PEOPLE that DELIVER

THE PEOPLE THAT DELIVER INITIATIVE: Namibia's Integrated Actions to Improve the Health Supply Chain Management Workforce

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** The views expressed in this document do not necessarily reflect the views of the United Stated Agency for International Development or the United States Givernment.*

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ACRONYMS

ABC	Classification of products based on expenditure
ARVs	Antiretrovirals
ART	Antiretroviral therapy
CMS	Central medical store
CPD	Continuing professional development
DCE	Discrete choice experiment
EDT	Electronic dispensing tool
FEFO/FIFO	First Expired/First Out
FGD	Focus group discussion
GPS	Global positioning system
GWP	Good warehouse practice
HR	Human resources
HRH	Human resources for health
IDCC	Infectious disease care clinic
ISO	International Organization for Standardization
JSI	John Snow, Inc. (JSI Research and Training Institute, Inc.)
KPI	Key performance indicator
LMIS	Logistics management information system
LMU	Logistics management unit
MOHSS	Ministry of Health and Social Services
MRP	Materials Requirement Plan
MSH	Management Sciences for Health
NEMLIST	Namibia essential medicines list
NGCL	Namibian-German Centre for Logistics
NHTC	National Health Training Centre
NIPAM	Namibian Institute for Public Administration and Management
NMPC	National Medicines Policy and Coordination (subdivision Pharmaceutical Services)
PAM	Personnel administration measure
PEPFAR	President's Emergency Plan for AIDS Relief
PMIS	Project Management Information System
PO	Purchase order
PS	Permanent Secretary
PtD	People that Deliver
QSL	Quality Status List
RFQ	Request for quote
RMD	Regional medical depot
RPM Plus	Rapid Pharmaceutical Management Plus
RRS	Rapid retention survey
RTK	Rapid test kit
S&T	Subsistence and traveling allowance
SCM	Supply chain management
SCMS	Supply Chain Management System (project)
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SOP	Standard operating procedure
SPS	Strengthening Pharmaceutical Systems (project)
UHC	Universal health coverage

UNAM	University of Namibia
USAID	United States Agency for International Development
VEN	Vital, Essential, Non-Essential
WHO	World Health Organization
WISN	Workload Indicators of Staffing Need

EXECUTIVE SUMMARY

Introduction

An effective supply chain supported by well-trained staff is essential to achieving universal health coverage, family planning goals, and an AIDS-free generation. In the words of former Namibian Permanent Secretary Kahijoro Kahuure, "In health services there are many different medicine and related supplies that are essential, but the most important commodity of all in a supply chain are appropriately trained staff" (People that Deliver 2012). With an important proportion of its sparsely distributed population requiring AIDS and TB treatment, as well as high levels of unmet contraceptive need, the Namibian government and Ministry of Health and Social Services (MOHSS) have sought to respond to the challenges that the public sector supply chain faces in providing consistent access to the commodities needed for these and other primary health services— particularly in Namibia's rural, remote, and underserved areas. Shortages of competent and qualified supply chain staff at all levels of the public system, but particularly at the central and regional levels, make health commodity security more fragile and diminish access to high-quality health care services across Namibia.

In November 2013, the Minister of Health presented a formal request to the People that Deliver (PtD) Board and member institutions for technical support to develop a sustainable strategy to improve access to health commodities. Led by the government of Namibia and supported by expertise from the People that Deliver Initiative and its members—notably the USAID- and PEPFAR-funded Supply Chain Management System (SCMS) project and Capacity*Plus*—the PtD-Namibia collaboration sought to understand and improve Namibia's public sector health supply chain management (SCM) workforce, focusing on the MOHSS's immediate priority: staff at the central medical store (CMS) and regional medical depots (RMDs).

PtD-Namibia Activities: Background, Methodology, and Findings

The PtD-Namibia collaboration proposed a multifaceted, coordinated response that built on previous assessments and initiatives for the SCM workforce. PtD-Namibia sought to strengthen all five of the PtD human resources building blocks—that is, stakeholder engagement, optimized policies and plans, workforce development, improved retention and performance, and professionalized SCM workforce—through five integrated and interrelated activities over a period of 18 months.

Activity 1: Competency mapping of central and regional supply chain staff

Background and methodology. The purpose of the competency mapping activity was to identify sets of core knowledge, skills, and attitudes (i.e., competencies) needed among different cadres of supply chain workers to guide the development or revision of, among other things, education and training curricula, scopes of practice, job descriptions, and performance frameworks. The activity focused on clearly defining the roles, responsibilities, tasks, and underlying competencies needed within six competency domains by the three main cadres of supply chain workers at the central and regional levels. Specifically, the competency mapping exercise aimed to produce validated competency frameworks for pharmacists, pharmacist assistants, and clerks/administrative officers at the CMS and RMD levels, identify competency overlaps and gaps, and recommend how the frameworks could strengthen supply chain staff education, training, and performance. The exercise followed the five-step methodology laid out in the "People that Deliver Competency Compendium for Health Supply Chain Management" (People that Deliver 2014), which includes conducting a desk audit, stakeholder engagement workshop, and in-country interviews; drafting and validating competency frameworks; and presenting results to stakeholders.

Findings. The analysis flowing from the competency mapping exercise showed an overlap in the responsibilities of all three cadres (pharmacists, pharmacist assistants, and clerks/administrative officers), and in particular for pharmacist assistants and clerks/administrative officers. (Appendix 3 presents the frameworks of specific behavioral competencies identified for the three cadres within each domain.) In addition, the competency mapping analysis showed that multiple entities within the MOHSS had supply chain responsibilities, but no single entity had the mandate to oversee end-to-end supply chain operations and, therefore, also be responsible for overall supply chain performance metrics. A separate technical report[1] presents the full results and recommendations of "Activity 1: Competency Mapping of Central and Regional Supply Chain Staff."

Activity 2: Estimating staffing needs at the central medical store and regional medical depots

Background and methodology. To gain a better understanding of the skill mix and number of workers needed for the effective, efficient, and sustainable management of Namibia's public sector supply chain, PtD Namibia assisted the MOHSS to conduct a Workload Indicators of Staffing Needs (WISN) study at the CMS and two RMDs to estimate the required number of pharmacists, pharmacist assistants, and clerks/administrative officers required at the national and regional levels of the supply chain. The methodology uses the time each health worker has available to deliver services and offsets it against the number of activities for each cadre and the time taken to perform each activity at the facility per year (Shipp 1998). Workload components, activity standards, available working time, and available workload statistics are used to calculate the number of health workers required for a facility (McQuide et al. 2013; WHO 2010a).

Findings. The WISN exercise estimated how many pharmacists, pharmacist assistants, and clerks/administrative officers are required to cope with the workload at the CMS and two RMDs, quantifying shortages and/or surpluses of each category of staff at each facility. The exercise also formulated evidence-based recommendations for developing and deploying staff and for distributing their tasks in response to workload needs. The most pronounced shortages were observed at the CMS level across all staff categories, and among pharmacist assistants at both the CMS and RMD levels. Additionally, pharmacists and clerks/administrative officers at the RMD level were poorly distributed in relation to workload pressures. Activity 2 also highlighted a need to consider expanding the scope of practice of clerks/administrative officers to reduce workload pressures on pharmacist assistants and thereby lower the number of pharmacist assistants needed. A separate technical report[2] presents the full results and recommendations of "Activity 2: Estimating Staffing Needs at the Central Medical Store and Regional Medical Depots."

Activity 3: Rapid Retention Survey of pharmacists and pharmacist assistants and costed retention strategies

Background and methodology. Activity 3 aimed to identify salary and benefit preferences among key health supply chain workforce cadres and projected the estimated costs of implementing the identified job packages using the Capacity*Plus*-developed quantitative Rapid Retention Survey (RRS) method, which is based on the discrete choice experiment (DCE) approach. The RRS method allows human resources managers and policy-makers to quickly determine health workers' motivational preferences, assess the relative importance they place on different job characteristics, and predict employment decision-making and the packages likely to attract and retain workers in underserved public sector

[1] http://www.peoplethatdeliver.org/sites/peoplethatdeliver.org/files/Final%20Competency%20Mapping%20Tech%20Report_PtD%20Namibia_PDF%206%2011%202014%20%282%29.pdf
[2] http://www.capacityplus.org/files/resources/Applying-WISN-method-Namibia.pdf

supply chain positions (Jaskiewicz et al. 2014). Activity 3 was achieved through a set of sequenced steps to determine the health worker cadres of interest; identify job attributes; develop, deploy, and analyze the survey; and develop, present, and cost potential supply chain workforce job packages. Using the workforce estimates from Activity 2 and the Capacity*Plus* iHRIS Retain software, PtD Namibia projected costed scenarios of providing different job attributes and conditions to health workers and generated evidence-based retention strategies.

Findings. Rapid retention surveys were completed for pharmacists and pharmacist assistants. Salary increases were the most valued job incentive for both cadres, but the RRS found clear differences in the two cadres' non-salary preferences, reflecting their unique levels of education, current salaries, and professional prospects. Pharmacists most valued the following job attributes and levels for a public sector posting, in order of preference: (1) being close to good children's schools; (2) well-maintained government housing; (3) having a wide scope of practice and opportunity to apply skills; and (4) a housing allowance. Job location, eligibility for promotion, and living conditions were not significant factors. The most-preferred pharmacist job package was a combination of a 30% salary increase, good children's schools close by, well-maintained government housing, and having a wide scope of practice, with a predicted 96% of pharmacists choosing a job with these characteristics over the currently offered post. Pharmacist assistants most valued the following for a public sector posting, in order of preference: (1) opportunities for continued education; (2) fixed overtime; (3) well-maintained government housing; (4) a housing allowance; and (5) an urban job location. Pharmacist assistants would most prefer the combination of a 30% salary increase, housing allowance, fixed overtime, eligibility for continued education after three years, with a predicted 90% choosing this job package in a rural setting, and 93% choosing the package in an urban setting, respectively.

The total cost of the most-preferred package for both cadres is about N$41.1 million (about US $4 million) over five years, for an average investment of N$210,725 (about US $20,000) per health worker with more than 90% of pharmacists and pharmacist assistants preferring this job post over the current offering. This most-preferred option, along with additional minimum- and moderate-cost options, represent between 0.2% to 0.4% of the 2015/16 annual health sector budget. A separate technical report[3] presents the full results and recommendations of "Activity 3: Rapid Retention Survey of Pharmacists and Pharmacist Assistants and Costed Retention Strategies."

