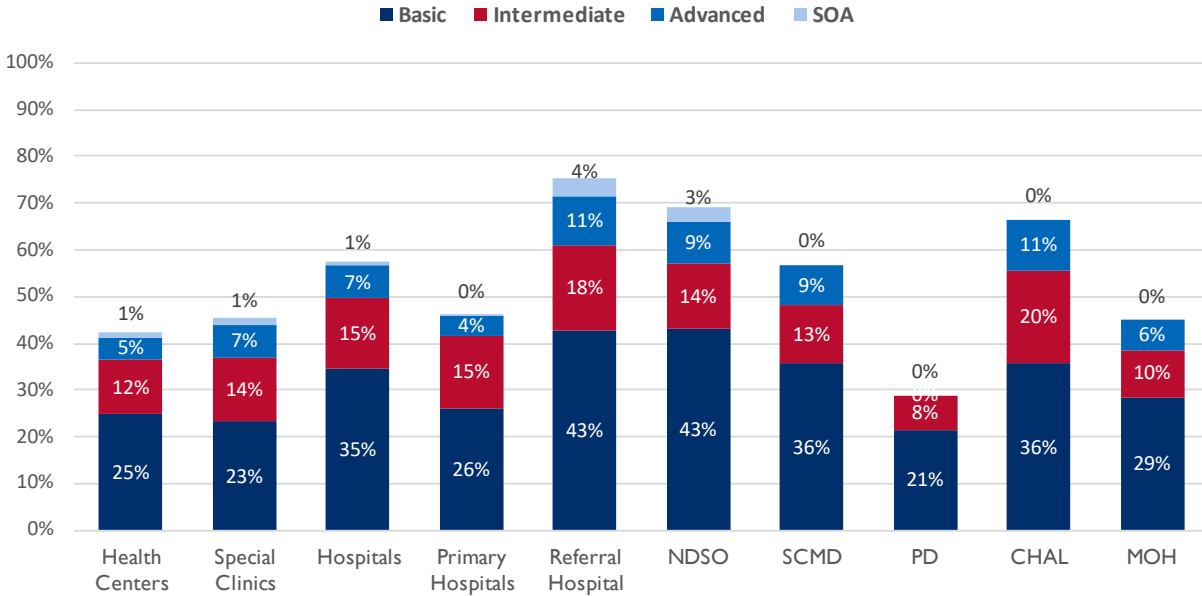
“For easier coordination of health commodities procurement activities, all donor funding for commodities will have to follow the same path as government funding—with NDSO being the recipient of the funding and having to do the procurement. This of course call for timely and transparent disclosure of the amount of funds available for procurement of the health commodities by development partners” (Lesotho National Supply Chain Strategic Plan)

Health commodities are budgeted separately within each program, and not necessarily within the SCMD budget (i.e., the TB program will have commodities associated only with that program in its respective department budget). Each program within the MoH budgets for commodities is based on this methodology. Furthermore, commodity budgets cannot be used for operations or programmatic activities. These responsibilities are where most of the funding comes from for the SCMD to actualize the orders for the MoH departments as a whole.

2023 NSCA Findings and Analysis

Financial sustainability results for maturity model scores and the percentage of facilities reporting key capabilities are displayed in Exhibits 35-38. Most of the scores average at least some basic maturity in capabilities. However, understanding the implications of the assessment results requires considering important factors.

Exhibit 35. Financial Sustainability Capability Maturity Model Scores



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent), and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

The assessment affirmed that costs associated with the supply chain are captured consistently at the central and non-central levels. There are records of products requested and ordered at the non-central level with assistance from the eLMIS system, which spans across all levels of the supply chain. This system has enabled clear understanding of facility-level needs, and therefore provides fair estimates of the financial budget required to fulfill these requests. However, this does not imply that the MoH has the financial capital or agency to address shortfalls that may arise from high demand. Budget shortfalls are a challenge for facilities and central-level entities alike. Responses for how to handle shortfalls varied largely at the non-central level.

Sources of funding and funding shortfalls. Exhibits 36 and 37 display the sources of funding at a more granular level.

Exhibit 36. Noncentral-level Sources of Funding for Health Commodities					
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Government budget (central or decentralized level)	84%	100%	91%	0%	100%
Facility revenue/cost recovery	14%	7%	19%	100%	0%
Donor/implementing partners	19%	20%	7%	0%	0%
Percentage of sites reporting government and/or facility revenue contributing most or all of supply chain budget last year	38%	54%	46%	0%	100%

As detailed in Exhibit 37, at the central level supply chain budgets are prepared annually and needs from the non-central level are reassessed quarterly. eLMIS requests from health facilities are analyzed at the SCMD after passing through the DHMTs, who stay in close contact with the NDSO on what can be fulfilled. Afterwards, procurement activities, warehousing, and distribution are costed through the NDSO. The SCMD prepares and submits financial reports and statements to the MoH for transparency. In emergencies, a process does exist for submitting unbudgeted requests at various levels of the supply chain.

Category A and B commodities are treated separately in the supply chain, whether it be funding streams or procurement activities. Currently, commodities in Category A are 75 percent funded by the MoH and 25 percent by the Global Fund. Although donor contributions can potentially influence how ARVs are managed in Lesotho, the MoH maintains the larger responsibility and leverage in procurements under this category. This equation has shifted in the last five years, whereby PEPFAR contributed some small amount of funding for this category. However, Category B commodities are 100 percent funded by the MoH with little to no donor influence.

Exhibit 37. Central-Level Financial Sustainability KPIs, Maturity Score, and Percentage of Facilities with Key Capabilities Related to Supply Chain Management in Place						
	NDSO	SCMD	PD	MoH	CHAL	..
n =						
Overall maturity score	68%	57%	29%	45%	66%	55%
Percent of basic items in place	86%	71%	43%	57%	71%	71%
Budgets are prepared or updated annually	Yes	Yes	No	Yes	Yes	Yes
Budgets include miscellaneous funds for unexpected issues	No	No	No	Yes	No	Yes
Supply chain costs explicitly are recorded, and records maintained	Yes	No	No	No	Yes	No
Funding strategy that explicitly includes supply chain costs exists	No	No	No	No	No	No
Government and/or facility contribution toward supply chain operations budget	51%–99%	25%	25%–50%	--	51%–99%	--
In the past year, was there a health commodities budget shortfall?	No	Yes	No	No	No	Yes

Based on multiple interviews with the NDSO, the assessment revealed that the organization has a robust financial management system, with a dedicated finance department responsible for tender procurements and budget management in relation to supply chain. External financial audits are conducted annually. A portion of revenue and cost recovery for the NDSO comes from charging a fee on all commodities procured through its facility, as well as charging a warehousing and distribution fee, which increases the capability to gain capital but also ensures that funds can be used to better the

organization at large. Over the past several years, the NDSO has managed to plan and develop its own warehousing management inventory system, conduct routine optimizations, and implement barcode scanning with allocated funding from the MoH and its own revenue streams. Given that the NDSO is the only central medical store, the assessment re-emphasized these successes from an analytical level, giving it a 70 percent maturity score.

CHAL facilities operate under a slightly different profit model and have a limited scope when approaching supply chain activities and their financial management. CHAL pays for its distribution of goods through the NDSO, and pays for invoices associated with procuring certain commodities. Broadly, for CHAL facilities, 70 percent of funding comes from the government and 20 percent from the proprietor church; 10 percent is charged from patient fees. Financial support from proprietor sources is not necessarily flexible in the same way that MoH funds can be adjusted. Most proprietor funding comes in terms of infrastructure and facility maintenance, and not necessarily in a liquid form that can be used to purchase additional commodities in the supply chain. This causes some risk for how budget shortfalls are managed at CHAL facilities.

Exhibit 38. Non-Central Level Financial Sustainability KPIs, Maturity Score, and Percentage of Facilities with Key Capabilities in Place

	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Overall maturity score (range)	42%	58%	45%	46%	75%
Percent of basic items in place (range)	50%	70%	47%	52%	86%

Donor support is carefully monitored at all levels, yet it is also understood that donors provide minimal support for financial sustainability in the country for supply chain management. When asked about whether donor funding was consistent with overall operational and budget needs for the non-central level, respondents noted on average between 25 and 50 percent with the rate of what is required to function typically.

The contributions of facility revenue and cost recovery in the non-central level are also noteworthy. Although most funding at the non-central level for supply chain management is provided by the government, facilities have limited sources of revenue to supplement the overall supply chain budgets. The exception is the primary hospital, which has received considerable financial support through its cost recovery channels.

Exhibit 39. Percentage of Facilities with Key Financial Sustainability Capabilities in Place

	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Percentage of sites reporting that:					

Budgets are prepared or updated annually	79%	93%	53%	67%	100%
Budgets include miscellaneous funds for unexpected issues	27%	33%	27%	100%	100%
Supply chain costs are recorded, and records maintained	67%	80%	88%	33%	100%

Recommendations

Reminder: “The CMM module places greater emphasis and scoring value on using prudent financial management and understanding operating costs rather than the self-sufficiency of the entity to finance itself.”

Financial sustainability is a larger conversation in Lesotho, not just exclusive to supply chain management but to larger health programs countrywide. While donor investments in the country have significantly provided benefits in short-term milestones, the larger concerns come from GoL to maintain the progress it has made over the past decade.

This assessment suggests that financial management is a strong suit but does not capture the funding challenges upstream and outside of the immediate control of the MoH and SCMD. While Lesotho continues to operate well within the budgets given for supply chain management, it does not imply that the funding is guaranteed annually, which poses some risk. At the same time, facilities are not directly funded through the SCMD for supply chain management, and no budget is set aside for this kind of activity at a non-central level.

Recommendations include:

- **Conduct a Financial Sustainability Workshop for Long-term Financing.** As mentioned above, a larger discussion not focused solely on financial management may be beneficial and timely. Several key challenges to supply chain progress can be tied to financing, such as securing continuous funding for the SCMD, maintaining gains made by donor interventions, and developing long-term visions for a healthy supply chain in the country, all of which require a deeper conversation beyond the results of this report. While this assessment can note how countries manage what resources have been given, many nuances are missing from the conversation around financial sustainability. A workshop or retreat with stakeholders from all levels of the supply chain may assist in visioning and long-term sustainability.
- **Understand budget allocations through the lens of the supply chain.** Currently, supply chain management is still considered a supplemental focal point to the services being provided at the non-central level. While the assessment noted that financial management in the supply chain at all levels is functional, this information could be used to advocate for more supply chain initiatives that provide accurate and targeted results at the site level.

Supplemental Exhibit

Exhibit 40. Financial Sustainability: Distribution of Questions and Assignment of Weight Across Capability and Facility Levels				
MODULE	BASIC (50%)	INTERMED. (30%)	ADVANCED (15%)	SOA (5%)

	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Health Centers (56)	7	7.1%	11	2.7%	7	2.1%	4	1.3%
Hospitals (15)	7	7.1%	11	2.7%	6	2.5%	4	1.3%
Special Clinics (8)	7	7.1%	11	2.7%	6	2.5%	4	1.3%
Primary Hospitals (3)	7	7.1%	11	2.7%	6	2.5%	4	1.3%
Referral Hospital (1)	7	7.1%	11	2.7%	7	2.1%	4	1.3%
NDSO (1)	14	3.6%	11	2.7%	7	2.1%	4	1.3%
SCMD (1)	7	7.1%	12	2.5%	7	2.1%	4	1.3%
PD (1)	7	7.1%	12	2.5%	7	2.1%	4	1.3%
CHAL (1)	7	7.1%	12	2.5%	7	2.1%	4	1.3%
MoH (1)	7	7.1%	12	2.5%	7	2.1%	4	1.3%

Note that interpretations of the scoring and discussions of “differences” in the scores need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Forecasting and Supply Planning

The FASP section seeks to ensure forecasts are being created using quality data and sound methodologies, monitored frequently, and ultimately used to inform procurement decisions. Areas of focus that factored into scoring for this CMM module include forecasting involving multiple stakeholders for multiyear periods, well-established SOPs involving data from multiple sources, active supply plan monitoring, and sharing of supply plans among partners (see Exhibit 41).

Exhibit 41. Examples of Scored Forecasting and Supply Planning Capabilities

Basic	A dedicated unit within the MoH is responsible for forecasting and supply planning of health commodities. Forecasts are used to mobilize funding from government and donor sources.
Intermediate	Data assumptions are documented as part of the supply plan. Data quality is assessed for consumption data before use in forecasting.
Advanced	Performance standards or benchmarks are in place against which forecast accuracy is assessed. Forecasting SOPs are updated annually or more often.
SOA	Specialized forecasting software uses machine learning or advanced algorithms to determine future need. The supply plan is monitored continuously or daily and updated.

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

The Lesotho Supply Chain Strategic Plan 2019/20–2022/23 includes goals and objectives around the quantification and supply planning of health commodities for the supply chain. The plan notably highlights the known challenges, summarized here:

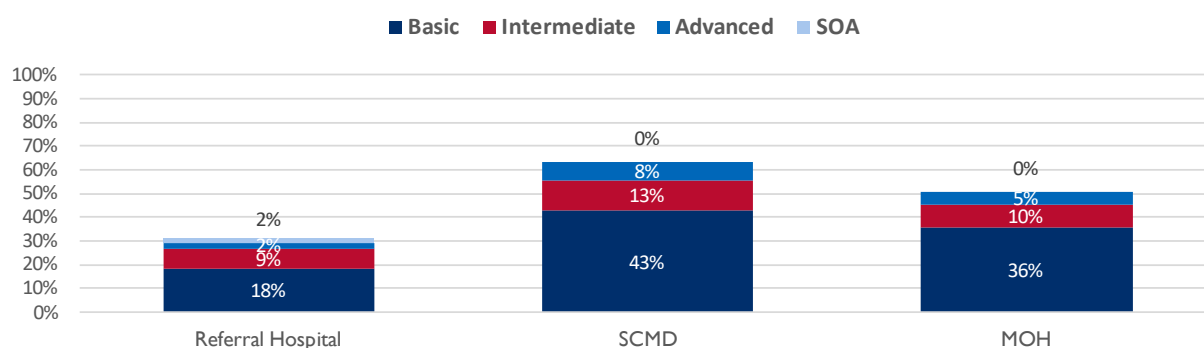
- Quality of the data generated for decision making is often insufficient, especially at the health facility level.
- Quantification of Category B commodities often does not meet needs, evidenced by requisitions from some districts not being in line with forecasts. Financing of commodity procurement is insufficient/inappropriate, and some health facilities—fearing eventual central stockouts—over-demand commodities.
- Stockouts, especially of the Category B commodities, were frequent.

Accordingly, the plan has a strategic objective to “strengthen quantification and forecasting of medicines, medical technologies and devices.”

2023 NSCA Findings and Analysis

Exhibits 42- 44 detail the overall maturity scores and ranges for forecasting and supply planning. The NSCA assessed forecasting and supply planning at the central level (the MOH, SCMD), the National Warehouse (NDSO), and the one referral hospital included in the sample. The forecasting process is led by the Supply Chain Management Department (SCMD) of the MoH, with support and representation from other offices within the MoH, NDSO (central medical stores), development partners (USAID and Global Fund), and regional supply chain representatives (district-level supply chain staff). Donor organizations fund most of the FASP process, with GoL funding less than 25 percent.

Exhibit 42. Forecasting Capability Maturity Scores



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent), and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

Exhibit 43. Forecasting and Supply Planning Maturity Score, and Basic Capabilities in Place

	Referral Hospital	SCMD	MoH
n =	1	1	1
Overall maturity score (range)	31%	63%	51%
Percent of basic items in place (range)	36%	86%	71%

FASP does not happen at service delivery points (SDPs). Instead, health centers and hospitals are instructed through the informed push system how much product to order based on their reported

consumption in the previous month. SDPs use paper-based stock cards and tally sheets. This information is entered monthly into informed push, which calculates the average monthly consumption and instructs the SDP how much commodity to order for the next month. Informed push is not used as an inventory management tool at the SDPs; it is solely a means of reporting consumption and ordering stock. Because reporting is required to place a restock order, reporting rates from SDPs are high. The reporting schedule is staggered so all facilities are not requesting restock at the same time. The consumption reports in informed push are aggregated at the district level. DHMT uses the aggregated reports to send requisition orders to the NDSO.

Forecasting

Forecasting and quantification for all Category A drugs takes place in October. Results are reviewed and updated as needed in March. Central-level forecasts are done using morbidity and consumption data, demographic projections, and service statistics. Methodology, data, and assumptions for the forecasting are not currently recorded and SOP guidelines for forecasting were not available at the time of this assessment. Best practices have a significant gap in that needs to be addressed. The forecasting process is computerized using standardized health forecasting software (Quantimed for ARVs and QuantTB for tuberculosis commodities).

Methodology	Referral Hospital	SCMD	MoH
Morbidity based		✓	✓
Consumption based	✓	✓	✓
Demographic projections		✓	✓
Service statistic based		✓	✓

Consumption data used to inform the forecast include wastage and are adjusted for incidents like stockouts that would otherwise skew the numbers. Consumption data quality is assessed quarterly. The current forecast used data collected between 6 and 12 months prior, which still lags behind the ideal benchmark of using data from the last three months.

Product	Forecast accuracy	Supply plan accuracy
Tenofovir/Lamivudine/Dolutegravir	92%	--*
Abacavir/Lamivudine	69%	--*
Male Condoms	44%	--*
Medroxyprogesterone	-270%	--*
Determine HIV Rapid Test Kit	66%	--*
Ora Quick Rapid Test Kit	73%	--*
Plasma Preparation Tubes (PPTs) 5ml	86%	--*
Co-Trimoxazole Suspension	-217%	--*

*Supply planning data were not available at the time of central-level interviews

There is evidence of forecast accuracy being measured but not every year. Exhibit 45 details forecast accuracy as calculated by the assessment team. It's unclear exactly what action plans are generated based on forecast accuracy results. Forecasts are typically made for 15 months, and they are used to inform health commodity procurement and mobilize funding from the government and other donor sources.

Supply Planning

The SCMD is also responsible for supply planning of HIV commodities; other entities within the MoH are responsible for supply planning of vaccines, TB commodities, and essential medicines. Forecast data, stock on hand, consumption, shipment status, financial cycles, and lead times are all used to create the supply plans. However, like the forecasting process, no defined procedure is in place for collecting data for the supply plan, data assumptions are not documented as part of the supply plan, and no formal procedure is followed for supply plan adjustments or updates.