Activity 4: Supply Chain Performance Improvement program

Background and methodology. The purpose of the Supply Chain Performance Improvement (SCPI) program was to build capacity in CMS staff, in particular the distribution section, in International Organization for Standardization (ISO)-accredited warehousing best practices through a modular, adaptable, phased approach. The SCMS project, through its warehousing and distribution experts at Imperial Health Sciences, designed the SCPI program to complement the Activity 1 competency mapping. With a full set of competencies identified for CMS and RMD pharmacists, pharmacist assistants, and clerks/administrative officers, the SCPI program was tailored to:

- Identify noncompliance within warehouse operations and prioritize tasks to promote change in noncompliance areas
- Leverage change management processes to ensure sustainability of the applied changes

[3] www.capacityplus.org/files/resources/rapid-retention-study-Namibia.pdf

- Identify further capacity development needs for CMS staff to improve capabilities in state-of-the-art warehouse regulations and requirements
- Identify key performance indicators (KPIs) against which CMS performance could be benchmarked over the course of the SCPI program and beyond.

This first-ever pilot of the phased performance improvement spanned a wide range of concepts and activities, including CMS executive leadership engagement; baseline assessment and KPI identification; development and revision of standard operating procedures (SOPs); interactive, competency-based training activities; and a "post-activity" assessment.

Findings. Over the course of roughly 12 months and four different phases, the SCPI program gained extensive insight into the operations of the CMS, particularly the distribution section, and made significant strides in building the capacity of the supply chain workforce within the CMS. The CMS reformatted and updated core SOPs, including new operational, quality, and health and safety SOPs; reviewed and redesigned all process flows; reformatted and updated job descriptions to include a focus on KPIs and competency mapping findings; developed a quality manual and health and safety file, enabling effective quality management of services and products; and prepared a site master file, readying the CMS for any inspection. Additionally, the CMS now has a tailored two-week on-site training curriculum that could potentially be adopted by a local training institution for professional accreditation. (Appendix 7 includes a detailed outline of the two-week curriculum, including session objectives.) Most importantly, the SCPI program resulted in clear improvement in the following four KPIs:

- **Percentage of self-inspection checklist items found to be compliant.** The SCPI program facilitated a 110% increase in compliance. Three-fourths (72%) of self-inspection items were found to be compliant, an increase of 39% over the baseline of 33%.
- **Percentage of functions completed according to SOPs.** While not measured at baseline, on completion of this intervention, the CMS SOP compliance rates ranked as follows: operational SOPs: 96%; quality SOPs: 55% (brand-new to the CMS); health and safety SOPs: 42% (brand-new to the CMS).
- **Order fulfillment rate.** While order fulfillment rates for antiretrovirals (ARVs) increased to above 90% over the course of the SCPI program (from 77%), the order fulfillment rates for other essential medicines did not rise above the "acceptable" level of 80% over the program year. SCPI likely did not have an impact on product fulfillment rates because of the underlying problem of not having long-term contracts with suppliers.
- **On-time delivery rate from the central to lower levels.** From an all-time low of 14% in the quarter ending in June 2014, CMS on-time delivery of orders to health facilities improved remarkably to 100%.

A separate technical report[4] presents the full results and recommendations of "Activity 4: Supply Chain Performance Improvement Program."

Activity 5: Documentation of the collaborative process and sharing of lessons learned

Background and methodology. Activity 5 sought to provide a perspective for both Namibia and other countries and organizations facing similar SCM workforce challenges. The aim was to increase

[4] http://peoplethatdeliver.org/sites/peoplethatdeliver.org/files/SCPI%20Tech%20Report_PtD%20Namibia_FINAL%20PDF.pdf

knowledge and understanding about approaches and tools to achieve sustainable excellence in the SCM workforce and thereby contribute to an improved supply chain and better health system performance. To this end, the government and the collaborating PtD-Namibia team developed a common framework and plan of action with clearly defined deliverables, engaged in regular monitoring of progress and challenges, held regular information and knowledge-sharing meetings, discussed operational next steps, and proposed ways to address any impediments encountered. Activity outputs included validated supply chain competency frameworks, staffing needs estimates based on actual workload pressures, proposed salary and benefits packages to more effectively attract and retain health workers, improved supply chain performance monitoring, and improvements in four KPIs. Many of the detailed, specific recommendations resulting from Activities 1-4 were implemented within the time frame of the project and/or taken forward by the MOHSS, such as revising SOPs and job descriptions. The innovative and integrated set of activities applied through the PtD collaboration produced evidence-based recommendations for strengthening the supply chain workforce.

Findings. Lessons learned from the PtD-Namibia's collaborative process can be informative for other countries seeking to enhance their supply chain workforce and supply chain system performance. In particular:

- Efficient supply chain workforce planning necessitates a **comprehensive, optimized, and costed supply chain system** designed to determine the best use of resources, including human resources.
- The success of an integrated effort to plan, finance, develop, support, and retain the supply chain workforce is dependent on **national leadership, ownership, commitment, and engagement** in the process.
- Health supply chains are staffed by different types of workers at different levels of the health system with varying types of education and training backgrounds. Thus, there is **no single cadre of worker** that can be educated and trained to undertake all functions and tasks within a health supply chain.
- **Supply chain workforce needs must be addressed within the human resources for health and civil service agendas**, which are usually substantial, with multiple needs, rules, and regulations that frame what can be done to achieve public sector supply chain objectives.
- A **comprehensive, long-term approach** is needed to build and maintain capacity at every level of public health supply chain systems, which have multiple levels and interconnected components.
- A **complementary range of actions** will heighten likely benefits for supply chain system improvement decisions. The links between a national supply chain assessment, competency mapping, WISN assessment, rapid retention survey, and supply chain performance improvement training represent interdependent components of a full SCM package that are likely to produce robust supply chain improvements.

The intention of this synthesis report is to document the PtD-Namibia collaboration's activity outcomes as well as its collective results, all of which have great potential to have a positive impact on the country's SCM workforce development and planning.

INTRODUCTION

An effective supply chain is essential to achieving universal health coverage (UHC), family planning goals, and an AIDS-free generation. Sustainable, well-functioning health supply chains must be in place to ensure that essential medicines and health commodities reach the people who need them and save lives. These supply chains depend not only on financial and technical inputs, but also on a competent, recognized, and empowered workforce. In the words of former Namibian Permanent Secretary Kahijoro Kahuure, "In health services there are many different medicine and related supplies that are essential, but the most important commodity of all in a supply chain are appropriately trained staff" (People that Deliver [PtD] 2012).

Shortages, imbalanced distribution, and poor skills mix of health workers are among the most significant constraints in achieving sustainable development goals, UHC, and equitable access to health care (Campbell et al. 2013). Overcoming these constraints includes having the necessary supply chain management (SCM) professionals at all levels of the health system to select, quantify, procure, store, distribute, and ensure effective service and usage of drugs and medical supplies. USAID's long standing commitment to strengthening supply chains began in 1986, with its award of the first global contract to provide supply chain management technical assistance through its Family Planning Logistics Management (FPLM) Project. Fifty-two countries benefited from the initial five-year project, and USAID has continued this assistance through a series of global contract mechanisms to this day. In addition, the US President's Emergency Plan for AIDS Relief (PEPFAR) has pivoted its approach "to more directly support HIV/AIDS services and populations where the highest impact gains toward an AIDS-free generation will be felt" (PEPFAR 2015). PEPFAR's human resources for health (HRH) strategy goal—to "ensure adequate supply and quality of human resources for health to expand HIV/AIDS services in PEPFAR-supported moderate and high-volume sites and/or high HIV-burden areas" (PEPFAR 2015)—includes ensuring that SCM cadres are in place to provide antiretrovirals (ARVs), tuberculosis (TB) drugs, medicines to prevent and treat opportunistic infections in HIV-affected clients, and contraceptives.

About 12% of women in Namibia have an unmet family planning need (Ministry of Health and Social Services [MOHSS] and ICF International 2014). Namibia's comprehensive national health strategy seeks to meet population health needs, including for long-term and dual family planning methods such as injectables, implants, and oral contraceptives. A well-functioning health supply chain system is critical in this regard and requires an understanding that "health supply chains are staffed by different types of workers at different levels of the health system with varying types of education and training backgrounds, and thus there is no single cadre of worker that can be educated and trained to undertake all functions and tasks within a health supply chain" (PtD 2014a).

The health supply chain workforce is composed of personnel at the national (central medical stores), regional (regional medical depots), district, and health facility or community levels whose primary responsibilities are to ensure the optimal functioning of health supply chains. Health workers carrying out supply chain functions typically include pharmacists, logisticians, supply chain managers, data managers, and warehouse and transport personnel, as well as other health workers who contribute only a portion of their time to these functions, such as doctors, nurses, and other clinical and administrative staff (Seifman et al. 2013). All must operate within a coordinated system to deliver appropriate, effective, and affordable medicines and commodities at "the last mile," that is, to clients in health facilities and communities.

Effective human resources (HR) development and management mechanisms are necessary to ensure effective SCM. Under the current paradigm, however, many supply chain positions are not formally defined, and underqualified and disempowered staff fill supply chain roles without adequate training (see Figure 1). Lacking professional status and with limited resources and few incentives available for enhanced SCM roles, there is frequent staff attrition, rotation, and migration. As a result, countries experience challenges to ensure a functioning SCM system, with inefficiencies and costly effects that prevent populations from accessing the medicines needed to achieve health goals.

Figure 1: Paradigm Shift Promoted by the People that Deliver Initiative

Source: PtD 2012.

The People that Deliver Initiative was launched in 2011 as a global partnership of organizations committed to promoting and supporting SCM workforce excellence. Its mission is "to build global and national capacity to implement evidence-based approaches to plan, finance, develop, support, and retain the national workforces needed for effective, efficient, and sustainable management of supply chains" (PtD 2013). PtD has developed and endorsed technical briefs, frameworks, and resources to provide countries with a range of HR and SCM materials to guide country-level efforts. These include:

- The HRH Action Framework Technical Brief (Seifman et al. 2013)
- The PtD Competency Compendium (PtD 2014a)
- Country Advocacy Toolkit (PtD 2014b)
- HR for SCM Assessment Guide and Tool (USAID | DELIVER 2013).

The PtD Initiative also supports and draws lessons learned from country-level action through the development, application, and refinement of guidance for national stakeholders on how to strengthen the SCM workforce within their country. PtD supports countries in shifting their supply chain (SC) paradigm through health workforce excellence, including defined SC positions filled by well-trained, qualified workers who are motivated by appropriate career incentives, benefit from high job satisfaction, and remain at these desirable jobs to effectively serve the supply chain (Figure 1).

Due to its systemic supply chain workforce challenges, Namibia became a PtD focus country in 2013 (PtD 2013). In the context of high HIV prevalence, high unmet contraceptive need, large land mass, low population density, and low population growth, the public sector health commodity distribution system has had significant difficulty in providing adequate access to primary health services—including HIV, TB, and family planning/reproductive health—in rural, remote, and underserved areas of Namibia. These challenges are coupled with insufficient education and training, as well as shortages of competent and qualified supply chain staff at all levels of the public system, factors that put health commodity security (i.e., the ability of all patients to obtain and use medicines and health products when they need them) at great risk. In November 2013, the Minister of Health presented a formal request to PtD's Board and member institutions for support to develop a sustainable strategy to improve access to health commodities by better understanding and strengthening the workforce responsible for health supply chain functions. The resulting PtD collaboration was a multifaceted, coordinated response, based on a previous HR for SCM assessment and spanning five primary activities:

- Activity 1: Competency mapping of central and regional supply chain staff
- Activity 2: Estimating staffing needs at the central medical store (CMS) and regional medical depots (RMDs)
- Activity 3: Rapid retention survey of pharmacists and pharmacist assistants and costed retention strategies
- Activity 4: Supply chain performance improvement (SCPI) program
- Activity 5: Documentation of the collaborative process and sharing of lessons learned.

This report provides an in-depth description of Namibia's workforce challenges and the strategic activities that were developed and implemented by the government in collaboration with PtD members and with financial support from the United States Agency for International Development (USAID) from 2013 to 2015. While the Namibia context has special dimensions, the problems the collaboration sought to address are common to many countries, and the process and lessons learned have wide application. This synthesis document shares the Namibian experience more broadly for additional testing and transfer to other settings. It aims to provide a starting point for country-level stakeholders to consider how they might go about assessing, researching, testing, and refining their policies, programs, and interventions to strengthen the SCM workforce within their own country context.

NAMIBIA'S SUPPLY CHAIN WORKFORCE: CONTEXT, CHALLENGES, AND EMERGING RESPONSE

Context of Namibia's Health Supply Chain Workforce

Namibia is an upper-middle-income country. The health supply chain workforce must respond to priority diseases and unmet needs—including HIV, TB, and family planning—across a geographically large but sparsely distributed population. Namibia is ranked among the least densely populated countries in the world (2.6 inhabitants per square km) and has low population growth (1.4% per annum) (Government of Namibia n.d.). It has a high-prevalence, high-incidence, generalized, and mature HIV epidemic, with an overall prevalence of 16.9% and an estimated 118,000 Namibians on ARVs (MOHSS 2013a, 2014a). The country also has the fourth highest prevalence of TB, and two-thirds of the population lives in a high-transmission area for malaria (World Health Organization [WHO] 2014a, 2014b). While more than half (55%) of currently married women use a modern contraceptive method, in 2013 approximately one in eight women had an unmet need for family planning and more than half of pregnancies were unintended, indicating the importance of access to family planning, especially for HIV-affected families (MOHSS and ICF International 2014). The 2007 Demographic and Health Survey (DHS) also noted a peak in maternal mortality rates, with 449 maternal deaths per 100,000 live births—a significant increase over prior years (MOHSS and Macro International 2008).

Namibia recently launched a three-year strategic action plan whose goal is to ensure provision of quality integrated HIV services. The plan seeks to accelerate contributions to achieving UNAIDS 90-90-90 targets—90% of Namibians know their HIV status, 90% of HIV-positive people are accessing HIV treatment, and 90% of those on treatment have a suppressed viral load (UNAIDS 2014). It also seeks to eliminate unmet contraceptive need among women living with HIV by ensuring access to a comprehensive family planning package.

Namibia faces one of the most severe health workforce shortages in the world. While the number of health workers per capita (3.7 per 1,000 population) is above the WHO benchmark of 2.9 health workers per 1,000, there is marked disparity between the public and private sectors and between urban and rural areas. The private sector has 8.8 health workers per 1,000 population, while the public sector has barely 2.0 health workers per 1,000 population. The vast majority of registered physicians and pharmacists work in the private sector serving only about 15% of the population (MOHSS 2013b), and over 75% of doctors, 68% of pharmacists, and 61% of registered and enrolled nurses work in urban areas. Meanwhile, there are high vacancy rates in the public sector, especially in rural areas, with the average public sector vacancy rate for medical doctors at 36% and for pharmacists at 41%.

Contributing to the disparities is the significant ongoing exodus of health workers from the public to the private sector. An annual report of the ministry's Human Resource Development Division (2006/2007) indicated that over a nine-year period, the public health sector lost 162 medical doctors, 365 registered nurses, 455 enrolled nurses, and 23 pharmacists, which are significant losses given the already low numbers of public health staff in these cadres (MOHSS 2007). After Namibia's economic status ranking shifted to upper-middle-income in 2011, there was a decline in external development resources and transition of donor-supported health workers to government payrolls.

Public health supply chain system structure

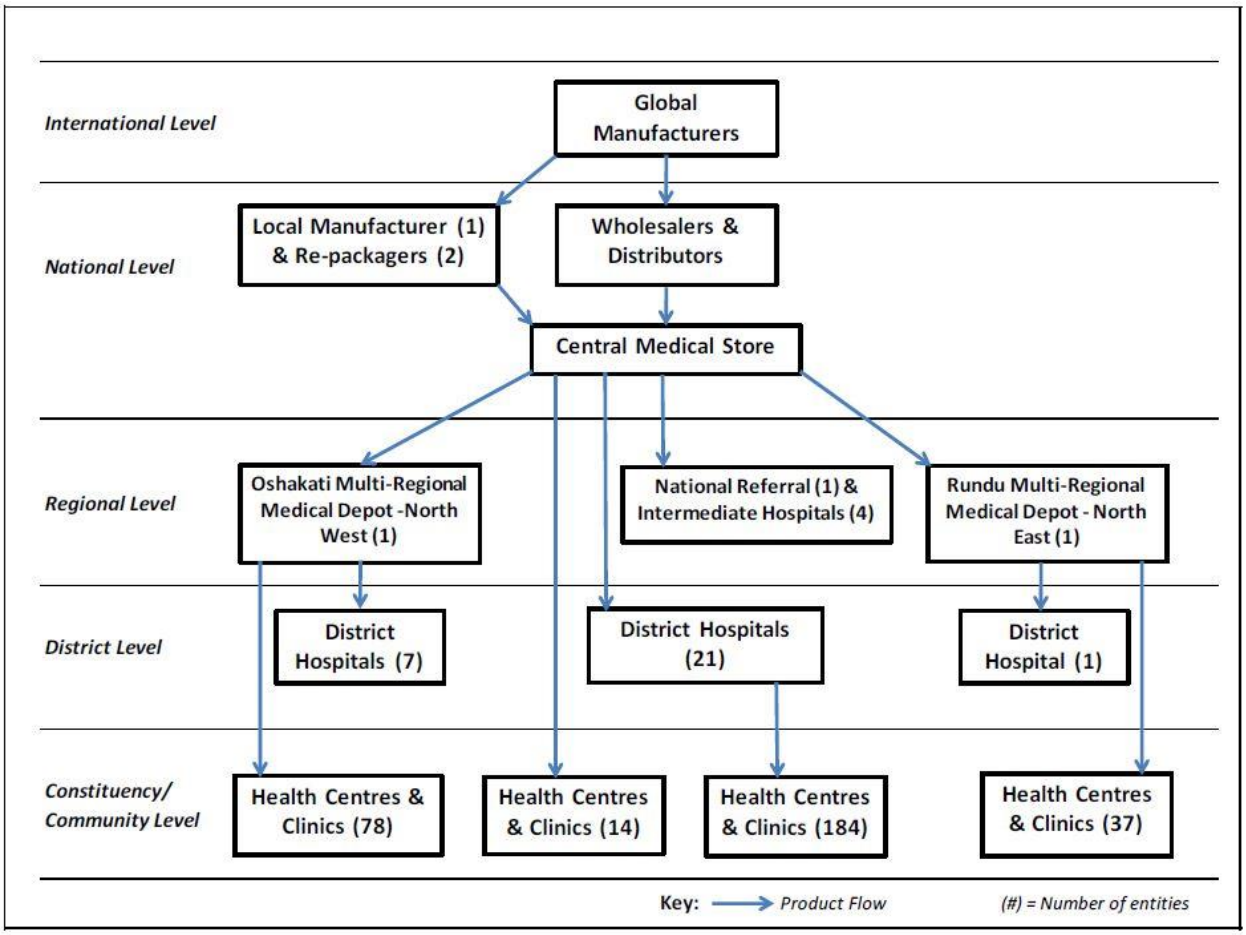
Namibia operates a traditional public sector pharmaceutical supply system whereby medicines and medical consumables are procured and distributed by the government-owned CMS via one integrated supply system. The product categories handled by the CMS and RMDs includes:

- Essential medicines including ARVs and malaria and tuberculosis medicines
- Contraceptives (including long-acting reversible and dual family planning methods such as injectables, implants, and oral contraceptives) and other reproductive health supplies
- Vaccines
- HIV test kits
- Clinical supplies such as gloves, needles, and syringes
- Diagnostic instruments
- Radiology supplies.

The MOHSS currently manages a supply chain that serves approximately 350 public health facilities, including 29 hospitals, four intermediate hospitals, and one national tertiary hospital as well as 313 primary health care facilities (43 health centers and about 270 clinics) (Ongeri 2015). In addition to the CMS, there are two RMDs that also act as intermediate stock holding points: the Oshakati RMD located 700km to the northwest of Windhoek, and the Rundu RMD, located 700km to the northeast.

The national tertiary, intermediate, and district hospitals serve as additional intermediate stock holding points by ordering, managing, and redistributing products to the majority of the clinics and health centers in Namibia not served by the CMS or RMDs. Supply segmentation is by region rather than by product, given the immense distances between supply facilities. Hospitals and health centers supplied directly by the CMS receive all categories of products from the CMS. For hospitals supplied by the RMDs (and, by extension, for the health centers and clinics supplied by those hospitals), the RMDs provide their entire range of products. The two RMDs provide last-mile distribution to a limited number of health facilities in northern Namibia—serving five of the country's 13 regions—where the vast majority of the population resides. However, the Oshakati RMD serves facilities in four regions and has a product turnover about four times that of the Rundu RMD, which primarily serves only one region (Ongeri 2015). Figure 2 presents the levels and product flow for Namibia's public health sector supply chain. The responsibilities of each component of the public sector supply chain system are described in more detail below.