Recommendations

The NSCA found a lack of systematic documentation of processes, assumptions, forecasting outcomes, and corrective actions or adjustments. Recommendations are to:

- **Clearly and formally document FASP processes.** Document all methodologies, assumptions, and data used.
- **Create standard guidelines for how to do forecasting and supply planning.**
- **Put in place continuous measurement of forecast accuracy and annual review and adjust processes based on outcomes of accuracy measurement.**

Supplemental Exhibit

Exhibit 46. FASP, Distribution of Questions, and Assignment of Weight Across Capability and Facility Levels								
MODULE	BASIC (50%)		INTERMEDIATE (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Referral Hospital (1)	22	2.3%	26	1.2%	12	1.3%	3	1.7%
MoH (1)	21	2.4%	27	1.1%	14	1.1%	3	1.7%
MoH (1)	21	2.4%	27	1.1%	14	1.1%	3	1.7%

Note that interpretations of the scoring, and discussions of “differences” in the scores, need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions were included. Figures presented here assume all conditions are met and all questions are included.

Procurement and Customs Clearance

The Procurement and Customs Clearance section seeks to determine that procurements are done transparently and in accordance with best practices. Major areas factored into the scoring for this CMM module are transparent, auditable procurement systems governed by policies and procedure; active management of vendor performance; and well-functioning customs clearance processes. This module was designed with public-sector procurement systems in mind. Exhibit 47 provides various examples of procurement capabilities at the different levels.

Exhibit 47. Examples of Scored Procurement and Customs Clearance Capabilities

Basic	<ul style="list-style-type: none"> An approved vendor list is in place. All tenders include terms and conditions. A documented process is in place for identifying and qualifying vendors. A contract management or an order and delivery management system is in place.
Intermediate	<ul style="list-style-type: none"> Procurements are approved by authorized personnel/stakeholders. Vendor performance results are communicated to vendors. Entity benchmarks or compares its purchase prices against market indices.
Advanced	<ul style="list-style-type: none"> A procurement ethics or anticorruption program is in place. External audits of the procurement system are conducted annually. Procurement appeal decisions are publicly available.
SOA	<ul style="list-style-type: none"> Data in the contract management system are updated in real time or daily. An electronic procurement (e-procurement) process is used.

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

The Kingdom of Lesotho Strategic Supply Chain Plan (2019-20 to 2022-23) refers to procurement through the strategic objective to “ensure effective procurement processes and supplier performance management that are to the advantage of the supply chain mission at all times.” When highlighting issues related to procurement, the plan highlights “failure of suppliers to respect contractual engagements related to turn around time” and lack of compliance by suppliers to “comply with key pre-agreed conditions as well as ‘late payment’” or lack of “pre-payment, which is often requested by suppliers.”

Currently, the only entities that procure commodities for the public health supply chain are the NDSO and the national referral hospital. The NDSO procures commodities in accordance with the procurement plans that the SCMD develops as part of its FASP responsibilities.

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Exhibits 48 and 49 display capability maturity scores for procurement and customs clearance for the NDSO and the National Referral Hospital. As the primary procurement agent for the public health system in Lesotho, the NDSO scored well at 75 percent. This is just under the NSCA benchmark of 80 percent but still a strong score. The National Referral Hospital received a score of 29 percent, indicating nascent procurement capability. Since the hospital is expected to procure only in the private sector when the NDSO is unable to fulfill its supply needs, it is not anticipated to have a highly mature procurement process.

Exhibit 48. Procurement and Customs Capability Maturity Scores

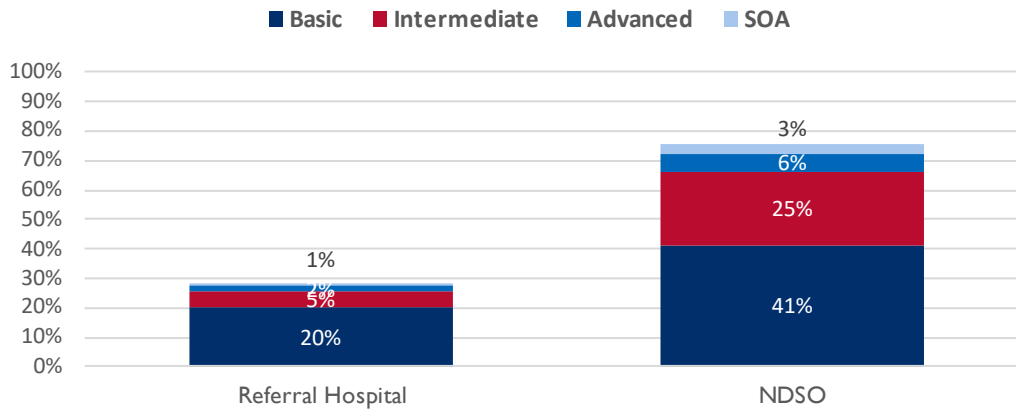


Exhibit 49. Procurement and Customs Clearance Maturity Score, and Basic Capabilities in Place

	Referral Hospital	NDSO
n =	1	1
Overall maturity score (range)	29%	75%
Percent of basic items in place (range)	40%	83%

Procurement Processes

The procurement process at the NDSO is well defined with almost every basic and intermediate component in place as per NSCA methodology. The NDSO has strong internal controls with procurement value thresholds, formally enforced order approval protocols, a contracts committee, a procurement and adjudication committee, contract management, separation of roles and responsibilities among staff, and legal review. Procurement SOPs are in place and reviewed and updated every two years. During sourcing and procurement, the process has defined points to review key reference documents, such as national treatment guidelines, the essential medicines list, user department specifications, and product-level forecasts.

A closer look at the tender process finds all of the expected components are in place. Tenders include terms and conditions, and the evaluation process reviews price, quality, service, past performance, and lead times. All bidders, successful or not, are notified of outcomes, and future tender opportunities are posted on a publicly available website. An electronic procurement system is used, and staff are trained in its use. Additional details about process components, and how the entity compares to the referral hospital, can be found in Exhibit 50. The strength of these processes is encouraging, as a key point referenced in the Kingdom of Lesotho Strategic Supply Chain (2019-20 to 2022-23) plan was “improving the procurement management system for health commodities.”

Exhibit 50. Key Procurement Capabilities (Resources, Practices, and Items) and Percentage of Facilities Reporting

	Referral Hospital	NDSO
n =	1	1
Procurements approved by authorized personnel or stakeholders	X	✓
Internal control systems	X*	✓
Annual external audits of procurement system	X	✓
Procurement ethics or anticorruption program in place	X	✓
Procurement guidelines, manuals, or SOPs available (and onsite)	X	✓
Documented process for identifying and qualifying vendors	X	✓
Approved vendor list exists	X	✓
Vendor information is maintained in a database	X	✓
Most common system for maintaining procurements information	Paper	Electronic

*Only internal control at the national Referral Hospital is a value threshold for additional approval to procure

Prices Paid

Apart from the integrity and efficiency of the procurement process, understanding the prices that a procurement entity is paying in the open market is key to understanding the effectiveness of the procurement agent. Exhibit 51 details the percentage of international referenced price paid by the NDSO for select commodities. In this instance, the international reference price is the public pricing in the GHSC-PSM procurement catalogue, under Free Carrier Incoterm conditions. As a guide for interpreting the table, values over 100 percent mean the entity is paying a higher price than the reference price, and values below 100 percent mean the entity is paying a lower price than the reference price. While this pricing assessment is not comprehensive, it is a good indication of the type of pricing the entity can secure. Such strong performance by the NDSO is encouraging, especially since during the CMM interview, the entity indicated that it does not compare its contracted prices against market indices. While in this limited review, the pricing was competitive, a best practice for the future would be to get comparisons on market prices as often as possible.

Exhibit 51. Percentage of International Reference Price Paid by NDSO for Select Commodities	
Commodity	NDSO
Tenofovir/Lamivudine/Dolutegravir 300/300mg/50mg Tablets (90 count bottle)	97%
Abacavir/Lamivudine 600/300mg (30-count bottle)	72%
Amoxicillin Suspension 125mg/5ml vial	192%
Cotrimoxazole 240mg/5ml 100ml Suspension	100%

Customs Clearance

Currently, the NDSO employs an external entity to manage its customs clearance process. A defined procedure has been established for customs clearance, and all relevant parties are notified ahead of time of expected shipment arrivals. While customs clearance is fully outsourced, no formal framework is in place for monitoring process performance. Formalized tracking of performance across all procurement-related functions is a key area of improvement for the NDSO. The entity did report that clearance usually takes just one or two days to complete—an encouraging sign of process efficiency.

Recommendations

Based on the findings detailed above, the assessment team offers these recommendations:

- Put in place formal KPIs.** While a strong process for procurement is in place, little evidence was demonstrated that the NDSO has formal KPIs it tracks for supplier performance management, procurement performance, or customs clearance. In line with the strategic objective in the NDSO Strategic Plan 23/24 to 27/28 to “design, implement, and operationalize the Monitoring and Evaluation System that will achieve tracking and reporting of all the key performance indicators of the Organization by 2028,” the assessment team strongly endorses this objective, as it is a critical step in the procurement system’s continued maturation.
- Work with NDSO staff.** When the NRH is procuring, procurement staff may find it helpful to work with NDSO staff to help define frameworks and basic SOPs for the procurement process, so they ensure the best use of funding under the circumstances.

Supplemental Annex

Exhibit 52 Procurement and Customs Clearance: Distribution of Questions and Assignment of Weight Across Capability and Facility Levels

MODULE	BASIC (50%)		INTERMED. (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Referral Hospital (1)	20	2.5%	33	1.1%	16	1.0%	4	1.2%
NDSO (1)	20	2.5%	33	1.1%	16	1.0%	4	1.2%

Note that interpretations of the scoring, and discussions of “difference” in the scores, need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Warehousing and Storage

The Warehousing and Storage section seeks to ensure pharmaceuticals are stored using the most appropriate method to confirm their quality for patient use. Major areas factored into the scoring for this CMM module are existence of, and adherence to, SOPs for storage and inventory management, adequate physical infrastructure and safety equipment for storage of commodities, and appropriate security and accountability mechanisms in place (see Exhibit 53). Exhibits 54 and 55 show warehousing and storage results.

Exhibit 53. Examples of Warehousing and Storage Capabilities	
Basic	Inbound shipments are checked for quantity, carton/pallet count, and documentation. Stock cards are used to track and manage inventory. A repair and maintenance plan is in place for all equipment and utilities.
Intermediate	Facilities receive a distribution schedule in advance from the issuing warehouse or supplier. Different batches of quarantined product are segregated in the quarantine area.
Advanced	Temperature is electronically monitored and linked to audible alarms when temperature is outside the established range. Warehousing and storage data and information are backed up off site,
SOA	Proof of deliveries is maintained through an automated system (such as barcodes scanned). An advanced warehouse management system is used to track and manage inventory.

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

The NDSO, the national medicine storage management facility in country, recognized historical challenges with warehousing and storage in Lesotho but could abate many of those challenges in 2022 when the new national warehouse was constructed outside of Mafeteng. The national warehouse at Mafeteng, as well as the NDSO offices, is located about 45 minutes outside of the capital city of Maseru, and many supply chain experts and staff commute between the two towns. Anecdotally, Mafeteng was chosen as the distribution center because it is more central to the rest of the country than Maseru, which lies directly on the border with South Africa. The NDSO is an autonomous unit within the supply chain system, which many experts consider a strength. It maintains financial sustainability by adding a surcharge to commodities for all its warehousing and delivery operations. It also has an autonomous fleet of vehicles that aid in distributing medicines nationwide. The NDSO also implements private-sector medicine strategies and has other clients beyond the GoL.

While the NDSO is the central warehouse for Lesotho, stocks of medicines are also stored locally in health centers and hospitals for quick distribution to patients. A lack of storage space at health facilities has been recognized as a weakness in the supply chain system. More successes and gaps in the warehousing infrastructure and management of Lesotho will be discussed in the following sections.

2022 NSCA Findings and Analysis

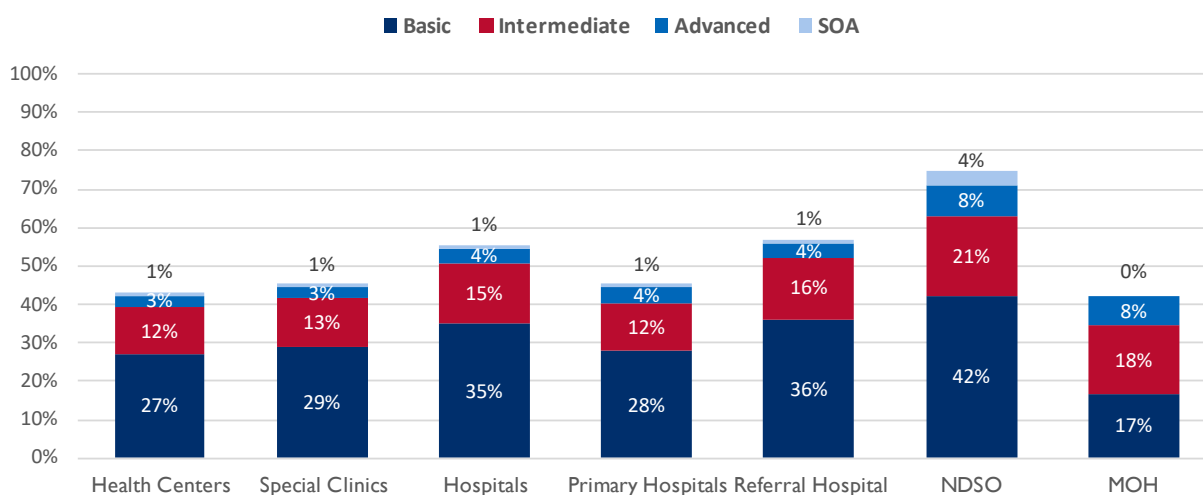
The NDSO received an overall score for warehousing and storage of 74 percent maturity, much higher than the MoH warehousing score of 42 percent. However, the highest-rated service delivery entities in the country were hospitals and referral hospitals, which received scores of 56 percent and 57 percent, respectively. As the central warehouse, NDSO is held to a much higher standard than the service delivery points like hospitals. The remaining SDP types received average scores of 54 to 58 percent. While the state of warehousing in Lesotho is likely much improved due to the new NDSO warehouse, these scores are all below the NSCA's recommended benchmark of 80 percent. Exhibits 54 and 55 display the capability maturity scores for warehousing and storage, by facility type. Results will be examined in several sections, including storage practices, stock card use, storage conditions, and stock availability.

Similarly, the percent of basic elements in place in the various facility types has referral hospitals and hospitals as the highest-scoring SDPs at 72 and 71 percent, respectively, while the NDSO scored 83 percent, and the MoH scored 33 percent. The MoH had the lowest number of basic elements in place among all facility types, as seen in Exhibit 55.

Exhibit 54. Warehousing and Storage Maturity Score, and Basic Capabilities in Place

	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital	NDSO	MoH
n =	56	15	8	3	1	1	1
Overall maturity score (range)	43% (28%–62%)	56% (41%–68%)	45% (29%–53%)	46% (27%–61%)	57%	74%	42%
Percent of basic items in place (range)	54% (33%–74%)	71% (47–82%)	58% (35%–66%)	56% (29%–74%)	72%	83%	33%

Exhibit 55. Warehousing and Storage Capability Maturity Scores



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent), and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

Storage Conditions and Infrastructure

Exhibit 56. Specialized Storage Capabilities at Service Delivery Points

Percentage of facilities that have:	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
Cold chain storage	95%	100%	100%	100%	100%
A designated quarantine area	20%	60%	3%	33%	100%
Designated storage for hazardous substances	16%	47%	20%	0%	0%
Designated storage for controlled substances	32%	93%	56%	67%	0%

The new NDSO warehouse is of high infrastructural quality, with permanent and leak-free roofing, insulated ceilings, ventilation, smooth floors, bulk storage areas, designated quarantine areas, cold chain storage, offices, and more. It is also powered by generator, which allows the warehouse to keep the medicines at appropriate temperatures with heating and cooling systems and cold rooms even in power outages, monitored digitally and electronically. Should any equipment fail, the NDSO has standby cold chain trucks available as a contingency system to maintain the cold chain. The warehouse has handling equipment ranging from shelves and hand trucks to forklifts, and safety equipment ranging from masks and gloves to sprinkler systems. The warehouse has controlled and limited access, and many security measures are in place.

The few things the NDSO is lacking in accordance with the NSCA guidelines are appropriate signage and labels indicating a quarantine area, separate docks for receiving and dispatch storage areas, equipment maintenance logs, a security alarm connected to the police, and a lockable cage or cabinet in place for storing controlled and high-value products.

While most products are stored at the NDSO, the MoH does store some vaccines within the cold rooms at the MoH headquarters in Maseru. Although this study was focused specifically on BCG storage

within these cold rooms, it was able to capture the cold room storage conditions for all products while at headquarters. The MoH had two cold storage rooms within one storage area, and both had their temperature monitored regularly, using a paper log. No repair and maintenance plan was in place for this equipment, however. Two generators were used as backup systems for the cold storage at MoH to prevent any risk of temperature excursion for cold products, and BCG has almost no risk of expiry because it is in high demand.

Many infrastructural gaps are found at the smaller facilities in health centers and special clinics, and in some cases, hospitals. Exhibit 56 details some of these gaps in specialized storage capabilities. While most health centers, hospitals, special clinics, and referral hospitals have SOPs for warehousing and storage available at the site, only 33 percent of primary hospitals could verify them on the day of visit. Within the storage spaces themselves, most of these facility types met the standard for roofing, ceilings, and floors, but there were gaps in the means to store hazardous materials and maintenance of quarantine areas. Many of the smaller facilities did not have enough storage space for a designated area for quarantined products, hazardous materials, or controlled substances, and they were kept in the same room as the other products.

In considering facility types:

- 60 percent of health centers and 49 percent of special clinics do not have any sort of backup to ensure consistent electric power at the facility.
- About 90 percent or more of all these facility types (excluding referral hospitals) do not have alarms as a security measure, either local to the facility or connected to the police.
- Almost none of these facilities keep a record of the people entering and exiting secure areas or use staff ID cards.
- Only 35 percent of health centers, 26 percent of special clinics, and 33 percent of primary hospitals could verify the use of a temperature log or register on the day of visit
- Only 34 percent of health centers and 33 percent of primary hospitals use an air condition system
- Only 40 percent of health centers, 9 percent of special clinics, and 33 percent of primary hospitals use a heating system to maintain temperature control of the storage spaces.
- Almost all of these facilities had some sort of cold chain infrastructure available, like freestanding refrigerators or extra cold coolers, but only 18 percent of health facilities and 51 percent of special clinics have generators as a backup system to maintain the cold chain should power be lost.
- About half of special clinics and health centers have a lockable cage or cabinet for storing controlled and high-value products and limit access to them, while almost all hospitals do.