Figure 2: Namibia's Public Health Sector Supply Chain Map



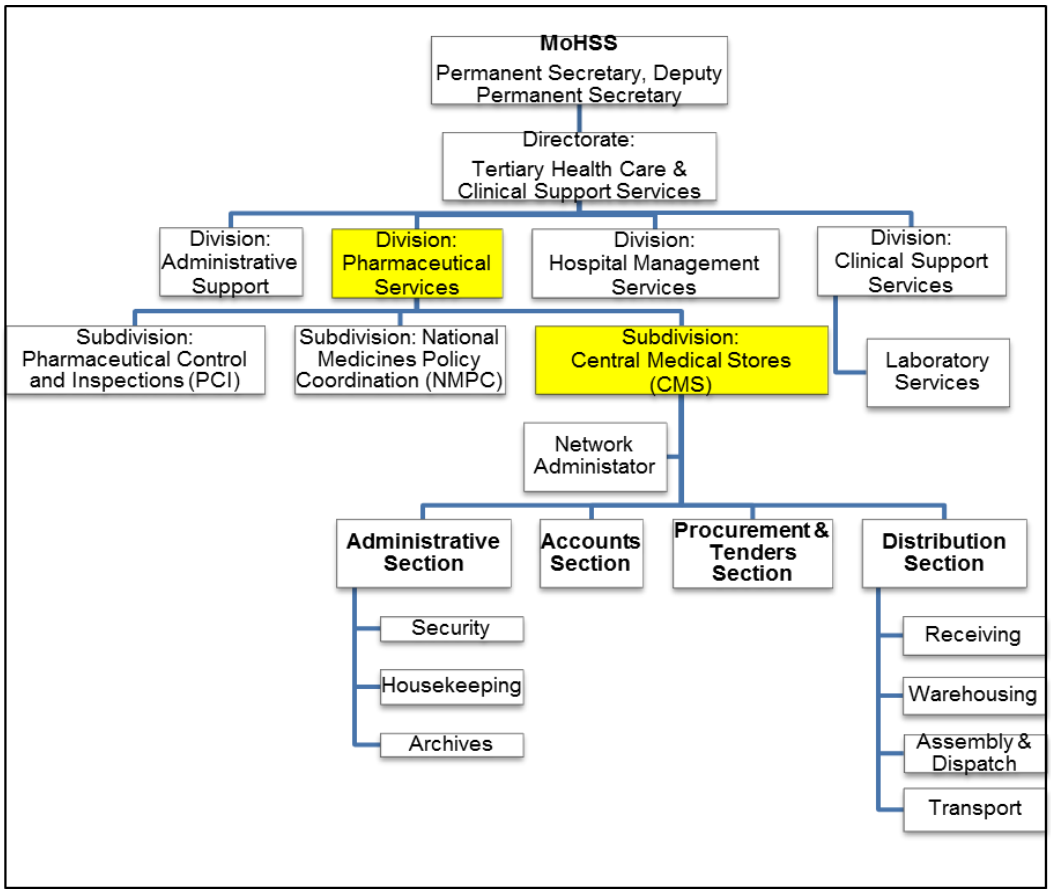
Source: Ongeri 2015.

National level (CMS). CMS responsibilities include designing, planning, forecasting, supervising, and monitoring supply chain activities, including:

- Identifying system-wide materials requirements and international and national purchasing
- Overseeing supplier performance and quality assurance
- Ensuring central warehousing and inventory control
- Transporting and distributing medical supplies to RMDs and hospitals
- Carrying out HR management functions, including recruitment and training.

The CMS organizational structure consists of a procurement and tenders section; an administrative section (transport, security, housekeeping, archives); a distribution section (receiving, warehousing, assembly, dispatch); and an accounts section. Key staff are senior management in the sections and subsections, pharmacists and pharmacist assistants, and those maintaining reporting and inventory records (clerks/administrative officers). Figure 3 outlines the primary central-level actors as well as the main CMS sections within the context of the MOHSS and Division of Pharmaceutical Services as of 2011.

Figure 3: Namibia Ministry of Health and Social Services Organogram, Including the Central Medical Store Sections and Subsections as of 2011



Source: Levenger et al. 2013.

Regional level (RMDs and hospitals). The tasks at the two RMDs are largely parallel to those at the CMS, involving personnel with responsibilities for forecasting, warehousing, inventory control and restocking requests, transportation and distribution, and staffing. However, procurement of medical supplies is only completed by the CMS. Key personnel at the RMDs include pharmacists, pharmacist assistants, and clerks/administrative officers. Hospital responsibilities generally are similar to those of the RMDs for health centers and clinics in their proximate area, with a complement of pharmacists and pharmacist assistants.

District and community levels (health centers and clinics). A primary function at this level is the day-to-day dispensing of commodities to patients/users (PtD 2014a). In Namibia, budgeting for pharmaceuticals is a national-level responsibility. The government allocates resources to ensure that all public health facilities receive a full supply of the products they request from higher levels. Health centers and clinics do not forecast but rather use specially designed order forms to requisition for supplies from higher levels, based on established maximum-minimum inventory control parameters. Health centers and clinics that are supplied by the CMS or RMDs receive supplies accompanied by an invoice (although they are not expected to pay); those that are supplied by hospitals receive supplies accompanied by a copy of the order form showing quantities issued without indicating the value of the supplies. Health center or clinic supply-related tasks are usually the responsibility of registered and enrolled nurses, but shortages of staff with the skills necessary to complete supply chain activities are widespread. A limited number of

pharmacist assistants works at health centers, with fewer still at the clinic level. The result is greater pressure on clinical staff—nurses, in particular—to perform SCM tasks, even though these cadres in many cases already have very heavy workloads (Titus et al. 2015). It is essential to have competent workers throughout the supply chain—down to the "last mile"—who are able to properly manage facility logistics activities including forecasting, storage, distribution, reordering, and reporting.

Supply Chain Workforce Challenges in Namibia

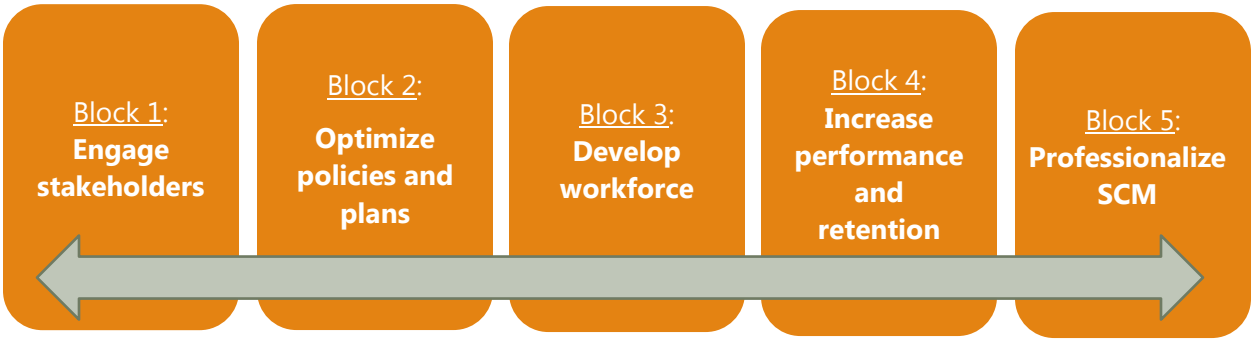
Namibia has strong country ownership of its public health supply chain, with the government owning and driving major operational functions and contributing to the bulk of funds required for procurement of essential medicines and clinical supplies. At the same time, the World Bank's 2011 ranking of Namibia as an upper-middle-income country means that it is still transitioning from donor support to full county ownership and financial responsibility for supply chain operations and commodity procurement. A national assessment conducted in 2013 by Supply Chain Management System (SCMS) (Levenger et al. 2013) found critical challenges to the functioning of the national supply chain, including a declining capability at the CMS in forecasting, procurement, warehousing, and transportation. Of particular note, the assessment found that "non-compliance with SOPs [standard operating procedures], high staff turnover rates, limited training for new staff, and fundamental changes to the procurement process" put CMS performance in these areas at risk in both the near and long term (Levenger et al. 2013).

A qualitative master's thesis study by a graduate student in the Logistics and Supply Chain Management program at the Polytechnic of Namibia found that storage challenges plagued the CMS as recently as 2012 (to be remedied with the construction of an expanded CMS) (Ongeri 2015). Moreover, in 2014, "unsystematic and ineffective" procurement processes, delayed receipts of stock, and erratic ordering from health facilities resulted in stockouts and shortages, most notably of ARVs (Ongeri 2015). These shortages and human resources challenges were significant enough to attract national media attention and move the Deputy Permanent Secretary to take charge of the CMS to remedy the challenges (Mongudhi 2014). The country-wide stock shortages prompted both the government and the general public to immediately realize how critical the supply chain is to health service provision and health outcomes. In short, the release of the national supply chain assessment report in late 2013 (Levenger et al. 2013) and the procurement challenges experienced in 2014 brought front and center the importance of the supply chain workforce. At the heart of these key logistics activities was a workforce tested by an increasing workload and a system and infrastructure challenged to support them.

Back in 2003, the government had already recognized the necessity of improving the public sector health system to respond to twenty-first century needs, acknowledging that this would require additional health professionals, including those responsible for the health supply system. The accelerating HIV epidemic, unmet family planning needs, worsening maternal mortality rates, difficulties in reaching outlying areas, and challenges in retaining health staff were among the principal driving factors behind these policy decisions. However, with the rapid expansion of HIV programming and an increased number of people enrolled on ARVs due to improved access and updated national HIV guidelines that broadened eligibility, the quantity of health commodities moving through Namibia's public sector supply chain increased by almost 300% between 2007 and 2012, creating an enormous burden on the supply chain system and its staff (Habimana et al. 2012). Further actions were taken to assess and revise the national HRH strategy, enhance national capacity to educate and train different cadres (including pharmacists and pharmacist assistants), project medium- and long-term staffing needs, and provide for additional government-financed positions (see timeline in Appendix 1).

The PtD "Human Resources Building Blocks for Supply Chain Management" framework (Figure 4) (PtD 2014c) was used to identify and categorize key challenges in the health supply chain workforce that contribute to the overarching supply chain systems problems. Our findings are presented below in relation to each of the SCM building blocks and associated challenges.

Figure 4: Human Resources Building Blocks for Supply Chain Management



Source: Adapted from PtD 2014c.

Building block 1: Engage stakeholders

In 2013, the government and MOHSS renewed their commitment to address the country's challenges in producing, employing, and retaining adequate numbers of the right types of staff to carry out supply chain functions at all levels of the health system (Titus et al. 2015; MOHSS 2013b). The government has been highly engaged in strengthening SCM, as demonstrated by its involvement in the PtD Initiative since 2011 and by Namibia's designation as a PtD focus country. There have been several supply chain champions within the government, but no formal, high-level, intersectoral stakeholder group has reviewed the supply chain workforce situation to map out policies, strategies, and plans for overcoming key challenges such as updating staffing norms, scopes of practice, or in-service training plans. Moreover, whereas the CMS is the unit responsible for supply chain management within the MOHSS, it is located at the subdivision level (see Figure 3) and has limited autonomy and access to high-level decision-makers. In 2013, a high-level presidential commission was formed specifically to address immediate supply chain challenges, but it is not a long-term standing committee.

Building block 2: Optimize policies and plans

The MOHSS Five-Year Strategic Plan (2009–2013) set forth five broad strategic themes: service provision, governance, human resources management, infrastructure development and management, and financial management (MOHSS 2009). The document recognized the need for coordination and synergy among the various functionalities as well as with development partners and in policy formulation and implementation. It did not, however, separately address supply chain aspects and was essentially silent with regard to the supply chain workforce itself. In subsequent MOHSS discussions with respect to human resources planning, SCM workforce issues were more reflected, evidence by the extent to which staffing information and gaps, job descriptions, recruitment, and the HR information system considered these workers critical to the health system.