Looking more closely at safety equipment:

- 38 percent of health centers and 33 percent of primary hospitals have fire extinguishers with inspections having taken place over one year ago
- 4 percent of health centers and 7 percent of hospitals have fire extinguishers with no inspection tags at all.
- Only 18 percent of health centers, 10 percent of special clinics, and 0 percent of primary hospitals have staff that are trained in the safe use of the material handling and firefighting equipment.
- 2 percent of health centers also have no security measures in place in their storage areas.

- 11 percent of health centers, 7 percent of hospitals, and 20 percent of special clinics do not monitor temperature in their cold storage areas, and half or more special clinics and health centers do not have any contingency systems in place to maintain the cold chain in the event of a power or equipment failure.

In other findings:

- Many facilities do meet the requirements for some acceptable storage conditions. For example, almost all health centers, hospitals, special clinics, and referral hospitals have SOPs for warehousing and storage that could be physically verified on the day of visit.
- 100 percent of facilities maintain POD records, albeit paper copies.
- Almost all health facilities have cabinets and shelves, and a good portion also have hand trucks for moving commodities. Nearly all types of health facilities had fire extinguishers, masks, and lab coats available as safety equipment, as well.
- 93 percent of health centers and all other types of health facilities had locks available on the main doors of the building as a security measure.
- All referral hospitals had both heating and cooling systems, while most hospitals and special clinics also had cooling systems in place.
- 99 percent of health centers and 100 percent of all other health facility types have manual stock cards available and readily use them.

Overall, Lesotho’s medicine storage infrastructure scores highly at the central level at the NDSO and MoH but is lacking in the smaller and more remote facility types, such as health centers, hospitals, special clinics, and some primary and referral hospitals.

Inventory Management Practices

Having standardized inventory management practices developed and disseminated to all facilities within the supply chain is a critical foundational capability. Exhibit 57 details the type and method of inventory control observed in assessed facilities. Such practices must be supported by consistent training and ubiquitous presence of manuals, job aids, and SOPs in facilities. National standard SOPs for warehousing and storage do exist, and almost all health centers have warehousing SOPs available (either in electronic or paper format), including 73 percent of special clinics, 80 percent of health centers and hospitals, and 100 percent of referral hospitals, at the NDSO and MoH. The exception is primary hospitals, with only 33 percent of facilities reporting the presence of SOPs.

Exhibit 57. Methodology Used for Ordering as Reported by Facilities						
	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital	Health Center
Using min-max guidance	68%	73%	90%	33%	0%	68%
Using previous consumption to inform ordering	0%	0%	0%	0%	100%	0%
Using intuition to inform ordering	24%*	13%	3%	33%	0%	24%*

*SDPS in Lesotho use an informed push system. The consumption data are sent to district health officers who determine how much is ordered for the facility

Nearly 100 percent of health centers, hospitals, and referral hospitals have assigned locations on shelves for products, while only 67 percent of primary hospitals and 73 percent of special clinics do. Almost all facility types use first expiry, first out (FEFO) and first in, first out (FIFO) principles to determine which stock for a given item to issue first. According to the MoH, the national policy for health facilities is to use FEFO and FIFO. The exceptions are that 5 percent of health centers do not use either practice, or the NDSO, with its large stock storage, uses only FEFO. In all referral hospitals, and about two-thirds of health centers, hospitals, and primary hospitals, a single register is used to monitor and track expiration dates for all products, but only at about 44 percent of special clinics. At the NDSO, in the case of stock overflow, excess products go to the secondary warehouse, which used to be the only NDSO warehouse, also located in Mafeteng. At the NDSO, the following measures are also in place to ensure commodity loss prevention: shipping package is weighed before shipping and confirmed at receipt, shipping package is wrapped and securely sealed, picked quantities are physically verified, and authorization to take out is issued. The NDSO also checks for the quantity of products during the dispatch of outbound orders but does not check the quality or documentation of these dispatches.

While the NDSO is the central warehouse for Lesotho, it does not strategically hold buffer stock/security stock. Most health facilities do, however, with 87–100 percent of all facility types holding buffer stock, except primary hospitals, where only 67 percent of facilities do. The months of buffer stock at these facilities range from 1 month to 1.5 months.

Inventory management systems at these health facilities also include min/max set points most of the time, with about three quarters of health facilities having min/max set points for all products, and fewer having min/max points set for only some products. However, 33 percent of primary hospitals, 13 percent of hospitals, 7 percent of health centers, and 3 percent of special clinics do not have any min/max set points within their inventory management system. Only 67 percent of primary hospitals, 60 percent of hospitals, 34 percent of health centers, and 29 percent of special clinics have computerized inventory management systems. At the NDSO, the warehouse management system captures pallet sizes and numbers as well as the unit price and value of the products but does not capture the weight of the items or the carton sizes and numbers. Maintaining [Inventory accuracy is also a critically important function that has widely varied levels of performance across the Lesotho supply chain. Exhibits 58 and 59 detail the percentage of facilities with a 100% accurate paper LMIS record, for a given tracer product, on the day of the facility visit.](#)

Exhibit 58. Percentage of Facilities With 100 Percent Accurate Stock Card, by Tracer Commodity

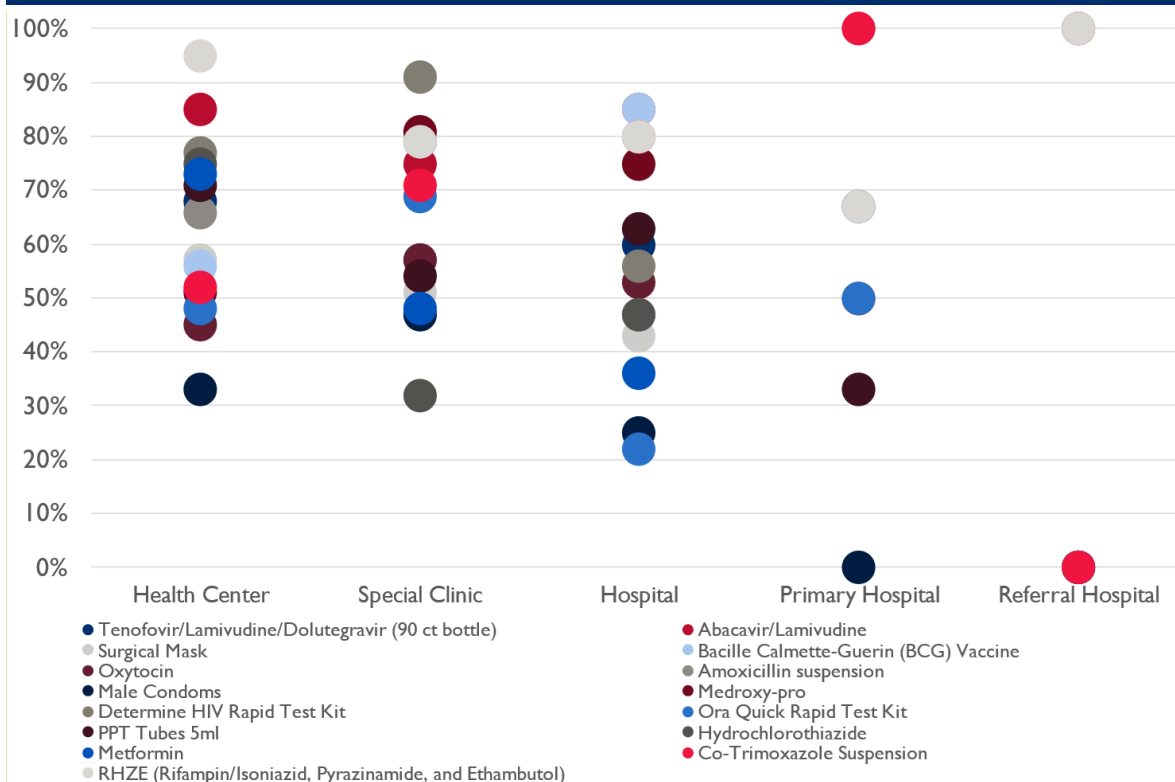


Exhibit 59. Percentage of Facilities with 100 Percent Accurate Stock Card, by Tracer Commodity

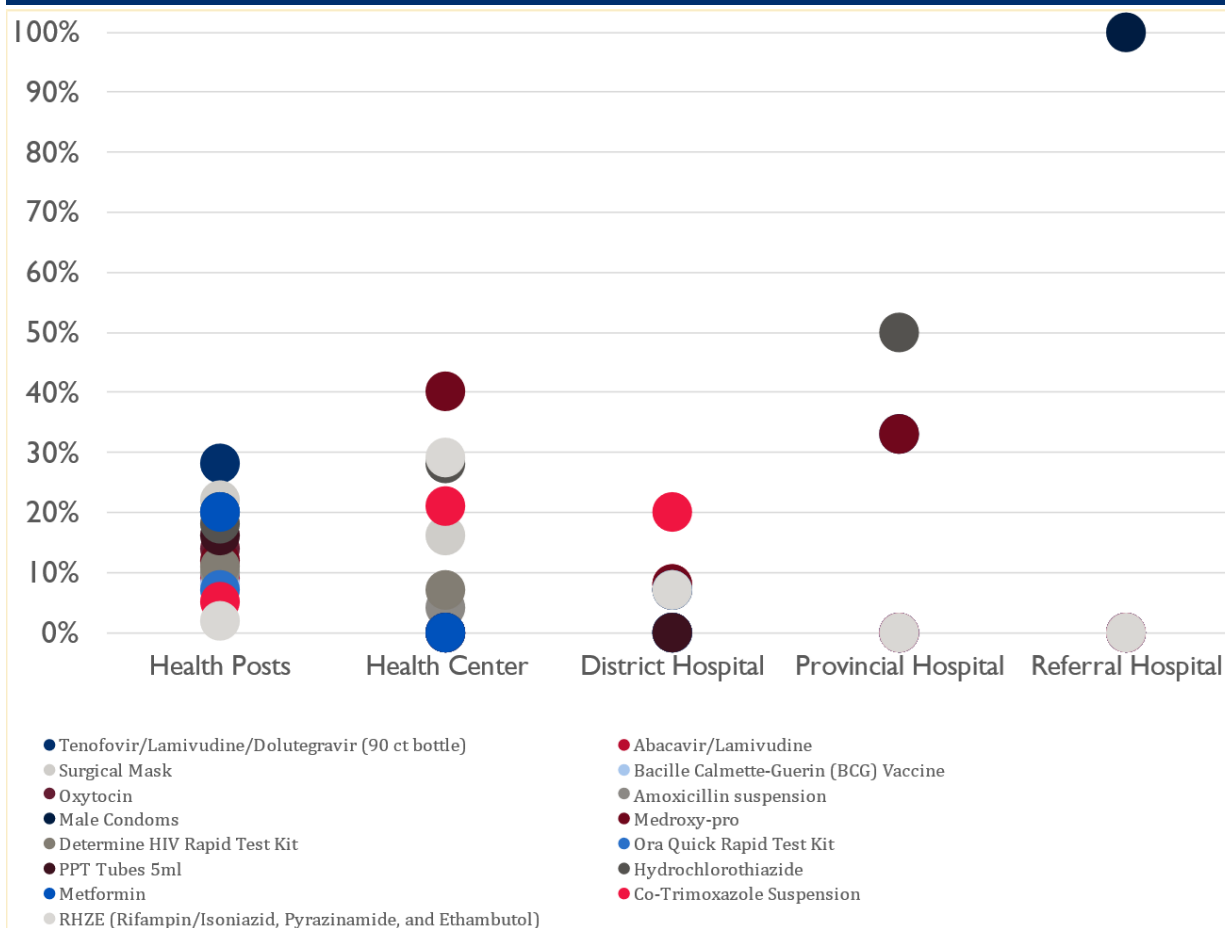
	Health Center	Special Clinic	Hospital	Primary Hospital	Referral Hospital
n =	56	8	15	3	1
TLD (90-ct)	68%	79%	60%	67%	0%
Abacavir/Lamivudine	85%	75%	85%	50%	100%
Surgical Mask	57%	51%	43%	33%	0%
BCG Vaccine	56%	57%	85%	0%	0%
Oxytocin	45%	57%	53%	0%	0%
Amoxicillin Suspension	66%	79%	47%	0%	0%
Male Condoms	33%	47%	25%	0%	0%
Medroxyprogesterone	51%	81%	75%	0%	0%
Determine HIV RTK	77%	91%	56%	100%	100%
Ora Quick RTK	48%	69%	22%	50%	0%
PPTs 5ml	71%	54%	63%	33%	0%
Hydrochlorothiazide	75%	32%	47%	0%	0%
Metformin	73%	48%	36%	0%	0%
Co-trimoxazole Suspension	52%	71%	80%	100%	0%
RHZE	95%	79%	80%	67%	100%

Stocked According to Plan

The assessment revealed a system that is generally operating well but stockouts continue to be a common occurrence in the system. Looking more closely, the system is struggling with maintaining appropriate inventory levels across different product categories over time. Exhibits 60 and 61 detail the SATP rate for February to July 2023. This is a composite measure that aggregates all of the stock observations of a particular product across the given facility type for the referenced six months. It helps in understanding at an aggregate level if the service delivery points are generally receiving enough product to meet their local demand, based on the pre-determined inventory control maximum and minimums that have been set for the supply chain. The two exhibits indicate that outside of the NRH, not a single product/facility combination reported being SATP 100 percent of the time in the given period. However, this measure cannot be interpreted on its own when assessing supply level; other key indicators such as stockouts at the service delivery point are another important perspective to consider.

Exhibit 60. SATP Rates for All Tracer Products, by Level in the Supply Chain				
	Health Center	Special Clinic	Hospital	Primary Hospital
Number of observations:	56	8	15	3
Tenofovir/Lamivudine/Dolutegravir	37%	58%	53%	67%
Abacavir/Lamivudine	38%	21%	31%	60%
Surgical Mask	17%	41%	25%	58%
BCG Vaccine	52%	100%	22%	
Oxytocin	14%	65%	24%	
Amoxicillin suspension	40%	65%	40%	
Male Condoms	20%	35%	22%	0%
Medroxyprogesterone	38%	32%	42%	
Determine HIV RTK	28%	55%	54%	13%
Ora Quick RTK	36%	70%	29%	25%
PPT Tube 5ml	43%	46%	42%	78%
Hydrochlorothiazide	39%	41%	49%	
Metformin	38%	83%	67%	
Co-Trimoxazole Suspension	45%	54%	29%	0%
RHZE	68%	54%	49%	35%

Exhibit 61. Percentage of Facility Stockout of a Tracer Commodity on the Day of the Assessment



Service Delivery Point Stockouts

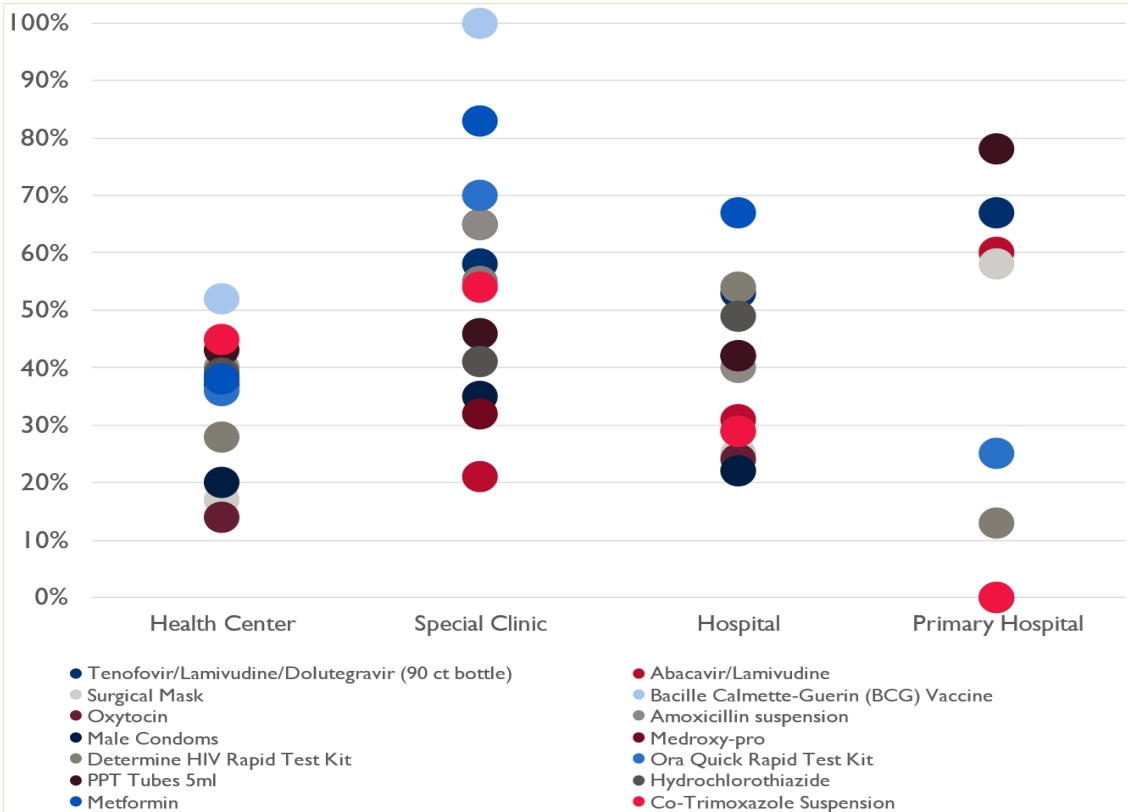
An oft-cited outcome metric that is critical for supply chains to manage against is the stockout rate of commodities at service delivery points. This metric was measured for Lesotho in the percentage of facilities with a stockout on the day of the assessment as well as percentage of days stocked over the given six-month period of interest. Exhibits 62 and 63 detail the percentage of facilities with a stockout on the day of the assessment, disaggregated by facility type and by tracer commodity. As the exhibits demonstrate, stockouts were a common occurrence during the assessment at the health center level with every tracer commodity included experiencing a stockout and stockout rates rising to as high as 28 percent for the TLD 90-count bottles within health centers. Stockouts were significantly less common at the other facility types visited, namely, special clinics and hospitals.