Since 2003, the MOHSS has received HRH support from PEPFAR and the Global Fund to Fight AIDS, Tuberculosis and Malaria. This donor support was intended as a stop-gap measure to assist the government in responding to HIV/AIDS. In 2010, a Namibian Cabinet directive mandated that the MOHSS look into strategies for internal funding sources. The directive established an HRH task force to

oversee the transition process of integrating donor-funded staff into the broader MOHSS structure. Proposals for inclusion of additional funding were put forth in the 2012–2015 Medium Term Expenditure Framework, but these were not entirely fulfilled due to other priorities (Ministry of Finance 2012). Prior to the PtD-Namibia activities, little information was available on the types of capacity building needed among SCM cadres, the number of health workers requiring support in the medium- and long-term, and the cost of training and building up a sufficient supply chain workforce.

Building block 3: Develop workforce

Limited national capacity for secondary and tertiary education as well as professional training programs has been a major barrier to strengthening Namibia's health workforce, and in particular the SCM workforce. Only 50% of Namibian students continue past grade 10, and those who do often lack the science, math, and English language skills needed to enter tertiary education in the health professions (Brock et al. 2009).

In 1994, pharmacist assistants' training evolved from an informal, hospital-based program to a formalized certificate course offered by the National Health Training Centre (NHTC). The program has been increasing its graduation rates in recent years, from 18 pharmacist assistant graduates in 2011 to 28 in 2013. However, the 2014 national WISN study estimated a shortage in relation to workload of almost 300 pharmacist assistants at Namibia's public sector hospitals, health centers, and clinics. Assuming a 20% attrition rate, at this pace of production it could take many years to overcome the current shortage of pharmacist assistants at public sector facilities.

To compensate for its limited education and training capacity, Namibia has relied heavily on expatriate pharmaceutical professionals in both the public and private health sectors, particularly for product selection and quality control functions. In September 2014, 21 pharmacists from Ethiopia were employed within the public health system on two-year renewable contracts and deployed to the CMS, the medical regulatory council, and state and district hospitals. At the time of their recruitment, only 10 of the 55 pharmacists working in the public system were Namibian (Kapitako 2014). While expatriate support provides a temporary solution to the country's shortage of pharmacists, retention of expatriates remains a challenge outside of the realm of the MOHSS (e.g., obtaining valid work permits for the longer term). Further, the foreign national pharmacists work primarily in urban centers and major health facilities, with the more rural and remote facilities staffed by nationally trained pharmacist assistants. At the time of the PtD Initiative, the MOHSS did not have a clear understanding of which SC posts should be prioritized to fill, nor did the ministry have concrete strategies to attract SC workers to the public sector.

Building block 4: Increase performance and retention

Attracting, retaining, and ensuring the performance of the health supply chain workforce has been an ongoing challenge in Namibia. A 2003 assessment of SCM cadres found that only 39% of pharmacist posts and 68% of pharmacist assistant posts were filled (Aboagye-Nyame et al. 2004). Two years later, a 2005 assessment identified a need to fill 18 vacant pharmacist posts and 15 pharmacist assistant posts, as well as to create an additional 11 pharmacist posts in the public sector to meet the goal of scaling up access to antiretroviral therapy (Management Sciences for Health [MSH] 2006). The 2005 assessment also found that, due to the limited number of pharmacy-related graduates from national education and training programs, approximately 90% of occupied pharmacist positions were filled by foreign nationals on two- to three-year contracts (MSH 2006). Finally, the assessment found high levels of turnover and loss of public sector staff (both pharmacists and pharmacist assistants) to the private sector, which were associated with poor salaries, lack of a career ladder, excessive workload, and limited training opportunities (MSH 2006). More recent assessments of the Namibian health workforce in general, and

the SCM cadres in particular, have reaffirmed severe health workforce shortages, imbalanced geographical distribution of health workers, and poor skills mix and distribution of tasks (McQuide et al. 2013; Titus and Ongeri 2015).

A 2014 national WISN study found shortages and poor distribution relative to workload among pharmacists and pharmacist assistants working at health facilities at the regional and district levels (Titus et al. 2015). The findings confirmed previous assessments that found 30% vacancy rates in available pharmacist posts and 48% of public sector pharmacists practicing in the capital region (Brock et al. 2009; MSH 2006). Because the WISN study did not focus on supply chain functions at the CMS and RMDs, the government lacked specific estimates of how many staff with supply chain responsibilities—such as pharmacists, pharmacist assistants, and administrative staff—are required to effectively operate the central and regional levels of the public supply chain system.

In addition to overall staff shortages and poor distribution, previous assessments of supply chain capacity had noted rapid turnover of staff due to factors such as low salaries relative to other categories of health staff, lack of career advancement opportunities for pharmacist assistants, and excessive workload (MSH 2006). The CMS and RMDs also lacked information on the incentives (such as salaries and benefits) needed to attract and retain supply chain staff in the public sector. This latter aspect represents a major ongoing problem for the health sector as a whole, because many health workers—whose education is supported by public sector funds—move into the private sector after the compulsory internship period. A MOHSS-supported incentives and retention study (2014), which drew on 2010 survey data from 1,705 public health sector professionals including 59 pharmacists, identified the range of job aspects that health workers considered important—which varied from cadre to cadre. However, from a policy perspective, the study did not address the challenge of determining which combination of incentives and benefits would be viable to implement over time to increase staff retention rates.

The 2013 Namibia National Supply Chain Assessment that focused on the CMS established the need to strengthen performance capacity for virtually all key supply chain functions such as forecasting, procurement, warehousing, and transportation (Levenger et al. 2013), as well as introduce a more robust performance management system. Noncompliance with day-to-day warehousing standard operating procedures, insufficient coordination with service delivery levels, high staff turnover rates, limited training for new staff, and space constraints put the CMS at risk. Procurement policies and procedures warranted evaluation as areas of "greatest potential risk of continued decline of capability and performance" (Levenger et al. 2013). The challenges of health commodities forecasting, procurement, storage, and distribution at the regional level (RMDs and hospitals) are similar to those at the national level.

Building block 5: Professionalize supply chain management

Staffing norms for supply chain cadres in Namibia have not been updated in over a decade, and health supply chain workers and staff who carry out SCM tasks are not adequately professionalized. The lack of validated competency frameworks for supply chain functions has contributed to suboptimal education and training programs, poorly defined scopes of practice, and outdated job descriptions that fail to clearly specify supply chain tasks. Health supply chain workers also lack recognized credentials, professional councils and associations, career pathways, and continuing professional development programs. SCM skills are often not mentioned or integrated into job descriptions or training curricula of doctors, nurses, and other health professions. Critical supply chain skills are not seen as a high priority, nor are roles with supply chain skills seen as having a distinct and clearcut career path from junior to

midlevel and senior posts. For example, the MOHSS brochure on "Career Opportunities within the Health and Social Welfare Sector: Policy, Planning, and Human Resources" lists only degree pharmacists but no careers in supply chain management either in the health or nonmedical health and social-related career opportunities (MOHSS n.d. [a]). There have been limited opportunities for in-service training and continuing professional development for supply chain staff to maintain or improve their performance.

The Emerging Response

Recognizing the need to approach SCM workforce challenges in a more comprehensive manner, and aware of the PtD Initiative and its members' technical capabilities, the Namibian government entered into discussions with USAID and two of its global projects with a strong Namibia country presence—Supply Chain Management System (SCMS) and Capacity*Plus*—to explore how a set of collaborative undertakings could help the government assess and select improved actions for the supply chain workforce.

Government leadership

Namibia has strong country ownership of its public health supply chain. The government owns and drives major operational functions and contributes to the bulk of funds required for procurement of essential medicines and clinical supplies. Less than 2% of commodity funds for essential medicines and less than 40% for antiretroviral medicines came from donors in 2010 (Levenger et al. 2013). The MOHSS is similarly committed to strengthening the supply chain workforce as evidenced by a number of recent critical achievements in political, structural, and educational support:

- The government is in the process of elevating the CMS from a subdivision to a "Directorate of Supply Chain Management" within the MOHSS through the ongoing MOHSS-wide restructuring exercise that is scheduled to be concluded by March 2016; this will give the CMS leadership authority over staffing and budgetary decision-making.
- In November 2014, the MOHSS began construction of a new, state-of-the-art central medical store, recognizing its critical operational importance to the performance of the public health system.
- The MOHSS has been working with development partners and Namibian educational institutions to:
    - Transition the pharmacist assistant training program from an informal, hospital-based program to a formalized certificate course offered by the National Health Training Centre. The program has been increasing its graduation rates, which went from nine to 30 pharmacist assistant graduates from 2010 to 2015.
    - Introduce a four-year Bachelors of Pharmacy program at the University of Namibia (UNAM), which was accredited in 2011; as of 2014, 107 students were enrolled, with the first 14 pharmacy students graduating in April 2015 (Rennie et al. 2015).
    - Incorporate supply chain management modules into pharmacist, pharmacist assistant, and the newly organized pharmaceutical technician curricula.
    - Build capacity in logistics and management for nurses or other clinicians with supply chain functions at the health center and clinic levels through in-service training.
    - Offer a Bachelor of Logistics program at the Polytechnic of Namibia's Namibian-German Centre for Logistics (NGCL) to expand the pool of logisticians that can be deployed to work within the health sector.

On the basis of the above actions, other national actions taken over the past decade to address SCM workforce issues (Appendix 1), and the findings of the MOHSS Presidential Commission of Inquiry (2013b) conducted in November 2013, the government and MOHSS sought technical support from PtD to move forward with policies and concrete programs to improve supply chain performance and address human resources needs at the CMS and RMD levels. The MOHSS proposed an initial focus on supply chain staff at the CMS and RMDs —specifically pharmacists, pharmacist assistants, and clerks/administrative officers. In response, Capacity*Plus* and SCMS joined forces to identify ways to strengthen the assessment, planning, education, training, deployment, retention, and performance of the health supply chain workforce. The collaboration consisted of five distinct activities that were leveraged to result in a powerful combination of complementary interventions (described in greater detail in the "Approach" section and throughout this report).

From the first planning stage and throughout, the Ministry guided the work as the principal beneficiary and stakeholder. MOHSS representatives actively participated in technical working groups, consultations, and key planning meetings. Each tool and methodology was discussed with the MOHSS and other partners, with regular progress reports and meetings to coordinate efforts, share information, and identify problems and solutions.

USAID contributions

USAID has been a major global funder of human resources for health, with resources provided to improve supply chain workforce capacity globally. Since 2003, USAID has been a strong advocate and sponsor of Namibia's efforts to improve supply chain management, bringing to bear its flagship programs to address different aspects of the effort aimed at improving Namibian public sector supply chain human resources, consistent with MOHSS objectives.

- From 2003–2009, USAID's Rational Pharmaceutical Management Plus (RPM Plus) program assisted with:
  - "An Assessment of the Public Sector Pharmaceutical Supply System of the Republic of Namibia" (Aboagye-Nyame et al. 2003)
  - "Human Capacity Development Assessment for Public Sector Pharmaceutical Services in Namibia: Strategies to Scale Up HIV/AIDS Programs and ART" (MSH 2006)
  - The draft "Standard Operating Procedures Manual for Managing Pharmaceutical and Related Supplies at Central Medical Stores" (MOHSS n.d. [b]).
- In 2009, USAID's Strengthening Pharmaceutical Systems (SPS) project provided technical support to UNAM to establish and strengthen the university's new pharmaceutical program.
- Subsequently, as a continuation of RPM Plus and SPS, the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) project assisted with the development of preservice training modules in SCM as well as the NHTC program for pharmacist assistants described earlier.
- Since 2011, PtD has used and leveraged the health supply chain expertise of its membership—with assistance provided by Capacity*Plus*, SCMS, and others—to continue to support the government in achieving its SCM and HRH objectives.

Within the context of the government's overall approach to identifying and addressing supply chain workforce challenges and under the umbrella of PtD, two USAID-funded projects—SCMS and Capacity*Plus*—applied an integrated set of innovative approaches and tools to help plan, deploy, train, and retain the public sector health supply chain workforce. The aim of the collaborative effort was to secure equitable and sustainable access to life-saving medicines and health commodities and to share lessons learned that are relevant in other contexts.

SCMS. SCMS delivers essential lifesaving medicines and products to HIV/AIDS programs around the world as part of the US President's Emergency Plan for AIDS Relief (PEPFAR). SCMS now provides more than 70% of PEPFAR-funded HIV/AIDS commodities for PEPFAR. Through the active, hands-on involvement of 13 international team member organizations, SCMS works to strengthen supply chains to enable the scale-up of HIV/AIDS care and treatment in developing countries, With on-the-ground presence in Namibia through MSH, SCMS's role in this collaboration included:

- Coordinating PtD partner expertise
- Piloting the implementation of the competency mapping activity, with technical assistance from SCMS-Washington
- Piloting the implementation of the Supply Chain Performance Improvement program through its warehousing partner, Imperial Health Sciences.

***Capacity*Plus**. Capacity*Plus*, USAID's flagship global HRH project, offers state-of-the-art HRH expertise, approaches, and tools to support countries to address barriers to attaining the health workforce needed to achieve national goals and to contribute to the goals of priority global initiatives to improve health outcomes. The project is funded by and the USAID Office of Population and Reproductive Health, which had identified both supply chain and family planning workforces among its priority areas for focused efforts under its 2014-2020 plan, and PEPFAR. Through leadership and technical assistance from IntraHealth's Namibia office and project headquarters, Capacity*Plus*'s role in this collaboration in Namibia included:

- Piloting and implementing the WISN approach to assess staffing requirements for the supply chain workforce
- Piloting and implementing the Rapid Retention Survey methodology and costing tool analysis for pharmacists and pharmacist assistants
- Providing logistical and other administrative support to the collaboration.

Each of these projects had activities funded by USAID/Washington in support of PtD and a portfolio of activities supported by USAID/Namibia with the goal of strengthening the supply chain workforce and/or contributing to improved overall HRH and health system functioning. Both were ideally situated to carry existing efforts forward and to expand SCM efforts in Namibia with limited additional funding from USAID/Washington to encompass a strategic set of interventions that can be documented, yielding lessons for dissemination. In addition, the two USAID-funded projects reinforced and were supported by the efforts of SIAPS (implemented by MSH) and especially the SIAPS work to incorporate preservice training in SCM into the country's new pharmacy degree program.

Approach

The partners involved in the PtD-Namibia collaboration designed a holistic, integrated approach to meet the request from the MOHSS. This approach consisted of five interlinked activities:

Activity 1: Competency mapping of central and regional supply chain staff—including roles, responsibilities, and tasks—against the PtD competency compendium to identify critical competency gaps and strengths.

Activity 2: Estimating staffing needs at the CMS and RMDs to determine the required staff numbers and skill mix of supply chain workers using the WHO's Workload Indicators of Staffing Need (WISN) method. (The MOHSS was already undertaking a workload analysis of supply chain cadres at public sector health facilities; the PtD request involved extending this activity to the CMS and RMD levels.)

Activity 3: Rapid retention survey of pharmacists and pharmacist assistants and costed retention strategies to understand health workers' motivations and preferred incentives and develop SCM workforce retention strategies to attract these cadres into public sector SCM positions and reduce the flow of public sector staff to the private sector.

Activity 4: Supply chain performance improvement (SCPI) program, including advanced leadership and management modules to build the capacity of CMS senior management and staff.

Activity 5: Documentation of the collaborative process and sharing of lessons learned, along with monitoring and evaluation and dissemination of best practices for other countries.

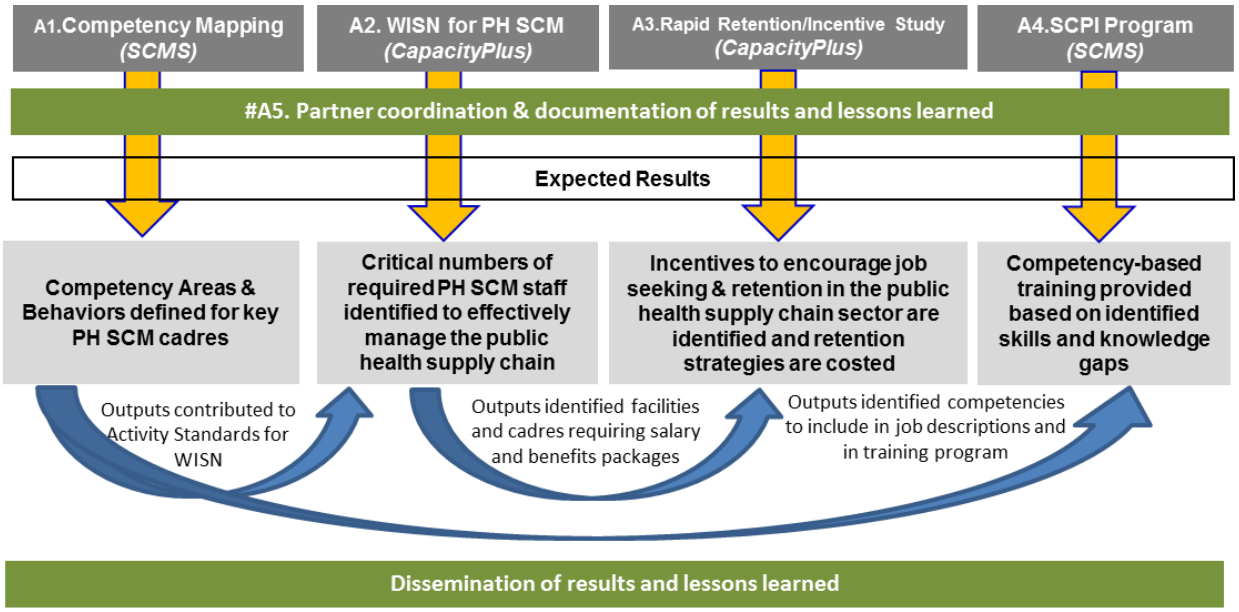
The set of five integrated activities aimed to produce (see Figure 5):

1. Validated competency areas and behaviors for key staff at the CMS and RMD levels
2. Estimates of the critical numbers of staff identified to effectively manage the public health supply chain, including the CMS and RMDs, and quantification of shortages and/or surpluses of each category of staff at each facility
3. Evidence-based incentives to encourage job-seeking and retention in the public health supply chain sector, including costed salary and benefit packages for pharmacists and pharmacist assistants
4. Competency-based training provided on the basis of identified skills and knowledge gaps for strengthened capacity at the CMS
5. Technical reports and briefs describing the experience, results, best practices, and lessons learned for consideration by other countries' health supply chain workforce.

Appendix 2 presents a logical framework that lists each activity together with its expected outputs and outcomes. Subsequent sections of this report provide more detailed summaries.

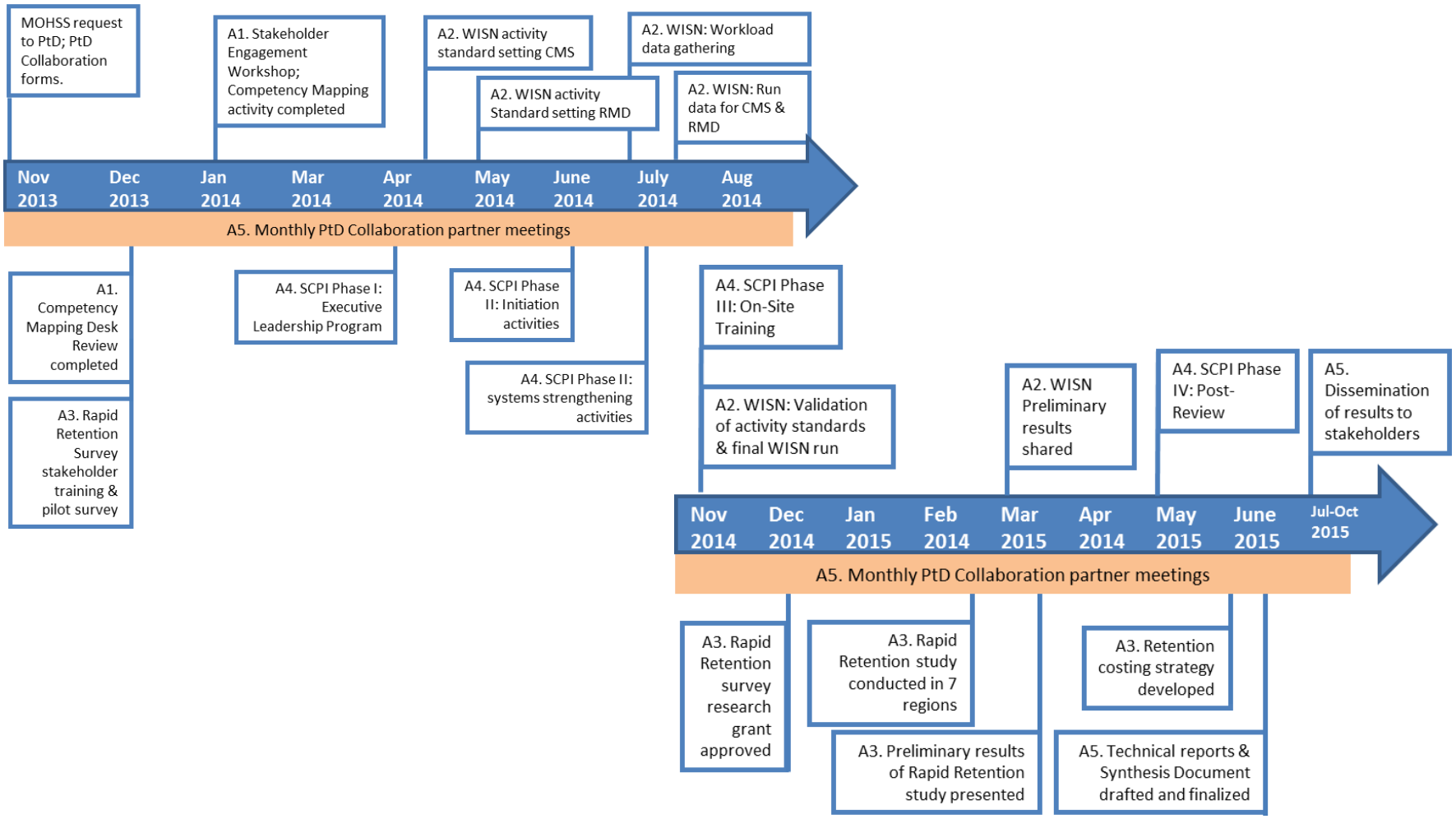
While the primary objective of the PtD-Namibia collaboration was to support enhanced planning, education, training, deployment, retention, and performance of the supply chain workforce (Activities 1-4), a secondary objective was to document the implementation process, identify lessons learned, and draft guidance on the overall process for sharing and additional testing and replication in other countries (Activity 5) (see Figure 5). The outcomes of this work are expected to not only increase supply chain performance in Namibia but also enhance USAID's contribution to the health supply chain workforce globally and the PtD Initiative.