Exhibit 62. Percentage of Facilities with Stockout on Day of Assessment

	Health Center	Special Clinic	Hospital	Primary Hospital	Referral Hospital
Number of observations:	56	8	15	3	1
Tenofovir/Lamivudine/Dolutegravir (90-ct)	28%	0%	0%	33%	0%
Abacavir/Lamivudine	9%	0%	8%	0%	0%

Surgical Mask	22%	16%	7%	0%	100%
BCG Vaccine	8%	0%	0%	0%	0%
Oxytocin	14%	0%	7%	0%	0%
Amoxicillin Suspension	10%	4%	0%	0%	0%
Male Condoms	20%	0%	0%	0%	100%
Medroxyprogesterone	12%	40%	8%	33%	0%
Determine HIV RTK	11%	7%	7%	0%	0%
Ora Quick RTK	7%	0%	0%	0%	0%
PPTs 5ml	16%	0%	0%	0%	0%
Hydrochlorothiazide	18%	28%	7%	50%	0%
Metformin	20%	0%	7%	0%	0%
Co-Trimoxazole Suspension	5%	21%	20%	0%	0%
RHZE	2%	29%	7%	0%	0%

Exhibit 63. Stocked According to Plan Rates for All Tracer Products, by Level in the Supply Chain



Ordering and Delivery Practices

For inbound shipments, all facility types, including the NDSO, check for the correct quantity of products. All hospital types, special clinics, the NDSO, and 99 percent of health centers check for shelf-

life remaining as well. The NDSO and referral hospitals also check for carton counts/pallet counts and documentation all the time, and the NDSO always checks for quality and correct currency and pricing. Most health centers, hospitals, special clinics, and primary hospitals also check for carton count/pallet count and documentation, and some check for quality and correct currency and pricing. A total 97 percent of health centers and all other health facility types receive a distribution schedule in advance from the issuing warehouse or supplier.

When commodities received show a discrepancy, the NDSO notifies the warehouse and supplier, and rejects and/or quarantines the products. Almost all referral hospitals, hospitals, and special clinics also notify the warehouse and supplier, while only about two-thirds of health centers and primary hospitals do. Only about half of hospitals and health centers reject the products, while most special clinics, primary hospitals, and referral hospitals do. Less than a third of health centers, hospitals, and special clinics also re-order or quarantine the products. Seven percent of special clinic survey respondents and 33 percent of primary hospital survey respondents were not sure of the procedure taken when commodities received at their health facilities show a discrepancy.

All health facility types keep paper copies of proof of delivery (POD) records for products received, and almost all of these facilities keep them for more than 12 months. None maintain electronic copies, however, speaking to a need for more online systems. Products are delivered to health facilities through the NDSO, and the delivery process is traceable at the NDSO with manual tracking of orders with established delivery dates. However, delivery confirmation is not documented.

According to the survey, across all health facility levels, the most common difficulties listed as challenges facing last-mile delivery were partial deliveries, delivery of nearly expired commodities, and excess commodities. Delivery of nearly expired products was an issue at 46 percent of health facilities and 47 percent of hospitals, and was the largest challenge faced by both facility types. A total 44 percent of special clinics, 32 percent of health centers, and 27 percent of hospitals reported having no difficulties when facing last-mile delivery.

Other Warehouse Management

Audits of health facilities are mostly performed annually or more often on warehousing, whether internal audits, external audits, or both. The exception is referral hospitals, which have no audits performed annually or more often, as well as 13 percent of health centers, 7 percent of hospitals, and 7 percent of special clinics.

No information is found from the National Regulatory Authority about NDSO audits or NDSO licensing for storage of pharmaceutical products.

The NDSO regularly tracks many indicators about warehousing, including:

- SATP (the percentage of commodities between the established minimum and maximum stock levels)
- Stockout rates (the percentage of commodities that experienced a stockout during a defined period)
- Stock accuracy (comparison between the stock quantity on a stock card and/or in an inventory management software with the quantity counted in a physical inventory)
- Order fill rate (comparison between the quantity in accepted orders to the quantity delivered)
- Stock turn per annum (the number of times the warehouse issues and replaces its inventory during the period under review)

- Cost of warehousing operations (cost of the operation of the warehouse, which may be expressed as a percentage of the total value of the commodities managed by the warehouse)
- Wastage from damage (measurement of the total value or quantity of stock that was lost due to damage during a defined period)
- Wastage from theft (measurement of the total value or quantity of stock that was lost to theft during a defined period)
- Wastage from expiry (measurement of the total value or quantity of stock that was lost to expiry during a defined period)
- Order turnaround time (the time taken by the warehouse to fulfill orders from lower-level hospitals, hospitals, or SDPs)
- Number or duration of temperature excursions (the number of days in which there was a temperature excursion or percentage of time that the cold storage facility was not at the required temperature)
- Percentage of in-coming batches tested for quality (the percentage of product batches received from suppliers and tested by a quality assurance laboratory)

Some health facilities also track these indicators. Most consistently, stock accuracy is tracked by 67 percent of primary hospitals, 65 percent of special clinics, 40 percent of hospitals, and 26 percent of health centers. A total 53 percent of hospitals also track wastage from expiry, but all other indicators are tracked in about a third of different types of health facilities or less. A total 20 percent of hospitals, 33 percent of primary hospitals, 35 percent of special clinics, 37 percent of health centers, and 100 percent of referral hospitals do not track indicators.

While the NDSO does not have a specific person for tracking indicators for specifically cold chain infrastructure, the temperature requirements for transport from manufacturer to service delivery point are tracked through temperature monitoring devices and electronic temperature tracking devices without remote temperature monitoring.

The entity mostly responsible for budgets associated with warehousing and storage in most health facility types is the Government of Lesotho, with the exception of primary hospitals, which are mostly funded by facility revenue and cost recovery. The GoL and facility revenue/cost recovery contribute 100 percent to recurring warehousing and storage costs at the NDSO and referral hospitals, and most costs at the MoH. Most respondents from other health facility types were unaware of how much these funding mechanisms contribute to this budget.

Recommendations

The warehousing and storage module illustrates what improvements can be made, both centrally and at health facilities. At the NDSO, some simple additions could be made to the warehouse itself and to building management to improve the score and to increase the quality of warehousing, such as signage and labeling for quarantining, equipment maintenance logs, a security alarm that is connected to police, and a lockable cage in place for storing high-value products. Creating separate docks for receiving and dispatching products could add to the score but is a more labor-intensive fix. Also, the NDSO could hire a staff person specifically for tracking and maintaining cold chain infrastructure.

The linkage between the NDSO and the health facilities also leaves room for improvement, like creating a system for confirming deliveries to health facilities. It also would be worthwhile to conduct an investigation into what health facilities report as the largest difficulties with deliveries from the NDSO:

partial deliveries, deliveries of nearly expired products, and deliveries of excess commodities, which the facilities may or may not have the storage space for.

Facilities themselves face warehousing and storage challenges. Many facilities would benefit from infrastructural development because they simply do not have enough space for storage, or for storing hazardous materials and quarantined products away from shelved products. Many facilities would also benefit from investment in electricity backups, such as generators, alarms, and other security measures, and heating and cooling systems in the buildings. Additional staff training could benefit health facilities that do not have consistent temperature monitoring or warehouse indicator tracking, as well as training in the safe use of material handling and firefighting equipment. In primary hospitals specifically, SOPs for warehousing and storage need to be distributed and re-trained. Re-familiarizing staff with the national guidelines of min/max set points is also recommended. Staff expressed a need for more online systems, such as computerized inventory management systems. Many facilities would also benefit from fire extinguisher inspections.

At the central level, within the storage at the MoH, a repair and maintenance plan for the cold rooms could help in facility management. Furthermore, it may be worthwhile to reassess if storing high-consumption products at the MoH cold rooms is the best strategy, as it may be costing more in distribution and shipping than if these products were also stored in cold rooms at the NDSO, where dispatches mostly come from.

To this end the assessment team recommends the following:

- **Continue to invest in warehousing infrastructure at the service delivery level.** Storage and operational space is insufficient to comply with safety requirements and best practices.
- **Strengthen the feedback loop between service delivery points and the NDSO within the informed push context.** The facilities are reporting receiving simultaneous partial and excess deliveries as well as commodities that are near expiry.
- **Review inventory min/max guidelines in the context of the informed push system.** Facilities are reporting stock levels are not within inventory control limits set but are also not in control of order quantities.

Beyond the results of this study's data, the stakeholder workshop also illuminated some recommendations that supply chain staff in Lesotho feel should be a priority in warehousing and storage:

- **Integrate Category A and B products (across all modules, not just in warehousing).** Ensure the NDSO has funds directly disbursed for warehouse maintenance (and product procurement). Late payments from the MoH to the NDSO have in the past led suppliers to opt out of providing products to the NDSO. The reliance on donors for Category B products specifically has been earmarked as an inefficiency in the national supply chain. For now, the NDSO can purchase products on credit, but key supply chain players fear that if it continues to do so, suppliers will no longer be willing to provide stock to the GoL.

Supplemental Exhibit

Exhibit 64. Warehousing and Storage: Distribution of Questions and Assignment of Weight Across Capability and Facility Levels

MODULE	BASIC (50%)		INTERMED. (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Health Centers (56)	48	1.0%	29	1.0%	13	1.1%	7	0.7%
Hospital (15)	48	1.0%	29	1.0%	13	1.1%	7	0.7%
Special Clinics (8)	48	1.0%	29	1.0%	13	1.1%	7	0.7%
Primary Hospitals (3)	48	1.0%	29	1.0%	13	1.1%	7	0.7%
Referral hospital (1)	53.3	0.9%	30	1.0%	13	1.2%	6	0.8%
NDSO (1)	74.7	0.7%	37	0.8%	14	1.1%	5	1.0%
MoH (1)	9	5.5%	5	6%	2	7.5%	1	5.0%

Note that interpretations of the scoring, and discussions of “differences” in the scores, need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Distribution

The safe and efficient distribution of pharmaceuticals and medical products is a fundamental function of public health supply chains. In this technical area, the NSCA seeks to ensure that distribution plans are structured, implemented, and monitored so that they regularly achieve on-time distribution of commodities to service delivery points. Major areas factored into the scoring for this module included the existence of a distribution plan, consideration of appropriate factors for optimizing distributions, best practice policies and procedures, active recording and monitoring of cost and transit data, and appropriate mechanisms to ensure safety and quality of products during transit (see Exhibit 65).

Exhibit 65. Examples of Scored Distribution Capabilities

Basic	<ul style="list-style-type: none"> Existence of an approved distribution plan that defines when products will be delivered to clients Existence of a data management system that captures distribution plans and operations Existence of manual systems for capturing and maintaining transportation data Temperature monitoring devices used to track temperature excursions during transportation Security management measures: unannounced inspections/security guards Process for recording loss incidents Manual tracking of ownership of commodities throughout the system POD records maintained manually
Intermediate	<ul style="list-style-type: none"> Distribution routes are preplanned/included in the communication to health facilities/reviewed annually Existence of policies that cover the distribution and transportation of commodities/aspects of fleet management (list of policies areas/key aspects) Documented SOPs for managing transportation assets available at site. Existence of electronic systems for capturing and maintaining transportation data Collection of distribution cost data/using Excel
Advanced	<ul style="list-style-type: none"> Products from different programs and partners distributed in an integrated manner wherever product characteristics allow (most products = an intermediate capability) Daily or real-time capture of transportation data Temperatures recorded in transit Security management measures: video surveillance/two-way radio/barcode scanning
SOA	Government budget or facility revenue covers 100 percent of recurring distribution costs.

Security management measures: radio frequency identification tags

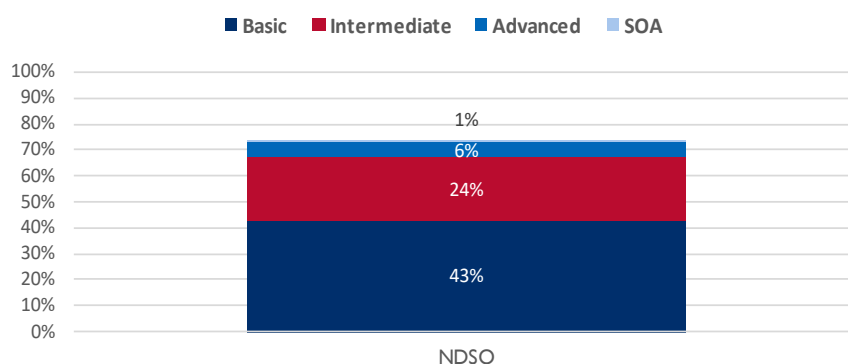
Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

The Kingdom of Lesotho Supply Chain Strategic Plan (2019-20 to 2022-23) makes reference to distribution through one of its strategic objectives. Specifically, the plan states the objective to be to “streamline the distribution system for all health commodities using an informed push distribution approach (push and pull).” Later on, the plan elaborates that the primary issues for distribution are “difficulties in synchronizing supplies of Category A and B supplies due to differences in treatment cycle.” This means that “there is often poor timing of orders from same customers which result in duplication of efforts in supply them from NDSO.” These are key priorities and challenges that the government planned to address through implementing the costed strategic plan.

2023 NSCA Findings and Analysis

Distribution is currently handled entirely by the NDSO, the MoH’s sole partner in the warehousing and distribution of health commodities to facilities within Lesotho. As Exhibits 66 and 67 indicate, the entity scored very well on the CMM module for distribution, receiving a score of 74 percent—just short of the optimal 80 percent benchmark for the NSCA.

Exhibit 66. Distribution Maturity Scores



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent), and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

Exhibit 67. Distribution Maturity Score, and Basic Capabilities in Place

	NDSO
n =	1
Overall maturity score (range)	74%
Percent of basic items in place (range)	86%

Distribution Planning

The NDSO has a mature distribution operation with all of the essential components needed to run a functional distribution operation. The entity has an approved distribution plan, and distribution schedules are included in communications to health facilities. The routes on which facilities are delivered on are pre-planned and reviewed every six months to ensure they are still the most efficient routes to take. As noted, Lesotho uses an informed push system for commodity distribution, meaning that the organization has more control and visibility into the quantities, numbers of delivery points, and frequency of delivery than might otherwise have in a pull system. This design is used to the entity's advantage in planning its operations. Distribution is conducted in an integrated manner at all times for health facility delivery. When routes are being planned, truck capacity, product volumes, and geographic locations are all taken into consideration. The only key aspect that is missing is the weight of products in each shipment.

Data Management and Performance Monitoring

The NDSO reported that the organization has a data management system that captures distribution plans and operations. Transportation data are captured weekly or monthly in paper and electronic systems. Cost data are also captured using a transportation management system. Cost data collected include operational costs, depreciation, labor, maintenance, and fuel. Cost data are also used to minimize operating costs, and evidence of specific interventions to decrease transport operating costs were also observed.

However, outbound shipments are tracked manually, not electronically, and commodity chain of custody is also tracked manually. All manually recorded proofs of delivery (PODs) are reconciled with quantities of outbound stock. This process could be completed more efficiently through use of an electronic tracking of outbound quantities and electronic POD system.

Specialized Capabilities

The NDSO has cold chain transportation capabilities, using refrigerated trucks and cooler boxes to move cold chain product. Temperature monitoring devices are used, but temperatures are logged only at the time of departure. Actively monitoring cold chain storage products in transit, as conditions and budgets allow, is recommended.

As security measures, the NDSO uses Global Positioning System monitoring, integrated audit processes at the front and back of delivery, and partnerships with local police. Additional security measures that the entity should consider instituting include surveillance cameras, barcode scanning, and security guards. The NDSO also has documented security procedures in place and a documented incident loss process.

Last-Mile Delivery Performance

The NSCA also collected extensive data on the NDSO's delivery performance over the last six months, from the perspective of the receiving service delivery points, meaning that performance is based on delivery dates promised to the facilities and compared against PODs maintained at each facility. Exhibit

68 details performance over the six-month period preceding the month of data collection. Results are disaggregated by facility type. On-time delivery was always at 92 percent or higher, indicating a very high level of performance for the institution. Turnaround time on orders was always between 19 and 22 days, consistent with the predefined parameters for the supply chain. The NDSO should be commended for excellent performance, as it is an asset to the overall public health supply chain. Any concerns about timeliness of deliveries raised during elaboration of the strategic supply chain have clearly been addressed.

Exhibit 68. NDSO Delivery Key Performance Indicators (Feb. 2023–July 2023)

	Health Center	Special Clinic	Hospital	Primary Hospital	Referral Hospital
Number of facilities visited	56	8	15	3	1
Number of orders reviewed	315	40	85	18	6
Percentage of orders with all relevant dates	92%	71%	86%	89%	100%
On-time (all orders)	95%	92%	93%	88%	100%
On-time (routine orders)	95%	92%	93%	88%	100%
Turnaround time (all orders) (in days)	19.4	21.4	19.2	21.9	18.2

Recommendations

- Consider instituting a formal performance monitoring framework with KPIs. Generally, the NDSO has a mature and stable distribution operation. As the MoH decides where to invest its energy, this framework can be useful for not only delivery performance but also cost efficiency and labor use.
- Consider conducting annual risk assessments of delivery operations to ensure security measures in place have no gaps in protection coverage.

Supplemental Exhibit

Exhibit 69. Distribution Module, Distribution of Questions and Assignment of Weight Across Capability and Facility Levels

MODULE	BASIC (50%)		INTERMEDIATE (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
NDSO (1)	21	2.4%	43	0.7%	17	0.9%	7	0.7%

Note that interpretations of the scoring, and discussions of “difference” in the scores, need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Logistics Management Information Systems

Accurate and timely data are critical for effective decision making throughout the public health system. The logistics management information systems are the system of records and reports—paper-based or electronic—that are used to aggregate, analyze, validate, and display data to inform logistics decisions and manage the supply chain. Major areas that were factored into the assessment of LMIS capabilities and performance in the NSCA included evidence that standardized LMIS tools and practices are used consistently throughout the system, harmonized reporting practices, regular reporting intervals, performance monitoring on quality of reporting, and ultimately, performance in data accuracy, completeness, and timeliness (see Exhibit 70).

Exhibit 70. Examples of Scored Logistic Management Information System Capabilities

Basic	Paper-based LMIS tools Quarterly reporting frequency Internal DQAs
Intermediate	Standardized tools across the supply chain—geographic regions, health programs, and system levels Electronic LMIS tools Monthly reporting frequency Standard process to review LMIS data Reliable Internet
Advanced	Weekly reporting frequency Virus protection for eLMIS computers
SOA	Real time/daily LMIS reporting frequency

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

The Lesotho Supply Chain Strategic Plan 2019/20–2022/23 acknowledges the importance of the LMIS for the optimal functioning of the health supply chain. Currently, the system operates in a bifurcated fashion, with different reporting formats, expectations, and required data fields for Category A and Category B products. In both information flows, logistics data make their way from paper-based forms to electronic records as they move back up the chain. The MoH readily admits this process can be challenging:

“This LMIS data is supposed to be aggregated at each level of the system and channeled up from the facility level to the central level electronically backed by several paper-based forms. However currently this level-by-level aggregation of data is not happening consistently, and this plan aims to make sure that data is submitted to each level on time and aggregation is effectively done at district and central level.”

The MoH acknowledges and prioritizes the LMIS in strategic planning, noting that its effective functioning at all levels is critical to overall supply chain success. The current state of the LMIS is explored in the following pages of the report.

2023 NSCA Findings and Analysis

Exhibits 71–73 detail the capability maturity scores for all surveyed facility types in Lesotho. Maturity scores varied across supply chain levels and within supply chain levels. At the central level, the MoH scored the highest, almost 60 percent. At the service delivery level, maturity scores were more consistent, yet surprisingly, the NRH, the most advanced facility in the country, scored the lowest on LMIS capabilities.

Exhibit 71. LMIS Maturity Scores Across All Surveyed Facility Types

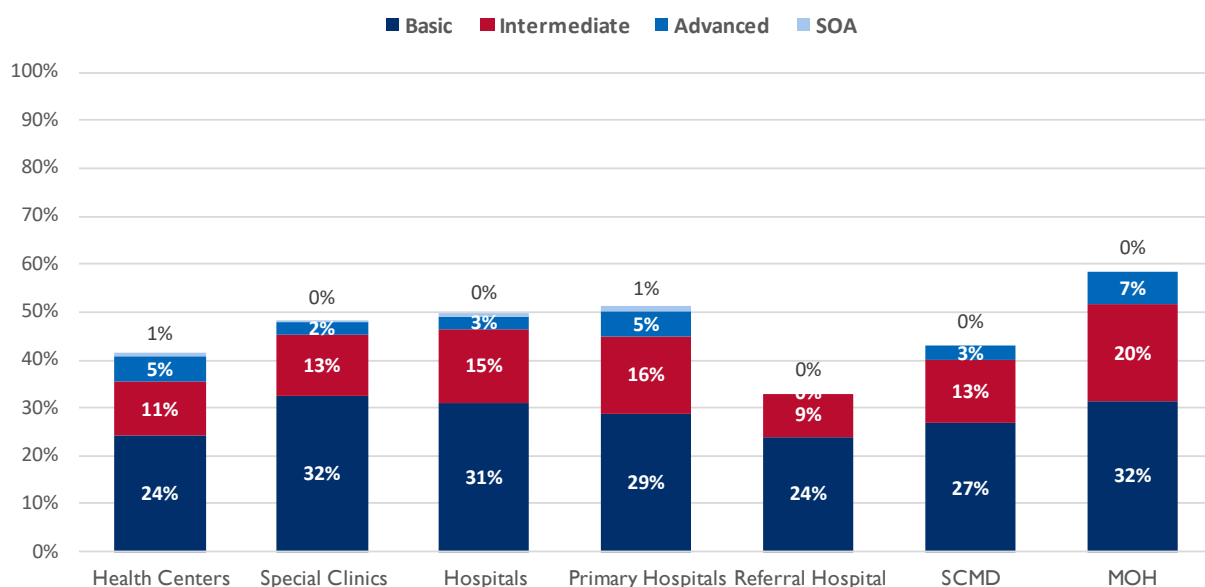


Exhibit 72. LMIS Maturity Score, and Basic Capabilities in Place for Sub-national entities

	Health Centers	Hospitals	Special Clinics	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Overall maturity score (range)	49%	50%	48%	51%	34%
Percent of basic items in place (range)	62%	62%	65%	58%	49%

Exhibit 73. LMIS Maturity Score, and Basic Capabilities in Place for Central-level Entities

	NDSO	MoH
n =	1	1
Overall maturity score (range)	43%	58%
Percent of basic items in place (range)	54%	63%

Most facilities that see patients stated that they used both paper and eLMIS tools to report their commodity consumption (between 64 and 100 percent). Sites reported that the LMIS tools used are harmonized across the country and health programs. Sites also noted that all vertical programs have the same reporting cycle, simplifying the reporting process for the sites. Beyond that, between 74 and 100 percent of sites stated that they reported monthly or more frequently, illustrating ubiquitous understanding and collective adherence to Lesotho’s preferred reporting cadence. Correspondingly, the MoH (for vaccines) and SCMD reported that a formal system was in place through which LMIS users could report technical issues or suggestions, with a technical working group to review those issues and suggestions, and finally a help desk to provide users with answers to operational questions on the LMIS. Despite these risk mitigation tactics and supportive processes, challenges to using the eLMIS are often inherent. Most facilities, specifically at lower levels, reported that Internet connectivity and system downtime centrally were impediments to their regular data submission. These were followed by reasons related to insufficient staff at the site: lack of time due to other tasks, insufficient training, and insufficient number of staff. These challenges were mirrored at the higher levels, with the SCMD and MoH identifying Internet connectivity, system downtime centrally, lack of time due to other tasks, and insufficient numbers of staff trained.

Paper LMIS

For the paper-based system, which most sites reported they used in addition to the eLMIS, sites reported stockouts of tools or forms, as well as challenges with data, including loss, analysis, retrieval, quality, and sharing—all perceived as major impediments to using the paper-based system. Likewise, these same challenges related to availability of the forms as well as many data concerns identified by the central level when using the paper-based LMIS.

Confusion was expressed about the number of reports required for a single facility to submit in a given reporting period (see Exhibit 74). This finding could be due to sites providing a unique variety of services, such as diagnostics that might require a lab on-site and could include an additional report. Having a single source of the truth could be a reference to sites as to which reports are required and could help reduce confusion.

Exhibit 74. Number of Mandatory Reports by Site per Reporting Cycle at the Subnational Level

	Health Centers	Hospitals	Special Clinics	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
1–3 reports per reporting cycle	19%	13%	16%	0%	0%
4–6 reports per reporting cycle	19%	47%	0%	33%	100%
7–10 reports per reporting cycle	34%	7%	45%	67%	0%
10+ reports per reporting cycle	23%	33%	39%	0%	0%

Stockouts of paper-based LMIS forms, such as stock cards, dispensing logs, report and requisition forms, and supply vouchers, were reported at all levels of the system, from central to site. The most prevalent stockout was for stock cards. This issue was also identified as a challenge to using the paper-based

LMIS. Compounding the scarcity of dispensing logs is the number of dispensing registers that must be completed in support of dispensing to patients. Most sites reported that one to three or four to six registers are required to be completed to dispense. This demand explains why dispensing registers were the logistics tool identified as the second-most stocked-out product by sites treating patients. The most stocked-out LMIS tool was stock cards.

eLMIS/informed push system

The electronic logistics management information system for Lesotho is used for reporting consumption and also quantities needed to treat patients, similar to the paper-based system. Exhibits 75-78 detail the degree of processes in place across different facility types in the health system. The central level is the main consumer of these data, using this information to make resupply, procurement, and FASP decisions. The fields collected in the two systems are also consistent as reported by their primary users, the MoH for vaccines and the SCMD for all other products.

Exhibit 75. Key Capabilities in Place at the Subnational Level					
	Health Centers	Hospitals	Special Clinics	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Percentage of facilities reporting presence of manuals or SOPs on eLMIS	46%	36%	64%	0%	100%
Percentage of facilities reporting conducting internal DQAs	25%	20%	37%	33%	0%
Percentages of facilities reporting inclusion of LMIS in the overall organizational budget	15%	27%	26%	50%	100%
Percentage of facilities reporting a standard process to review LMIS data	37%	67%	81%	33%	100%

The fields not reported in the paper-based LMIS are easily calculable from the other data already provided. Reducing the burden on sites that are forced to use only the paper-based system does make sense, provided those sites receive regular feedback on their reporting. Likewise, a site that is accustomed to using paper will need to be provided with training to ensure users are comfortable with the formula or the required data for submission of the extra fields.

Exhibit 76. Data Fields Collected by Distinct LMIS Processes in Lesotho			
Data fields collected	SCMD eLMIS	MoH eLMIS	SCMD Paper
Stock on hand	✓	✓	✓
Consumption	✓	✓	✓
Adjustments	✓	✓	✓
Losses and expiries	✓	✓	✓
Issues and receipts	✓	✓	✓

Safety stock for each commodity		✓	
Frequency of reordering		✓	
Quantity of reporting	✓	✓	✓
Expirations dates	✓	✓	✓
Number of days stocked out by product		✓	

Related to monitoring, SCMD and the MoH reported that they use either the eLMIS or both the eLMIS and the paper LMIS to track the sites and product stock status. When the respondents were queried about performance metrics for either paper or the eLMIS, they responded that they did not examine performance for those areas. Continuous quality improvement is important, so that if sites and the central level were willing to do so, calculating the timeliness, completeness, and accuracy of reporting would serve all parties involved. Currently, none of the LMIS participants are collecting these data, but if site and central-level behaviors were changed to do so, there would be an opportunity for organic, site-level improvement in LMIS reporting.

The central level did inform data collectors that eLMIS and paper LMIS imbue central-level activities, across technical areas, thus demonstrating the interplay between central-level decisions, informed by facility-level data.

Exhibit 77. Supply Chain Functional Areas informed by LMIS reports		
Data fields collected	SCMD	MoH
Stock on hand	✓	✓
Consumption	✓	✓
Adjustments	✓	✓
Losses and expiries	✓	✓
Issues and receipts	✓	✓
Safety stock for each commodity		✓
Frequency of reordering		✓
Quantity of reporting	✓	✓
Expirations dates	✓	✓
Number of days stocked out by product		✓

The only area the SCMD and MoH did not agree on related to LMIS data use was product selection. This makes sense, as the MoH supports vaccines exclusively, which are often administered on a campaign basis and are (largely) not selected based on feedback from the facility level, but rather what the international scientific community has determined are best vaccines/practices. Illustrating clarity of data use and practices, when asked how the central level monitors LMIS use and what practices are informed by the LMIS the facility level almost unanimously correctly answered ordering and reporting while most sites also mentioned inventory management, reverse logistics, waste management, and overall system performance. Most sites reported that they had a SOP for the eLMIS or the LMIS; this

makes sense, as the LMIS SOPs are updated less routinely, four years or less often for the paper-base LMIS and eLMIS. Thus, a SOP for the LMIS is likely to be available in the most recent version.

Exhibit 78. Key Performance Indicators and Capabilities in Place—eLMIS

	Health Center	Hospital	Special Clinic	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Percentage of facilities reporting:					
A standard process, such as scheduled, regular meetings, to review LMIS data and reports	37%	67%	81%	33%	100%
Presence of manuals or SOPs on eLMIS	46%	36%	64%	0%	100%
Existence of reliable Internet connectivity at the facility (“always or almost always works”)	80%	64%	51%	100%	100%
Inclusion of eLMIS in the overall organizational budget	11%	18%	0%	33%	100%
The presence of manuals or SOPs on the paper-based LMIS	77%	60%	73%	50%	100%

Data Quality Assessments.

Data quality assessments (DQAs) are conducted throughout the system, and approximately a quarter of sites reported that they conducted internal DQAs as well. The SCMD and MoH reported performing DQAs at the health facility level, but also the national, central, and district levels. When the health facility was queried to validate this DQA system, respondents reported that the MoH, other regional authorities, the district, or the site-level staff conducts the DQAs, thus illustrating that the central and the site level have a common understanding of the DQA system. Finally, feedback provided in DQAs is largely shared with the facility, and approximately half the sites reported that DQA findings resulted in the adjustment of internal systems or processes. Also, about a quarter of the sites noted that DQA results were shared with site stakeholders.

eLMIS

The eLMIS is prevalent in nearly all, if not all, sites visited. Most sites participating in the NSCA reported that the Internet always or almost always worked, with hospitals and special clinics reporting the lowest levels of Internet functionality at 64 percent and 51 percent, respectively. On a related note, the only type of sites that reported having no Internet were hospitals and special clinics. To ensure computers for eLMIS reporting remain functional, anti-virus protection is strongly recommended for all devices. On this subject, sites seemed evenly split between having and not knowing if they had anti-virus software. According to Lesotho’s MoH, the eLMIS does connect to other electronic health or supply chain systems, contradicting the NDSO, which remarked that the eLMIS does not connect to other systems.

The methodology for financially supporting the LMIS was also split among sites. Higher-level sites (primary and referral hospitals) appeared to set aside funding for capacity building, printing LMIS forms, Internet costs, maintenance, and hardware and software. However, the smaller the site, the less likely it was to have a budget for the electronic or paper-based LMIS. When queried, the sites did say that they

believed the GoL had responsibility for funding the paper-based LMIS, with some smaller contributions from donors or implementing partners and then a smaller contribution from the facility itself. When asked if the government was providing funds for the LMIS, smaller sites were most likely to say that they did not know where paper-based LMIS funding was coming from, while larger sites (referral and primary hospitals) reported that the GoL did provide some or all of the budget for the paper LMIS. The sites were then asked the same budgetary responsibility question for the eLMIS. Results were starkly different with all sites except primary hospitals, which said that the GoL or implementing partners/donors were responsible for funding the eLMIS, with a contribution from the facility itself. Each site was asked a follow-up question as to how much the GoL was actually providing for the eLMIS. Replies were most often that the respondent did not know or that the GoL was funding most to all of the eLMIS costs.

Exhibit 79. Percentage of Facilities With 100 Percent Accurate LMIS Record, by Tracer Commodity

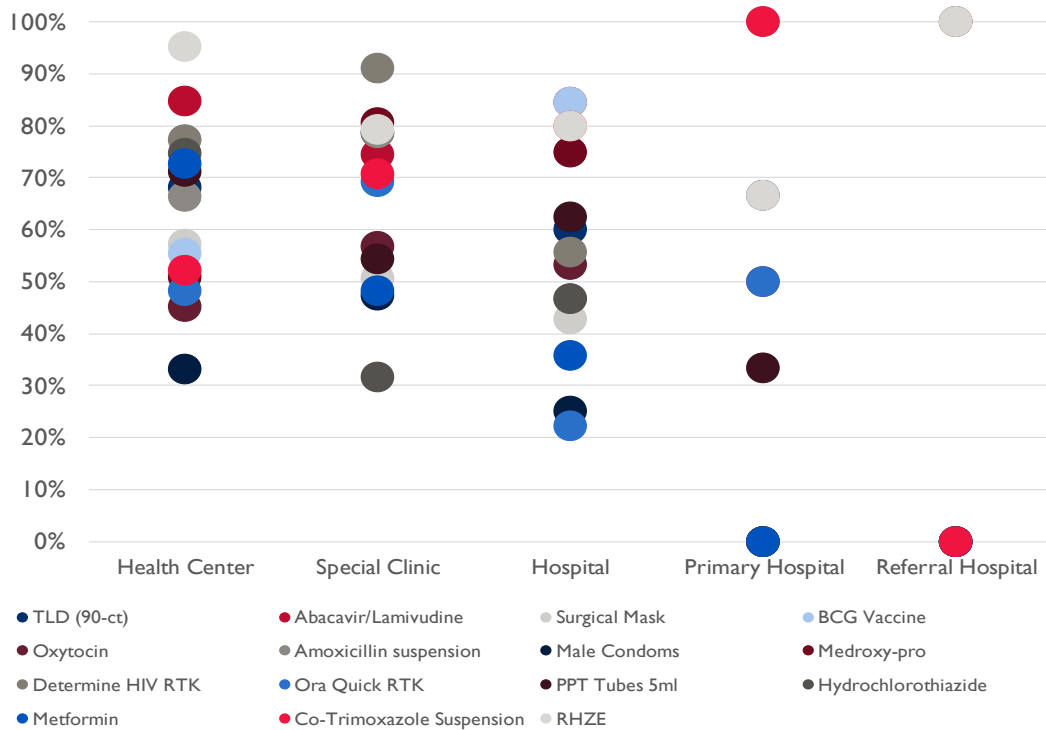
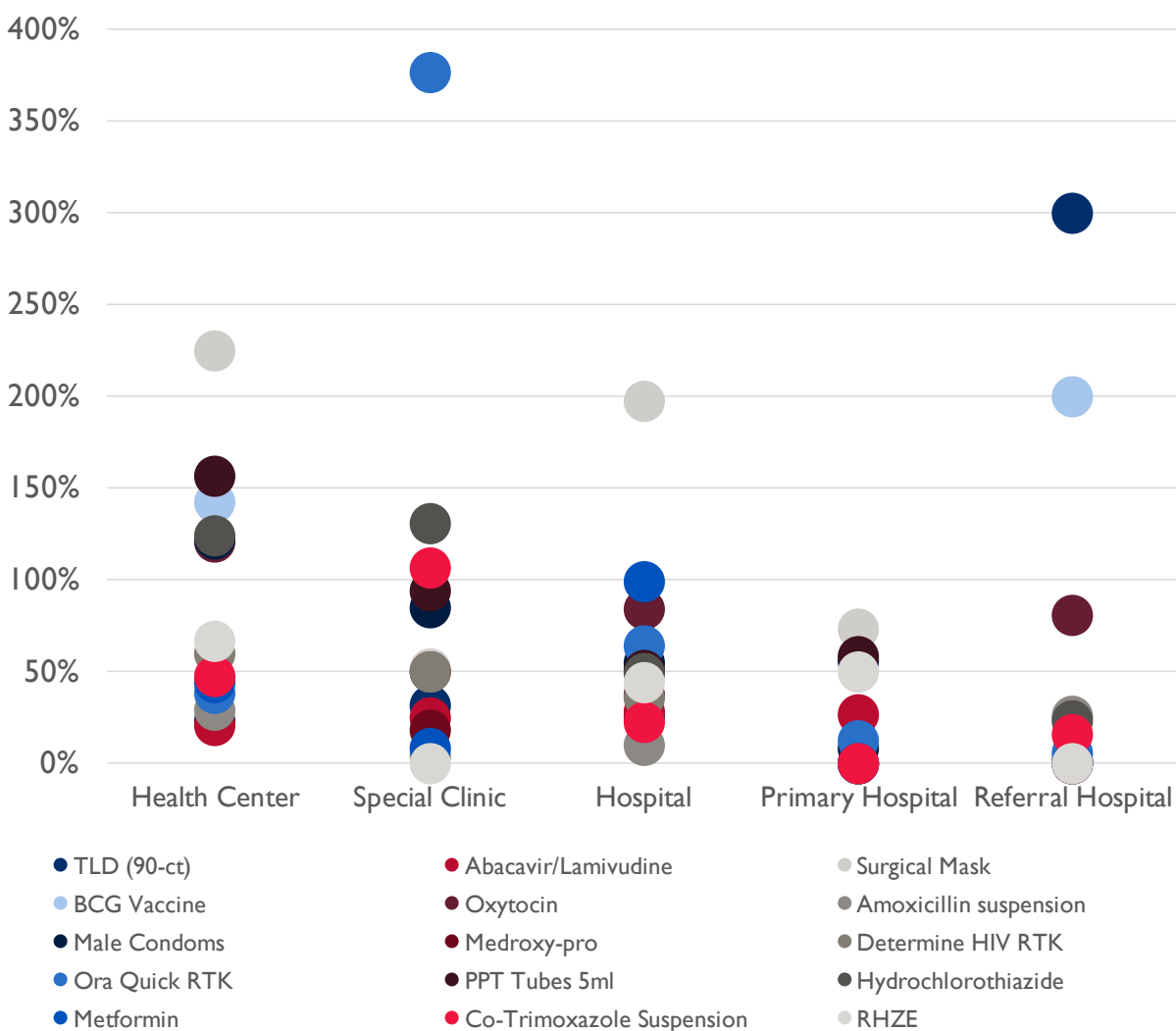


Exhibit 80. Average Paper LMIS Record Deviation From 100 Percent Accuracy, by Tracer Commodity



HR for LMIS. While the Human Resource module has its own section of the report, the authors felt it important to highlight some of the HR dynamics related to LMIS, as the system’s success or failure is largely driven by the people who input, analyze, and use the information from the system. Two of the most important considerations for supportive capabilities for the workforce are staff’s understanding of their job responsibilities and the opportunities for those staff to grow and refresh their skills as they relate to their job duties. Exhibit 81 details the most frequently cited challenges for use with eLMIS. Exhibit 82 details the prevalence of LMIS as a formal component of job descriptions and the proportion of staff receiving capacity-building opportunities in LMIS across various service delivery points.