Figure 5: PtD–Namibia Collaboration—Activity and Results Framework



The PtD-Namibia collaboration commenced in November 2013 and concluded in July 2015, demonstrating an efficient and coordinated response to Namibia's specific supply chain workforce needs. Figure 6 shows the time frame for each activity. The aim is that the results and recommendations will influence MOHSS strategic plans for the CMS and RMDs, encourage the MOHSS to further explore and address workforce challenges at all levels of the health supply chain, highlight lessons learned for future application of this process in other countries, and, most importantly, strengthen the supply chain workforce to improve health outcomes in Namibia.

Figure 6: PtD-Namibia Collaboration—Timeline by Activity
(*Activities numbered A1-A5 relate to Figure 5*)



ACTIVITY 1: COMPETENCY MAPPING OF CENTRAL AND REGIONAL SUPPLY CHAIN STAFF

Purpose and Expected Outputs

The purpose of the competency mapping activity was to identify sets of core knowledge, skills, and attitudes (i.e., competencies) needed among different cadres of supply chain workers to guide the development or revision of, among other things, education and training curricula, scopes of practice, job descriptions, and performance frameworks. The activity focused on clearly defining the roles, responsibilities, tasks, and underlying competencies needed within six competency domains by the three main cadres of supply chain workers at the central and regional levels. The competency mapping exercise aimed to produce:

- Validated competency frameworks for pharmacists, pharmacist assistants, and clerks/administrative officers at the CMS and RMD levels and identified competency overlaps and gaps
- Recommendations for how the frameworks could be used to strengthen the education, training, and performance of supply chain staff.

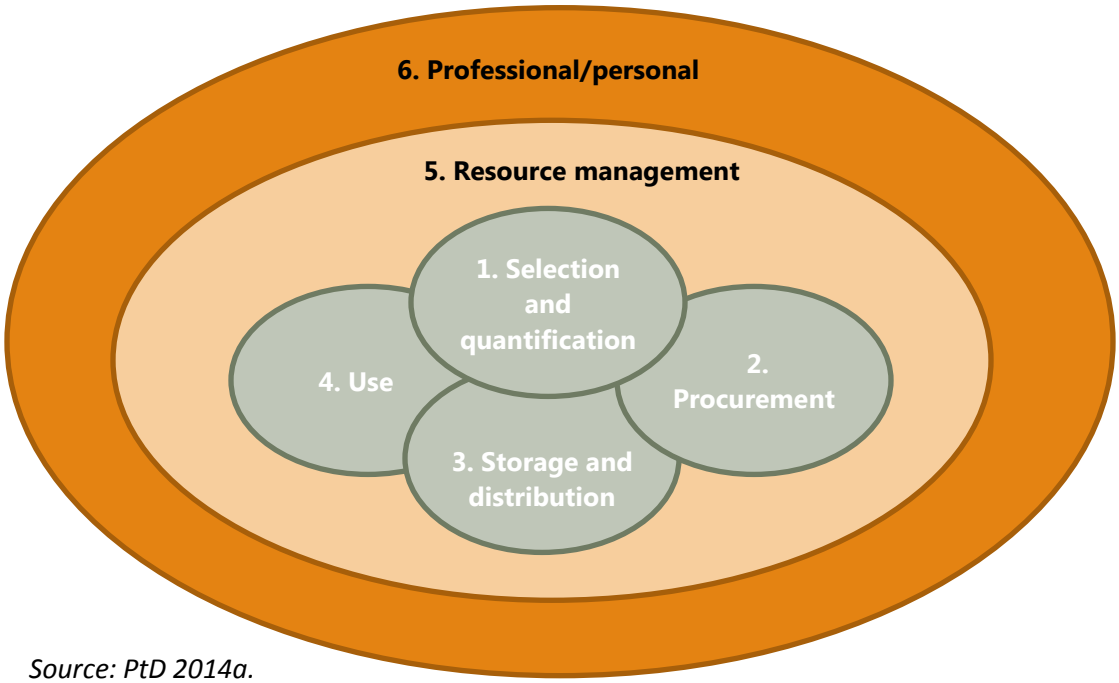
According to the PtD Competency Compendium, a competency framework is a collection of domains and competency areas with associated behavioral competencies that define the expected skill requirements of a particular cadre (PtD 2014a). The validated competency frameworks can be used to develop or update a variety of human resources tools, such as scopes of practice for different cadres of workers; staffing plans that define the numbers and types of staff needed at each facility; job descriptions that outline the core responsibilities and tasks of each staff member; staff performance frameworks and plans; and education and training curricula that specify what competencies supply chain cadres should develop and how.

The competency mapping activity was foundational to the entire PtD-Namibia collaboration. It also responded to the need to map specific competencies and define the roles of the newly proposed pharmacy technician cadre, a midlevel cadre whose level of competence and responsibility would fall between a pharmacist assistant and pharmacist, providing a pathway for pharmacist assistants to progress and become pharmacy technicians with supplementary training. In scaling up pharmacist assistant education and training while considering education programs for pharmacy technicians and pharmacists, there was a need to clearly delineate roles, responsibilities, and competencies between the three cadres (Brock et al. 2009).

Methodology

SCMS, implemented by MSH in Namibia, leveraged its supply chain management expertise and relationships with leadership in the MOHSS Division of Pharmaceutical Services (including the CMS) to lead this activity. The competency mapping team applied an approach proposed in the PtD "Competency Compendium for Health Supply Chain Management" (PtD 2014a) to map the required health supply chain tasks and competencies for pharmacists, pharmacist assistants, and clerks/administrative officers against those actually being applied at the CMS and the two RMDs. The PtD competency compendium defines six health supply chain management domains (selection and quantification, procurement, storage and distribution, use, resource management and personal/professional) and their associated competency areas (see Figure 7).

Figure 7: PtD SCM Competency Domains



Source: PtD 2014a.

The primary objectives of the competency mapping approach were to identify:

- Which competencies are required to complete tasks in the six domains
- Which cadres of workers currently complete those tasks
- What gaps and overlaps or redundancies exist
- What education, training, recruitment, and human resources management needs exist.

The activity consisted of five key steps, described in Table 1.

Table 1: Activity 1—Competency Mapping Steps and Descriptions

Steps	Description
1. Desk audit of key SCM workforce resources	Reviewed key documents (job descriptions, standard operating procedures, human resources policies, supply chain assessments, etc.) outlining job responsibilities and critical tasks of the three cadres selected—pharmacists, pharmacist assistants, and clerks/administrative officers—to map them to the corresponding competency areas in the PtD competency compendium. Provided a broad picture of where job responsibilities overlap, identified gaps, and produced a cursory map of supply chain tasks and underlying competencies by cadre.
2. Stakeholder engagement workshop	Official launch of the PtD collaboration with a goal of introducing the competency mapping exercise and validating the desk audit findings. Included MOHSS officials from Pharmaceutical Services and Human Resources, the CMS and RMDs, and local academic and training institutions.

Steps	Description
3. In-country interviews and focus groups	Through one-on-one and small group interviews with CMS and RMD staff, outlined SCM activity process maps highlighting the responsibilities and tasks of each cadre.
4. Drafting and validating competency frameworks.	Reconciled desk audit findings with interview findings to create draft competency frameworks for each cadre. Reviewed drafts to identify where roles overlapped, where other cadres may be utilized, and where any gaps exist with behavioral competencies. Re-engaged key informants to review and validate the draft competency frameworks.
5. Presentation of results to high-level stakeholders	Compiled the results of the competency mapping exercise into a comprehensive technical report, including a concise executive summary and concrete recommendations, to share with stakeholders, including MOHSS and USAID.

Findings

Based on the desk audit findings and key informant interviews, the competency mapping team defined the Namibia-specific domains and competencies needed at the CMS and RMD levels as well as the specific behavioral competencies needed within each domain by pharmacists, pharmacist assistants, and clerks/administrative officers. With this information, the team adapted the PtD competency framework for the Namibian context. Table 2 lists the Namibia-specific domains and competency areas for the CMS and RMDs.

Table 2: SCM Domains and Competency Areas for the CMS and RMDs in Namibia

Domain	Competency Area	Relevant for: CMS/RMD/Other
1. Selection and Quantification	1.1 Select the appropriate product	NMPC/CMS
	1.2 Define the specifications and quality of the product	CMS
	1.3 Forecast product needs	NMPC/CMS
	1.4 Develop supply plans	CMS
2. Procurement	2.1 Manage procurement costs and budget	MOHSS (but CMS in future)
	2.2 Manage tendering processes	CMS
	2.3 Execute management of contract, including maintaining supplier relationship and risk and quality management	CMS
	2.4 Assure quality of products	CMS
	2.5 Manage importation of products	CMS
	2.6 Manage donations of products	CMS
3. Storage and Distribution	3.1 Make product replenishment requests to resupply entity	CMS/RMD
	3.2 Receive products	CMS/RMD
	3.3 Properly store products/implement good warehousing practices	CMS/RMD
	3.4 Process customer orders (capture order/pick/pack/dispatch)	CMS/RMD
	3.5 Manage transport for commodities	CMS/RMD

Domain	Competency Area	Relevant for: CMS/RMD/Other
	3.6 Manage the return of products (e.g., expired, damaged, redundant, overstocked)	CMS/RMD
	3.7 Manage disposal of products (e.g., expired, damaged, redundant)	CMS/RMD
4. Resource Management	4.1 Design or recommend changes to the design of a public health supply chain	CMS/MOHSS
	4.2 Oversee operation of a logistics management information system (LMIS)	NMPC
	4.3 Maintain safe and secure working conditions	CMS/RMD
	4.4 Monitor and evaluate supply chain activities	NMPC but CMS/RMD in the future
	4.5 Manage outsourcing SCM functions	CMS/RMD/MOHSS
	4.6 Manage and plan projects (senior-level management responsibilities)	CMS/RMD/NMPC
	4.7 Manage finances/financial activities	CMS/RMD/MOHSS
	4.8 Support human resources (e.g., recruitment, training, team management/supervision)	CMS/RMD
5. Professional and Personal	5.1 Demonstrate basic generic skills (e.g., literacy, numeracy, technology)	CMS/RMD
	5.2 Demonstrate communication skills	CMS/RMD
	5.3 Utilize problem-solving skills	CMS/RMD
	5.4. Exhibit professional and ethical values	CMS/RMD
	5.5 Prove leadership abilities	CMS/RMD
	5.6 Abide by rules/laws/legislation	CMS/RMD

Key: CMS: Central medical store; LMIS: Logistics management information system; MOHSS: Ministry of Health and Social Services; NMPC: National Medicines Policy Coordination subdivision; RMD: Regional medical depot; SCM: Supply chain management.