Exhibit 81. Most Frequently Cited Challenges with eLMIS

Health Centers (eLMIS)	Percent Facilities	Hospitals (eLMIS)	Percent Facilities
Internet connectivity	73%	Downtime centrally (system failure)	64%

Downtime centrally (system failure)	55%	Insufficient number of staff	64%
Insufficient number of staff	55%	Internet connectivity	55%
Data loss	35%	Lack of time due to other tasks	55%
Insufficient training or human resources capability	34%	Insufficient training or human resources capability	36%

Exhibit 82. LMIS Prevalence in Job Descriptions and Capacity Training Opportunities

	Percentage of facilities reporting				
	Health Centers	Hospital	Special Clinic	Primary Hospital	Referral Hospital
n =					
LMIS in formal job descriptions of at least one staff member	18%	47%	81%	33%	100%
Capacity training on LMIS in past year	72%	67%	67%	67%	0%

Recommendations

Lesotho's LMIS/eLMIS performance is already encouraging, but the country has the opportunity to institute changes that would improve the system by making those at all levels pay more attention to their own behavior, by incorporating site and national-level key performance indicators, streamlining reporting, ensuring staff can report into the eLMIS. To that end, the assessment team offers these recommendations:

- **Initiate a performance management process to improve the quality of data submitted.** This system tracks timeliness, completeness, and accuracy of LMIS (paper and electronic) reporting, which includes a feedback process to the sites.
- **Address the most frequently cited challenges to using the eLMIS from all levels; 1) lack of Internet connectivity and 2) system downtime.** If those two items could be addressed, the eLMIS would likely be better used by sites and would provide data to the central level that would represent the whole country.
- **Reduce the need for paper-based tools.** Challenges present to reporting with the paper-based system included tool stockouts. If the eLMIS is functioning and the sites have Internet connections, then the need for the paper-based tools will decrease. Until that time, having sufficient paper-based tools is necessary.
 - If possible, reduce the reporting burden by harmonizing the data required into fewer reports. Currently, some sites stated that they were submitting more than ten reports per reporting cycle.

Supplemental exhibits

Exhibit 83. LMIS: Distribution of Questions and Assignment of Weight Across Capability and Facility Levels

MODULE	BASIC (50%)		INTERMEDIATE (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Health Centers (56)	12	4.1%	11	2.7%	5	3%	2	2.5%

Hospitals (15)	12	4.1%	11	2.7%	5	3%	2	2.5%
Special Clinics (8)	12	4.1%	11	2.7%	5	3%	2	2.5%
Primary Hospitals (3)	12	4.1%	11	2.7%	5	3%	2	2.5%
Referral Hospital (1)	11	4.5%	14	2.1%	6	2.5%	2	2.5%
SCMD (1)	43	1.2%	22	1.4%	12	1.3%	3	1.7%
MoH (1)	43	1.2%	22	1.4%	12	1.3%	3	1.7%

Quality Assurance and Pharmacovigilance

Ensuring that the health commodities consumed by patients are safe, effective, and remain in good quality as they travel throughout the health system is a critical function of effective supply chains. This section of the NSCA seeks to make sure that a well-resourced system is in place for ensuring drug quality and that facilities at all levels understand and can act on their role in pharmacovigilance (PV) for medicines. Exhibit 84 outlines key capabilities of an effective quality assurance and PV strategy, including the existence of formal guidelines and SOPs, regular quality testing, and the availability of data collection tools and processes for pharmacovigilance.

Exhibit 84. Examples of Scored Quality Assurance and Pharmacovigilance Capabilities

Basic	Formally approved national-level product quality assurance strategy or policy Formally approved guidelines or manual/SOPs
Intermediate	Samples of received pharmaceutical products taken for quality control testing (intermediate capability at MoH, RMS, and RH levels, advanced for SDPs) Quarterly (or more frequent) quality control samples Data collection tools available for pharmacovigilance
Advanced	Dedicated department responsible for implementing pharmacovigilance strategy. All laboratories conducting quality control testing accredited by a competent body (e.g., World Health Organization (WHO)) SOPs to quarantine and/or recall product determined to be compromised Certificates of analysis and conformance recorded for all medicines received from international sources
SOA	Action protocols, based on pharmacovigilance results

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

As supply chain capacity and vulnerabilities are examined, attention must also be paid to the structures responsible for facilitating access to and use of safe, effective, quality-assured medical products. Central to these efforts is a strong, resilient regulatory system, anchored by a functional, independent national regulatory authority.

Currently, Lesotho is transitioning responsibilities for medical product oversight and regulation from the Pharmacy Department, housed within the MoH, to an independent regulatory authority. The move to a formal, independent regulatory authority was codified in the Lesotho Medicines and Medical Devices Regulatory Authority Bill, 2019 (LEMERA Bill, 2019), formally ratified on August 25, 2023. Stakeholders in-country are now working to operationalize the LEMERA Bill by developing regulations, SOPs, working

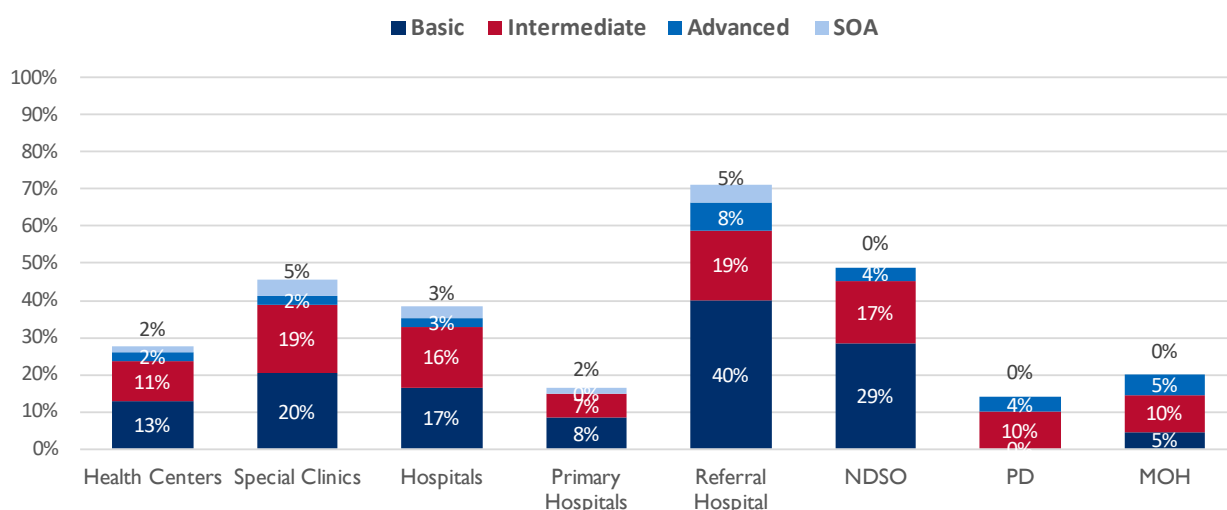
norms, etc. that will support implementation of the legal framework and establish independent regulatory and quality management systems.

NSCA data collection in Lesotho coincided with establishing the LMMSCA, allowing a look into already existing (and to some degree implemented) policies, protocols, and procedures while identifying areas for the nascent regulatory body to strengthen in the future.

2023 NSCA Findings and Analysis

Exhibits 85 and 86 display the capability scores, by facility type, for quality assurance and pharmacovigilance functions.

Exhibit 85. Quality Assurance and Pharmacovigilance Capability Maturity Scores



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent) and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

Exhibit 86. QA and Pharmacovigilance Maturity Score and Basic Capabilities in Place								
	Health centers	Hospital	Special Clinic	Primary Hospital	Referral Hospital	NDSO	PD	MoH
n =	56	15	8	3	1	1	1	1
Overall maturity score (range)	28% (0-96%)	38% (0-75%)	46% (13-61%)	17% (0-50%)	71% (71-71%)	49% (49-49%)	14% (14-14%)	20% (20-20%)
Percent of basic items in place	25%	33%	41%	17%	80%	57%	0%	9%
Availability of SOPs for pharmacovigilance	36%	53%	63%	33%	100%	–	–	–
Availability of reporting forms for pharmacovigilance	58%	80%	93%	33%	100%	–	–	–

Availability of SOPs for product quality control/quality assurance	37%	47%	81%	33%	100%	–	–	–
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Medical Product Quality Assurance

As noted, the Pharmacy Department (and therefore, the MoH) is currently the responsible entity for setting and enforcing standards in quality assurance and pharmacovigilance. In line with the Global Benchmarking Tool (GBT) self-assessment done in February 2020, NSCA results indicate a very low overall maturity score for PD (14 percent). Without a strong central foundation, national implementation and enforcement of policies, guidelines, and SOPs will be difficult. PD reports no formally approved Product Quality Assurance strategy, policy, guideline, or manual in Lesotho. The drafted (yet not enacted) Medicines and Medical Devices Act regulations will require Certificates of Analysis & Certificates of Conformance for medicines received from international sources; however, without this requirement in place, it is difficult to monitor and ensure the quality, safety, and efficacy of imported medical products. The NDSO reported that for some imported medicines (26–50 percent) certificates are required, while PD reported that certificates are not required for any internationally sourced and imported medical product.

A Pharmacovigilance/Quality Surveillance guideline is in place that requires samples of received pharmaceutical products be taken for quality control testing, all of which is outsourced to WHO prequalified laboratories. At the central level, the NDSO and PD confirmed that quality testing is done outside of Lesotho, in prequalified laboratories in Kenya, South Africa, or Tanzania.

At the lower levels, data indicate (Exhibit 87) very few facilities report sampling of products for quality control tests. The lack of testing may be due in part to the absence of clear guidance on the quarantine and/or recall procedures that should take place if/when a product quality issue is identified (Exhibit 90). Of those facilities that reported quality control samples taken from their site, about a quarter reported this being done four or more times a year. PD reported never receiving results of quality control testing so cannot be expected to be able to manage, track, enforce, or improve quarantine and/or recall standard operating procedures; it is not unexpected that this lack of clarity and communication permeates to the service delivery level.

Exhibit 87. Key QA and Pharmacovigilance Capabilities in Place at Service Delivery Points					
	Health centers	Hospital	Special Clinic	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Facilities reporting samples of products taken for testing	21%	20%	19%	0%	0%
Facilities reporting SOPs for quarantine/recall of suspected products	16%	20%	19%	0%	0%
Facilities reporting presence of action protocols based on PV results	36%	60%	90%	33%	100%
Facilities reporting sharing collected PV data with central-level authorities	47%	80%	93%	33%	100%

Pharmacovigilance

As noted, a pharmacovigilance guideline is in place, however it has not been reviewed in a number of years. Once LEMERA is formed and systems are established, a formal revision process will be needed. Within the Pharmacy Department, a small unit is responsible for pharmacovigilance (staffed by individuals working with the MoH). Approved SOPs for pharmacovigilance at the national level do not exist, yet there is an approved National Pharmacy Manual and a National Pharmacy Standard Operating Procedures for Health Facilities. The Pharmacy Manual and the SOP focus on supply chain operations (selection, forecasting, inventory management, etc.); however, the Manual does include sections on national, district, and hospital-level drug and therapeutics committees, “multidisciplinary teams that set pharmaceutical policies and guidelines in line with the National Policy for the institution and supervise and support pharmaceutical services at that level” (National Pharmacy Manual, Lesotho Ministry of Health, 2023). The SOP does include a section on “preparing pharmacovigilance reports,” including for an adverse drug reaction, medication error, or medical product quality issue. Neither document includes instructions for what to do in the event of an adverse drug reaction (ADR)—e.g., quarantine, recall, report to NRA—so it is not surprising that responses to this question were varied. It is important to note that at least some percentage of respondents across all types of facilities did include “notify the NRA” as part of their answers (21 percent of health centers, 27 percent of hospitals, 90 percent of specialty clinics, 33 percent of primary hospitals, and 100 percent of referral hospitals).

Data collection tools for pharmacovigilance related events (e.g., adverse drug reactions, medication errors) exist and are available at many facilities (58 percent of health centers, 80 percent of hospitals, 93 percent of specialty clinics, 33 percent of primary hospitals, and 100 percent of referral hospitals) although the marked differences in health centers and primary hospitals warrants further investigation. Similar numbers and disparities exist in percentages of facilities sharing PV reports with the central level. Slightly less report action protocols based on PV results (36 percent of health centers, 60 percent of hospitals, 90 percent of specialty clinics, 33 percent of primary hospitals, and 100 percent of referral hospitals). Staffing, patient load, and presenting condition(s) at these health centers and primary hospitals may explain differences in PV related indicators; for example, if primary hospitals or health centers are short-staffed or predominantly triaging cases, time and access to information to complete PV-related reports may be low on the list of priorities.

According to the data, funding for quality assurance and pharmacovigilance comes from the national government, donors (implementing partners), facilities themselves (through cost recovery), or through some combination of these categories. The bottom line is that it is not self-sustaining in the long term, with all respondents reporting at least some portion of funds coming from donors. As LEMERA gets its footing, it should explore reliance, convergence, and/or other harmonization frameworks with more mature regulatory authorities in the region. Such initiatives prioritize/optimize existing resources and offer innovative solutions to ensure national regulatory authorities can meet their public health mandate and responsibilities.

As the establishment of LEMERA as a separate, independent agency continues and policies, procedures, and guidelines continue to be drafted, revised, and endorsed, the quality of human and institutional resources will play an important part in the agency’s success. Capacity building for LEMERA staff will be needed, including for institutions and professional associations supporting the regulatory system. While the formation of LEMERA represents significant progress, it may take time to balance the responsibilities of the regulatory authority with human resource constraints (both in terms of numbers and capacity

level). Educational institutions, professional accreditation programs, and professionalization of new cadres of health workers are opportunities for LEMERA to meet its mandate efficiently and effectively.

Recommendations

- **Continue establishing the LEMERA, including all related Medicines and Medical Devices Act regulations.**
- **Review and update guidelines and SOPs, including those to be aligned with new structures and systems established by the LEMERA.** Prioritize those documents that meet “basic requirements” as categorized by the NSCA and that will contribute to improving maturity level as measured by the GBT.
- **Focus on capacity-building efforts (at the institutional and individual level) based on LEMERA’s mandate and revised guidelines and procedures.**
- **Explore regulatory harmonization frameworks with Maturity Level 3 countries in the region (e.g., Tanzania, South Africa) for specific regulatory functions.**

Supplemental Exhibit

Exhibit 88. QPV: Distribution of Questions and Assignment of Weight Across Capability and Facility Levels

MODULE	BASIC (50%)		INTERMEDIATE (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT
Health Centers (56)	4	12.5%	3	10.0%	4	3.8%	1	5.0%
Special Clinics (8)	4	12.5%	3	10.0%	4	3.8%	1	5.0%
Hospitals (15)	4	12.5%	3	10.0%	4	3.8%	1	5.0%
Primary hospitals (3)	4	12.5%	3	10.0%	4	3.8%	1	5.0%
Referral hospital (1)	5	10.0%	8	3.8%	4	3.8%	1	5.0%
NDSO (1)	7	7.1%	9	3.3%	8	1.9%	3	1.7%
PD (1)	11	4.5%	15	2.0%	14	1.1%	3	1.7%
MoH (1)	11	4.5%	15	2.0%	14	1.1%	3	1.7%

Note that interpretations of the scoring, and discussions of “differences” in the scores, need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Waste Management

Medical waste management is a core operation of effective public health supply chains, ensuring that used, unsafe, or unusable pharmaceutical products are efficiently removed from the supply chain and properly disposed. Major areas that were factored into scoring of capabilities and performance of waste management included the existence of an approved national waste management plan, existence of SOPs

and guidelines for waste management in all facilities, active monitoring of waste management and removal, and complete records of waste management events (see Exhibit 89).

Exhibit 89. Examples of Scored Waste Management Capabilities	
Basic	SOPs for waste management and disposal National regulatory agency or department for enforcing regulations. Unusable pharmaceutical products stored separately. Minimal government or facility budget contribution toward waste management
Intermediate	Disposal methods: on-site incineration, inertization or solidification Waste disposal events authorized and documented. Internal audits of waste management
Advanced	Disposal supervised and certified by a regulatory authority. Unusable pharma waste products sorted by method of disposal
SOA	Waste management system integrated with LMIS

Note: These are illustrative examples of the types of capabilities scored in this module, not an exhaustive list. Each module contains many dozens of questions and capabilities. For a full list, refer to the NSCA toolbox, available at www.ghsupplychain.org.

Lesotho has formally approved national waste management and disposal regulations, including a Health Care Waste Management Policy (July 2010), Hazardous (Health Care) Waste Management Regulations; Legal Notice No. 37 (March 2012), and the Lesotho National Infection Prevention and Control Guidelines. These high-level documents provide the framework and foundation for waste management programs and the supporting standards to ensure safe, effective, and efficient processes across health care facilities and institutions. Note that the authors of this report were not aware of nor provided updated versions of these documents.

The Lesotho Health Care Waste Management Guidelines (February 2012) state:

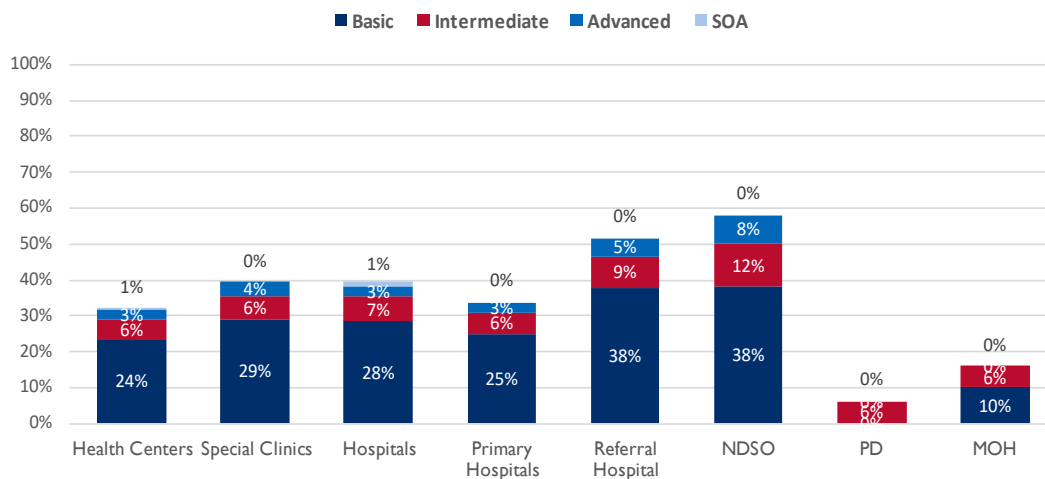
The overall authority in the country on any waste activities is the Ministry of Tourism, Environment and Culture (MTEC), and more specifically, the Department of Environment within this ministry. When it comes to Health Care Waste a lead player who collaborates with the MTEC Department of the Environment is the Environmental Health Inspectorate within the MoHSW: Health Inspectors and their staff of Senior Health Assistants and Health Assistants monitor HCW [health care waste] activities and enforce compliance with the required standards.

The integration and interaction between the MTEC and the MoH (and PD) were not investigated, but a lack of communication, standardization, and collaboration across the two governmental bodies could explain the low capabilities seen for the MoH and PD in terms of health care waste management (HCWM) activities.

2023 NSCA Findings and Analysis

Exhibits 90 and 91 detail the capability scores, by facility type, for the waste management function.

Exhibit 90. Waste Management Capability Maturity Model Scores



Note on interpreting results: Recall that CMM scores are a composite of assessed basic (max 50 percent), intermediate (30 percent), advanced (15 percent), and SOA (5 percent) capabilities. Reported percentages are the scored results averaged across all assessed sites, for each capability level and facility type. For more information, refer to the Understanding the CMM Results section above.

Central level

At the central level, the NDSO demonstrated capabilities across three of four maturity levels, significantly more so than the MoH or PD. In fact, while typically a national regulatory authority would be at least peripherally involved in making and monitoring regulations on health care waste management, PD had none of the items needed to meet basic capabilities as measured by the NSCA. As noted above, this could be due to a lack of explicit roles and responsibilities for the PD and a lack of coordination with the MTEC.

At the same time, responses indicate that the MoH is responsible for managing and enforcing HCW regulations, however none of the respondents reported the MoH having approved guidelines for waste management and disposal. The data collection team did receive a copy of the Health Care Waste Management Guidelines (February 2012) which details “the Waste Management Cradle to Grave System,” a seven-step process that begins at the point of waste generation (cradle) and ends at the place of disposal (grave). The guidelines date back at least 10 years and were drafted as part of the Millennium Challenge Corporation, so the data may reflect a low level of integration, country ownership and/or operationalization of the proposed standards.¹

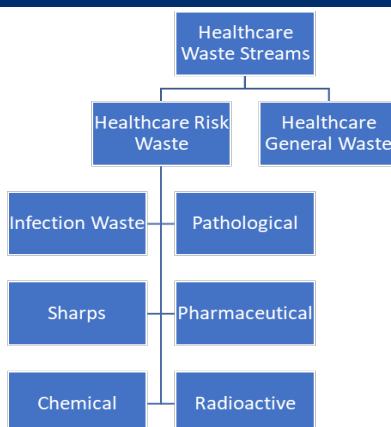
¹ From the HCWM Guidelines: A Health Care Waste Management (HCWM) HCWM Policy, the HCWM Strategic Plan, and the HCWM Implementation Plan completed the planning phase of an improved HCWM System for the Kingdom of Lesotho with technical input with technical input provided by the Millennium Challenge Account - Lesotho (MCA-L) through the consulting firm COWI A/S. The drafting of the Hazardous (Health Care) Waste Management Regulations 2011 and the subsequent development of HCWM Standards have set the scene now for the development of HCWM Guidelines.

Exhibit 91. Waste Management Maturity Scores and Select Capabilities and Performance Indicators

	Percent of facilities reporting:				
	Health Centers	Hospital	Special Clinic	Primary Hospital	Referral Hospital
n =	56	15	8	3	1
Overall maturity score (range)	32% (4–64%)	39% (17–54%)	39% (13–52%)	34% (16–46%)	52% (52–52%)
Percentage of basic items in place (range)	47% (0–75%)	57% (25–75%)	58% (25–75%)	50% (25–75%)	75% (75–75%)
Percentage of facilities demonstrating presence of SOPs for waste management and disposal at site	66%	73%	66%	33%	100%
Percentage of facilities reporting that waste disposal events are authorized and documented	45%	27%	42%	67%	100%
Percentage of facilities demonstrating that unusable pharmaceutical products are stored separately	75%	93%	100%	100%	100%

None of the central-level entities interviewed could identify which waste types or categories are specifically covered and differentiated in the waste treatment guidelines, although the HCWM guidelines and the National Guidelines on Infection Prevention and Control (IPC) include detailed descriptions on health care waste “streams,” as shown in Exhibit 92.

Exhibit 92. Health Care Waste Streams in HCWM Guidelines



To monitor (and ensure) waste management activities, the NDSO reports performing internal and external audits, conducting regular, on-site monitoring and taking corrective action when issues during such reviews are identified. And while MoH reports regular, on-site monitoring of waste management practices, PD had no insight into how or who was involved in ensuring regular performance of established waste management activities; yet, both groups reported identifying and tracking corrective actions for waste disposal. The lack of clarity and/or information flow around MoH and PD (noting of course that PD is currently a department within the MoH) may stem from the reorganization and establishment of the national regulatory authority (LEMERA), issues that may be teased out when roles and responsibilities of the new agency are codified and communicated.

No software is used for coordinating waste management, including collection planning (scheduling, transportation, routing, etc.) at the central or lower levels.

Health Care Facilities

Data from the NSCA indicate a fairly good level of basic capabilities across health care facilities in Lesotho, including a score of at least 24 percent (out of 50 percent) across all health facility types and the NDSO (Exhibit 96). While all health care facilities had some knowledge of SOPs for waste management and disposal, only 33 percent of primary hospitals reported having a copy of the SOPs available on site. While most of the health facilities did not know how often SOPs were updated, it is clear that the documents are circulated and used. A resounding percentage of health facilities (including hospitals, health centers, and specialty clinics) reported separating pharmaceutical products when managing health care waste—a step in line with national guidelines and international best practices. More than half of primary hospitals (67 percent) and the referral hospital report authorizing and documenting waste disposal processes, yet far fewer hospitals, specialty clinics, and health centers maintain this type of standardized reporting (27 percent, 42 percent, and 45 percent, respectively).

Lesotho’s National IPC guidelines note that “health care waste is predominately (sic) incinerated in Lesotho, especially infectious, pathological, sharps, and most pharmaceutical waste” ([Link to Doc](#)). Data from the NSCA on waste management treatment are shown in Exhibit 101. Health facilities report either incineration or transportation to a higher level as the main method for treating and/or disposing of health care waste; assuming that once received at higher levels of the government, HCW is incinerated, data are consistent with regulations and procedures in Lesotho. Data suggest that a refresher training for hospitals may be warranted.

Recommendations

NSCA data indicate a fairly positive picture of HCWM practices at the health facility level, although refresher trainings on specific processes or standards may be warranted. At the central level, further inquiry into (and clarification for national institutions) mandates, lines of authority or reporting, roles, and responsibilities is needed. This type of review aligns well with establishing and operationalizing the LEMERA. This is the time for any needed revisions to regulations or SOPs and a recommitment to safe HCWM, including efforts to reduce waste across all categories.

The recommendations include:

- **Ensure national-level coordination around HCWM roles and responsibilities, in light of establishment of the LEMERA.**
- **Revise/update any needed documentation as a result of high-level coordination and collaboration (above).**
- **Provide refresher trainings on health care waste management across health care facilities.** Include developing action plans to minimize HCW generation and reducing the environmental impact HCW disposal.

Supplemental Exhibit

Exhibit 93. Waste Management, Distribution of Questions, and Assignment of Weight Capability and Facility Levels								
MODULE	BASIC (50%)		INTERMED. (30%)		ADVANCED (15%)		SOA (5%)	
	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT	# of Qs	WEIGHT

Health Centers (56)	4	12.5%	7	4.3%	5	3.0%	1	5.0%
Special Clinics (8)	4	12.5%	7	4.3%	5	3.0%	1	5.0%
Hospitals (15)	4	12.5%	7	4.3%	5	3.0%	1	5.0%
Primary Hospitals (3)	4	12.5%	10	3.0%	6	2.5%	2	2.5%
Referral Hospital (1)	4	12.5%	10	3.0%	6	2.5%	2	2.5%
NDSO (1)	4	12.5%	10	3.0%	6	2.5%	2	2.5%
PD (1)	10	5.0%	5	6.0%	3	5.0%	2	2.5%
MoH (1)	10	5.0%	5	6.0%	3	5.0%	2	2.5%

Note that interpretations of the scoring and discussions of “differences” in the scores need to recognize that the number of assessed capabilities differs by facility type and module. Thus, positive responses to individual questions (i.e., reports of present capabilities) carry different weights, depending on the technical area and facility type.

Note also that the number of questions and the question weighting for these modules vary because some conditionally scored questions are included. Figures presented here assume all conditions are met and all questions are included.

Cross-cutting Analysis

This report examines the pharmaceutical supply chain across the various technical/functional areas that inform and shape the way the supply chain operates. However, it is also important to notice trends across technical areas but within a certain tier of the health system. CMM scores are presented by facility type (see Exhibits 91–101). Major takeaways from a cross-cutting perspective are:

- The NDSO is performing well in the NSCA and generally has some of the highest scores across all facility types assessed. The institution is an asset to the Lesotho supply chain.
- The SCMD and MoH as seemingly part of the same institution have varying capability scores across multiple technical areas, indicating that the SCMD mandate needs to be reinforced and defined more explicitly.
- Last-mile facilities, especially health centers and hospitals, demonstrated consistent, though immature levels of maturity across all capabilities. Almost all scores recorded were between 30 and 50 percent.

Exhibit 94. Ministry of Health, CMM Scores for All Relevant Technical Areas

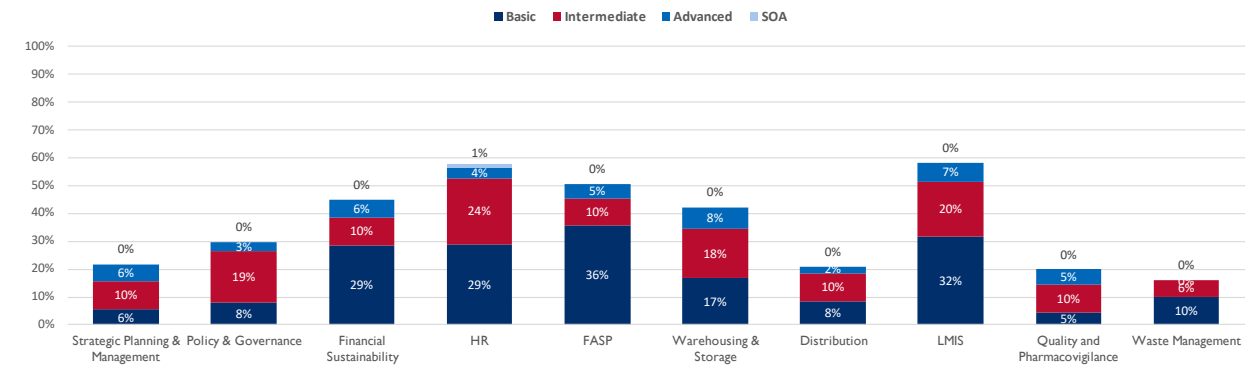


Exhibit 95. SCMD, CMM Scores for All Relevant Technical Areas

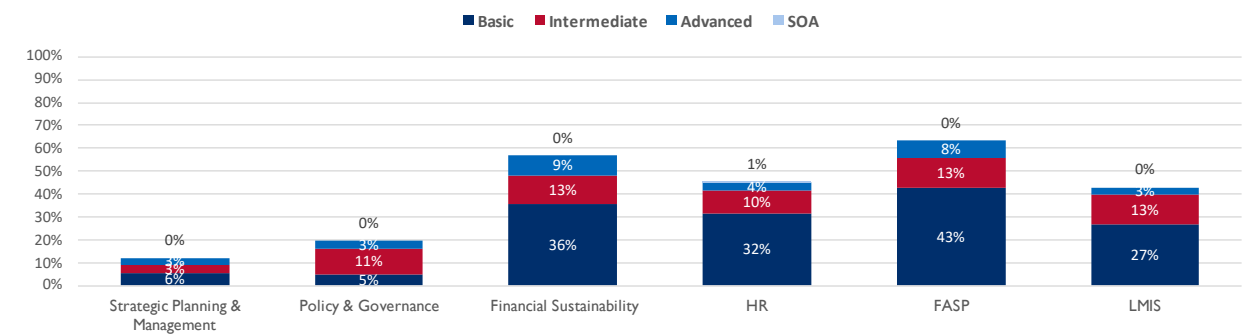


Exhibit 96. NDSO, CMM Scores for All Relevant Technical Areas

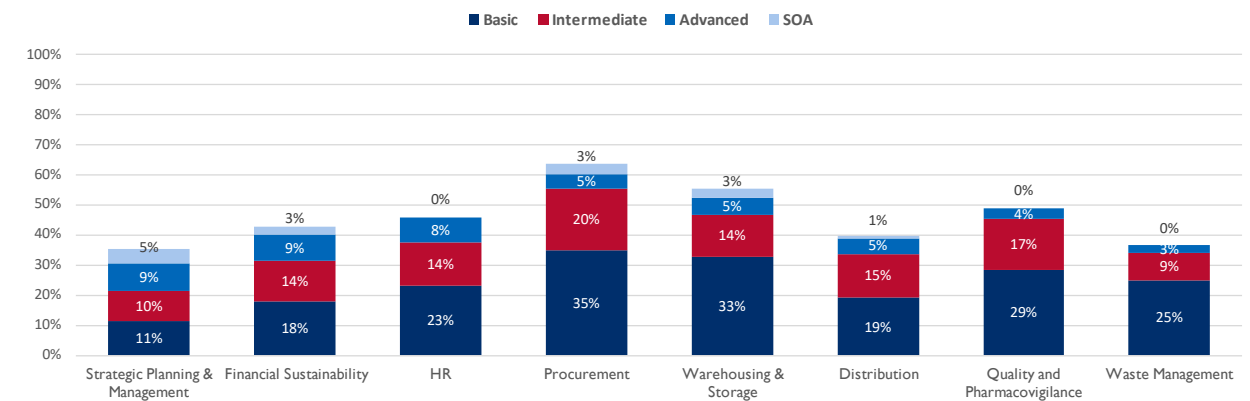


Exhibit 97. Referral Hospital CMM Scores for All Relevant Technical Areas

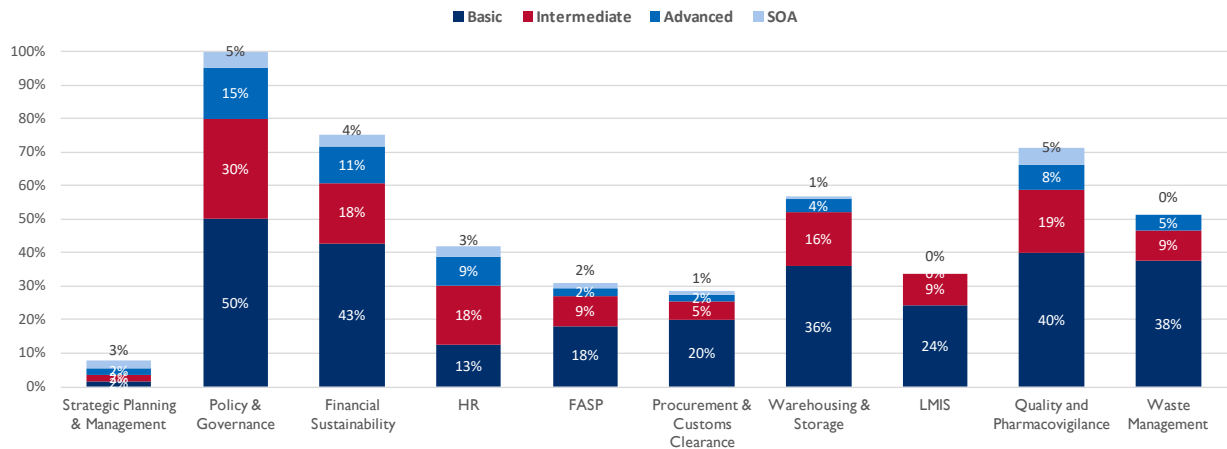


Exhibit 98. Primary Hospital, CMM Scores for All Relevant Technical Areas

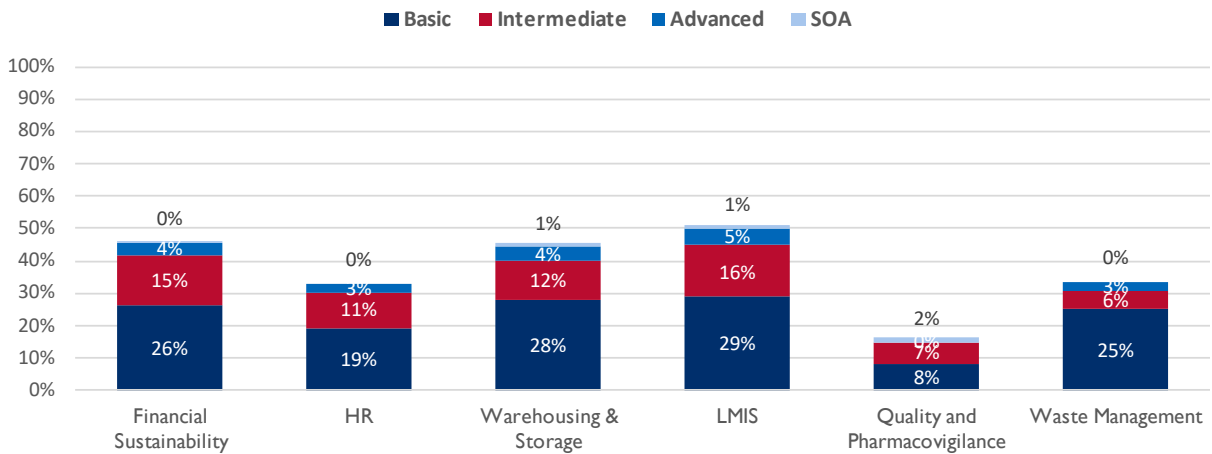


Exhibit 99. Hospitals CMM Scores for All Relevant Technical Areas

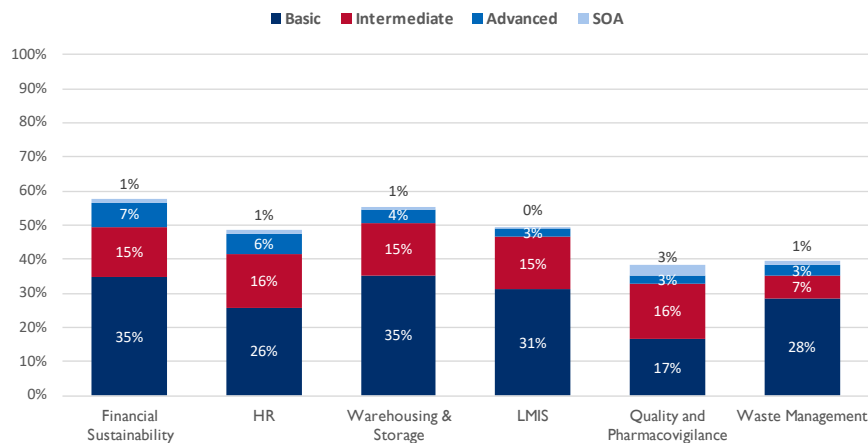


Exhibit 100. Special Clinics, CMM Scores for All Relevant Technical Areas

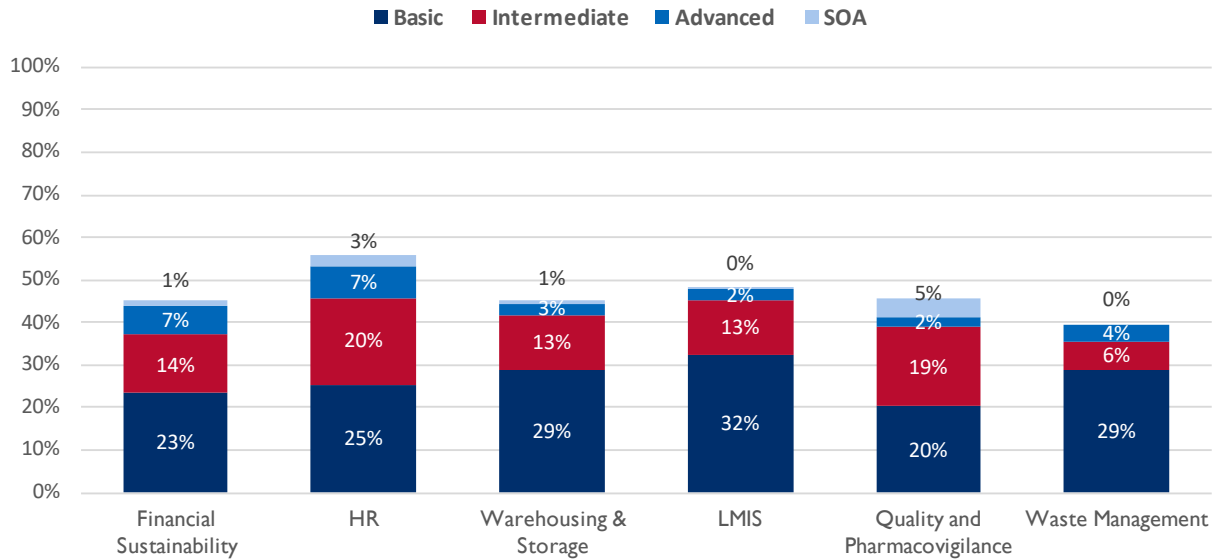
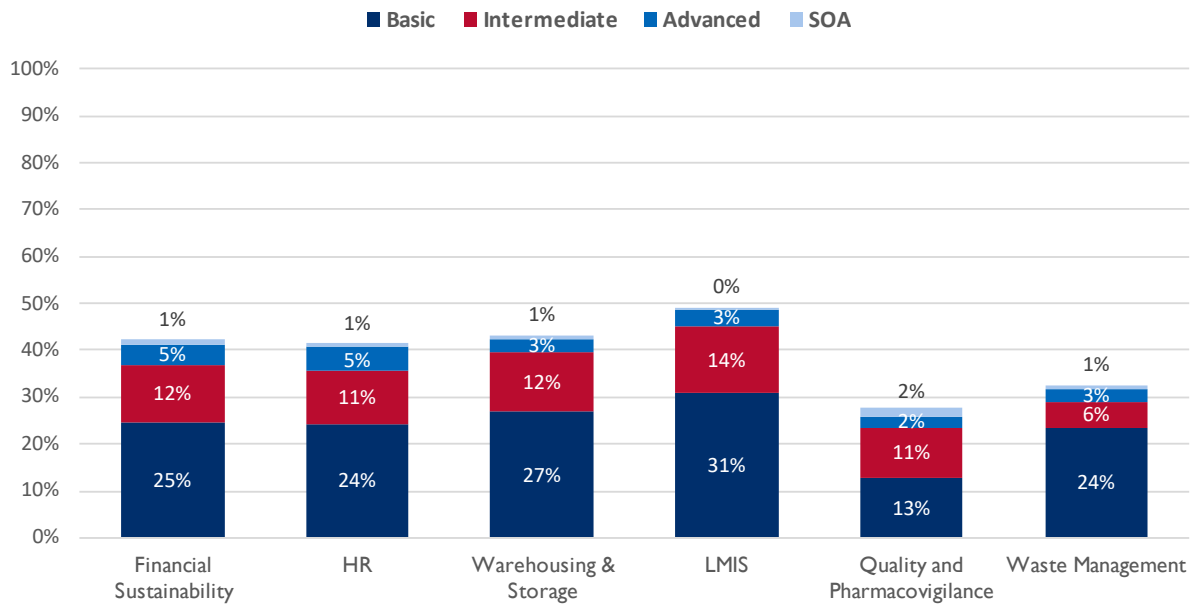


Exhibit 101. Health Centers, CMM Scores for All Relevant Technical Areas



Consolidated Recommendations

NSCA methodology produces targeted, actionable recommendations across the entire public health supply chain. To facilitate coordinated planning and action, select recommendations from across the report are consolidated here, by technical area. The authors of this report have created a classification system for report recommendations to help prioritize supply chain improvement activities:

1. **Low-cost/high-yield priorities**, or relatively small interventions that can be achieved with minimal investment in financial or human resources.
2. **Time-order priorities**, or actions that need to be prioritized because of sequencing effects, i.e., other future improvements depend upon them.
3. **Prevailing priorities**, or actions that are deemed important to implement for pressing ethical or efficiency reasons, independent of time or ease of intervention.

To model how Lesotho might consider prioritizing supply chain interventions and reforms, we select below two to three recommendations per technical area that the NSCA assessment team further emphasizes as crucial for improving the country's supply chain. The reason for our selection is provided in brackets after the recommendation, according to the categorizations above. Rather than being a finalized list, these examples are meant to serve as a guide—and a stimulus for a critical and inclusive exercise in prioritization by the MoH and GoL. Additional targeted recommendations are found at the end of each technical section in this report.

To ensure that workstreams remain on track for implementing the next strategic plan, the GoL should consider prioritizing the following recommendations:

Strategic Management and Planning

- **Review and update strategies with more frequency to adapt to dynamic shifts in the supply chain.** Currently, the strategy for the National Supply Chain strategy of the SCMD is five years. Given the growth rate of supply chain activity and overall maturity in Lesotho, more frequent reviews may be more beneficial to account for major shifts in the supply chain. From ARV procurement being transitioned to the MoH, and the NDSO gaining advanced warehousing capacity, these changes are significant enough to impact how the supply chain is managed in country and can happen in well under five years.
- **Engage the private sector and/or collaborative partnerships.** This assessment revealed a lack of engagement with the private sector to accomplish supply chain goals. While the benefits of outsourcing supply chain responsibilities are not guaranteed, there could be missed opportunities that also are not being navigated. It may be beneficial to map what opportunities Lesotho can leverage with private-sector assistance if there remain challenges in the GoL to push forward better supply chain practices for the country. The push to deeply assess and better leverage and understand practices that may benefit the supply chain may reap notable benefits.
- **Advocate for Regulatory Authority to empower MoH and supply chain strategy to fully realize its self-defined vision and mission for the supply chain.** The establishment of Lesotho Medicines and Medical Devices Regulatory Authority is an important milestone for

the pharmaceutical system and the public health supply chain. The SCMD, PD, and LEMERA should work closely together to clearly define non-overlapping mandates and areas of cooperation to further enhance the supply chain.

Policy and Governance

- **Develop a National Medicines Policy.** This policy will vastly improve the state and health of supply chain independence, impacting how supply chain products are managed at all levels. [Prevailing priority]

Human Resources

- **Continue to invest in supply chain staff.** Provide training and possibly incentives to entice staff to stay in their positions, especially at the health center, special clinic, and hospital levels.
- **Consider recruiting young women to work in the supply chain.** These recruits could be especially beneficial at lower levels of the system, where there are HR gaps or where positions remain unfilled for a long period of time.
- **Socialize the MoH workforce plan.** Inform the existing cadre and encourage others to join the public health workforce. [Low-cost/high yield]

Financial Sustainability

- **Conduct a Financial Sustainability Workshop for Long-term Financing.** As mentioned in the sections above, a larger discussion not focused solely on financial management may be beneficial and timely. Several key challenges to supply chain progress can be tied to financing. This includes but is not limited to securing continuous funding for the SCMD, maintaining gains made by donor interventions, and developing long-term visions for a healthy supply chain in the country, all of which require a deeper conversation beyond the results of this report. While this assessment can note how countries manage what resources have been given, many nuances are missing from the conversation around financial sustainability. A workshop or retreat with stakeholders from all levels of the supply chain may assist in visioning and long-term sustainability. [Prevailing priority]
- **Understand budget allocations through the lens of the supply chain.** Currently, supply chain management is still considered a supplemental focal point to the services being provided at the non-central level. While the assessment noted that financial management in the supply chain at all levels is functional, this information could be used to advocate for more supply chain initiatives that provide accurate and targeted results at site level. [Prevailing priority]

Forecasting and Supply Planning

- **Clearly and formally document the FASP process.** All methodologies, assumptions, and data used should be documented. [Low-cost/high yield]
- **Create standard guidelines for how to do forecasting and supply planning.** [Low-cost/high yield]

- **Put in place continuous measurement of forecast accuracy and annual review and processes based on outcomes of accuracy measurement.** [Low-cost/high yield]

Procurement and Customs Clearance

- **Put in place formal KPIs.** While a strong process for procurement is in place, little evidence was found that the NDSO has formal KPIs it tracks for supplier performance management, procurement performance, or customs clearance. In line with the strategic objective in the NDSO Strategic Plan 23/24 to 27/28 “to design, implement, and operationalize the Monitoring and Evaluation System that will achieve tracking and reporting of all the key performance indicators of the Organization by 2028,” the assessment team strongly endorses this objective, as it is a critical step in the continued maturation of the procurement system. [Low-cost/high yield]

Work with NDSO staff. When the NRH is procuring, it may be helpful for procurement staff to work with NDSO staff to help define frameworks and basic SOPs for the procurement process, so they ensure the best use of funding under the circumstances. [Low-cost/high yield]

Warehousing and Storage

- **Continue to invest in warehousing infrastructure at the service delivery level.** Storage space and operational space are insufficient to comply with safety requirements and best practices.
- **Strengthen the feedback loop between service delivery points and the NDSO within the informed push context.** The facilities report receiving simultaneous partial and excess deliveries as well as commodities that are near expiry. [Low-cost/high yield]
- **Review inventory min/max guidelines in the context of the informed push system.** Facilities are reporting that stock levels are not within inventory control limits set but are also not in control of order quantities. [Low-cost/high yield]

Distribution

- **Consider instituting a formal performance monitoring framework with KPIs.** Generally,, the NDSO has a mature and stable distribution operation. As the MoH decides where to invest its energy, this framework can be useful for not only delivery performance but also cost efficiency and labor use. [Low-cost/high yield]
- **Consider conducting annual risk assessments of delivery operations to ensure security measures in place have no gaps in protection coverage.** [Low-cost/high yield]

Logistics Management Information System

- **Initiate a performance management process that tracks timeliness, completeness, and accuracy of LMIS (paper and electronic) reporting, which includes a feedback process to the sites.** Through this process the quality of data submitted can improve.
- **Address the challenges cited most frequently to using the eLMIS from all levels: lack of Internet connectivity and system downtime.** If these challenges can be overcome, the eLMIS would likely be better used by sites and would provide data to the central level that would represent the whole country.
- **Address challenges to reporting with the paper-based system, including tool stockout.** If the eLMIS is functioning and the site has Internet connections, then the need for paper-based tools will decrease. Until that time, having sufficient paper-based tools is necessary. [Low-cost/high yield]
 - If possible, reduce the reporting burden by harmonizing the data required into fewer reports. Currently, some sites stated that they were submitting more than 10 reports per reporting cycle.

Quality and Pharmacovigilance

- **Continue establishing the LEMERA, including all related Medicines and Medical Devices Act regulations** [Prevailing priority]
- **Review and update guidelines and SOPs, including those to be aligned with new structures and systems established by the LEMERA.** Prioritize those documents that meet “basic requirements” as categorized by the NSCA and that will contribute to improving maturity level as measured by the GBT.
- **Focus on capacity-building efforts (at the institutional and individual level) based on LEMERA’s mandate and revised guidelines and procedures** [Low-cost/high-yield]
- **Explore regulatory harmonization frameworks with Maturity Level 3 countries in the region (e.g., Tanzania, South Africa) for specific regulatory functions.**

Waste Management

- **Provide national-level coordination around HCWM roles and responsibilities, in light of establishment of the LEMERA.**
- **Revise/update any needed documentation as a result of high-level coordination and collaboration (above)** [Low-cost/high yield]
- **Provide refresher trainings on HCWM across health care facilities.** Include development of action plans to minimize HCW generation and reducing the environmental impact of HCW disposal. [Low-cost/high yield]

Conclusions

The Lesotho Supply Chain Strategic Plan 2019/20–2022/23 outlined key priorities for the MoH to address in the country’s supply chain. This 2023 NSCA demonstrates that significant progress has been made in advancing and achieving the goals laid out in the strategic plan. However, this assessment also details key findings that can threaten progress to date if not addressed correctly, particularly the questions of governance around the supply chain and pharmaceutical system.

Overall, the NSCA documented the presence of existing capabilities and levels of performance across all technical areas covered and at all levels of the supply chain. The resulting accounting of strengths and weaknesses shapes priorities for the MoH as it moves forward in developing its next strategic supply chain plan. The GoL has a strong and reliable partner with the NDSO leading its procurement, warehousing, and distribution functions for the supply chain. The MoH has a prime opportunity to collaborate with LEMERA as it comes online to ensure effective supply chain governance.

In preparing for development of the next supply chain strategic plan, the GoL should consider the following priorities in its planning process:

- **Supply chain governance.** With the recent establishment of the LEMERA, a plurality of institutions now have some degree of responsibility for various supply chain functions. A well-defined governance structure is needed with clear lines of accountability, responsibility, financing, and cooperation. Even the most effective and efficient supply chain operations can succumb to poor governance, which poses a risk to the system if not managed effectively.
- **Further institutionalization of performance measurement.** The assessment team documented the lack of established measurement frameworks and the collection of regular performance data in different areas of the supply chain, such as supplier performance within the procurement function, cost of operations within the delivery function, reporting compliance (completeness, accuracy, timeliness) within the LMIS function, reporting of adverse drug reactions within the pharmacovigilance function, and forecast accuracy within the FASP function.
- **Reintegration of Category A and B products.** These categories were needed under the operating environment of the supply chain’s early days. Yet the landscape today is markedly different. It is time to reintegrate these products into the logistics cycle to ensure operations are conducted with maximum efficiency.

The current state of the public health supply chain in Lesotho brings much cause for celebration. Yet key issues remain as the GoL considers the future state of the supply chain and how it can best reach its destination. The authors of this report hope that these insights and findings will drive the supply chain toward its vision, to one day see a Lesotho where *“at all times and everywhere, no person falls short of a complete state of physical, mental and psychological well-being because of the lack of essential health commodities (medicines, medical technologies, and devices)”* needed for their optimum care.