The analysis flowing from the competency mapping exercise showed an overlap in the responsibilities of all three cadres (pharmacists, pharmacist assistants, and clerks/administrative officers), in particular for pharmacist assistants and clerks/administrative officers. (Appendix 3 presents the frameworks of specific behavioral competencies identified for the three cadres within each domain.) In addition, the competency mapping analysis showed that multiple entities within the MOHSS had supply chain responsibilities, but no single entity had the mandate to oversee end-to-end supply chain operations and, therefore, also be responsible for overall supply chain performance metrics.

Recommendations

Based on the findings, the team outlined six recommendations for the MOHSS to consider when moving forward in addressing key HR for SCM challenges at the CMS and RMDs:

1. **Use the results of the competency mapping activity to inform the definition of activity standards needed to estimate the types and numbers of workers needed at the CMS and RMDs.**

The government and MOHSS should use the results of the competency mapping exercise to develop the activity standards needed to generate staffing estimates for the CMS and RMDs using the WISN method.

2. **Create supply chain-related specialties for the clerk/administrative officer level.**
   Clerks/administrative officers within the CMS and at the RMDs have specific responsibilities and required competencies that are unique when compared with any other administrative officer's post. Clerks/administrative officers within the MOHSS can be hired or transferred into virtually any department or division (from education to agriculture), leaving the CMS and RMDs in the position of needing to train each new hire or transfer in the responsibilities specific to the CMS/RMDs. By adding supply chain-related specialties for clerks/administrative officers, the MOHSS could require that these positions have the specific skill sets needed to strengthen CMS/RMD operations. In addition, education and training programs could be tailored to these areas. Employing these specialist clerks/administrative officers would shift some of the workload pressure from pharmacist assistants to clerks/administrative officers, but these positions may also require higher salaries when the specialty competencies are added. Recommended are the following specialties: administrative officer/data analyst; administrative officer/logistics (receiving, warehousing, dispatch); and administrative officer or pharmacist assistant/procurement and contracting.

3. **Reallocate the division of labor around storage and distribution tasks.**
   Responsibility for the management of pharmaceutical and nonpharmaceutical commodities could be shifted to clerks/administrative officers, allowing the pharmacist assistant's role to evolve to one of oversight in competency domain three (storage and distribution). Pharmacists would still handle restricted commodities, but shifting some of these tasks to clerks/administrative officers would allow pharmacist assistants to focus on tasks related to their existing procurement and facility-level responsibilities.

4. **Create a more comprehensive competency mapping, including the newly designed pharmacy technician cadre.**
   In late 2014, the government, with support from SIAPS, built off the PtD competency mapping work to develop a competency framework for a new pharmacy technician cadre (MSH 2014). It is recommended that the government take the competency frameworks developed through the PtD competency mapping (for clerks/administrative officers, pharmacist assistants, and pharmacists) and combine them with the proposed competency framework for the new pharmacy technician cadre to comprehensively map the competencies and roles of all four categories of staff to assist in workforce planning and refining positions, job descriptions, and educational programs.

5. **Use the competency frameworks to update education and training programs, scopes of practice, and job descriptions, and to advocate for redistribution of some tasks among different cadres.**
   The updated and validated competency frameworks could be shared with the current education and training programs provided by the Polytechnic of Namibia and the Namibian-German Centre for Logistics, as well as managerial programs at the Namibian Institute for Public Administration and Management (NIPAM) to tailor education and training programs to on-the-job demands. This first-ever comprehensive documentation of competencies across the three cadres at the

CMS and RMD levels also provides an excellent repository of data for updating scopes of practice and job descriptions and advocating for a more rational distribution of tasks across the two levels of the system (i.e., CMS and RMDs) and between the range of different supply chain cadres.

6. **Create a high-level supply-chain-focused unit.**
   The government should establish a unit, possibly within the National Medicines Policy Coordination (NMPC) subdivision (see Figure 3), consisting of at least one senior pharmacist and two data analysts to oversee supply chain operations—including forecasting, analyzing LMIS data (e.g., national stock status), coordinating stakeholders around commodity security issues, and other responsibilities. The entity must have a ministerial mandate to be the unit responsible to monitor all aspects of supply chain performance and have the authority to implement improvements. An example of such a unit is a logistics management unit (LMU), a "management structure responsible for organizing, monitoring, and supporting all supply chain activities within the logistics system. The LMU, typically based at the central level, should have both an operational and a strategic purpose. [It is] a vehicle to institutionalizing good supply chain management practices and is involved in all logistics functions, linking upstream and downstream logistics activities" (USAID|DELIVER Project 2010).

A separate technical report presents the full results and recommendations of "Activity 1: Competency Mapping of Central and Regional Supply Chain Staff."

Activity 2: Estimating Staffing Needs at the Central Medical Store (CMS) and Regional Medical Depots (RMDs)

Purpose and Expected Outputs

Staffing norms in Namibia had not been revised for more than ten years, despite significant changes in Namibia's epidemiology, disease response, and national guidelines. Previous assessments of the country's public pharmaceutical sector reported staffing shortages in relation to available posts at central, regional, and district levels of the supply chain management system, aggravated by high turnover and migration of staff to the private sector (Aboagye-Nyame et al. 2003; Levenger et al. 2013; MSH 2006). However, those assessments did not provide precise estimates of the types and numbers of workers needed in relation to the actual supply chain management workload.

To better understand the skill mix and number of workers needed for effective, efficient, and sustainable management of Namibia's public sector supply chain, Capacity*Plus* and SCMS assisted the MOHSS to conduct a WISN study at the CMS and two RMDs to estimate the required number of pharmacists, pharmacist assistants, and clerks/administrative officers required at the national and regional levels of the supply chain. (The WISN toolkit, which includes user's manuals, case studies, and software, is available on the WHO website.) The activity supplemented a national WISN study, completed in 2015 with support from Capacity*Plus*, that estimated staffing needs for doctors, nurses, pharmacists, and pharmacist assistants at central, regional, and district hospitals, health centers, and clinics (Titus et al. 2015).

The WISN activity aimed to:

- Estimate how many pharmacists, pharmacist assistants, and clerks/administrative officers are required to cope with the workload at the CMS and two RMDs
- Quantify shortages and/or surpluses of each category of staff at each facility in terms of the difference between, and the ratio of, the actual and required number of staff
- Formulate recommendations for developing and deploying staff, and for distributing tasks among staff, in response to workload needs.

Methodology

The WHO developed the WISN method as a needs-based and data-driven human resources planning and management tool. WISN estimates the number of different types or cadres of staff a facility requires based on the actual workload for that facility. Workload components, activity standards, available working time, and available workload statistics are used to calculate the number of health workers required for a facility (McQuide et al. 2013). The method uses the time each health worker has available to deliver services and offsets it against the number of activities for each cadre and the time taken to perform each activity at the facility per year (Shipp 1998). A proxy measure, the WISN ratio, demonstrates measured workload pressure on the workers in the facility. A ratio less than one indicates that the existing number of staff is inadequate to deal with the workload, and a ratio of greater than one indicates the opposite, that the number of staff is more than is needed to respond to the workload. A WISN ratio of exactly one demonstrates a balance of workload pressure with existing staff (Ahmad 2014).

The WISN method can be used to calculate the staff requirement for only one cadre (e.g., pharmacist assistants) working in one type of facility (e.g., health centers). It can equally well estimate the required

number of several staff categories working in a range of facility types. Calculations can be derived from available data on current workloads or estimates of future workload. The activity standards used to estimate the amount of time required to complete a set of tasks can be varied to examine the impact of improved practices on staff requirements.

In addition to a core WISN study team, the method requires three groups for implementation: a steering committee with senior officials and policy-makers to drive the process forward; a technical task force with the necessary technical resources and experience to implement the process; and expert working groups consisting of professionals from each cadre to define, refine, and validate the various activities and activity standards for each cadre at each facility type (McQuide et al. 2013; WHO 2010a).

The method is conducted in seven steps, which include determining the WISN priorities, estimating available working time, defining components of daily work, setting activity standards, establishing standard workloads, calculating allowance factors, and, finally, determining the required staff (WHO 2010a). A brief description of how each step was applied in the context of the PtD collaboration is provided in Table 3 below.

Table 3: Activity 2—Steps for Estimating Staffing Needs

Steps	Description
1. Determine WISN priorities	The WISN steering committee, in consultation with senior officials and policy-makers, agreed to prioritize staffing needs for pharmacists, pharmacist assistants, and clerks/administrative officers at the CMS and RMDs.
2. Estimate available working time	The technical team estimated the amount of time, in terms of working hours, each category of worker had available in one year to do her/his work, taking into account authorized and unauthorized absences. The technical team collected human resources data from facility managers on the various types of leave taken, such as health, training, and annual leave. The available working days are then converted into available working hours.
3. Define components of daily work	Expert working groups for the three categories of staff identified the most important activities (i.e., components of work) done by workers on a daily basis (see Table 4). Competency frameworks developed in Activity 1 through the competency mapping exercise informed the definitions of daily work. Some competencies were grouped into larger activity areas to facilitate the task of setting activity standards (see Step 4).
4. Set activity standards	Based on the activities identified in Step 3, the expert working groups defined the time required to perform each activity. When defining activity standards, they considered the time necessary for a trained, skilled, and motivated worker to perform each activity to a satisfactory standard within the particular environment. Multiple validation sessions with expert working groups were held to ensure that consensus was reached on the activity standards. Identifying suitable dates for the sessions, given that many of the experts were responsible for important health sector functions, was a major challenge in the approach. (Appendix 4 lists the WISN activity standards developed by PtD-Namibia.)
5. Establish standard workloads	After the activity standards were set, the technical team calculated the standard workload. Standard workload is the number of times a specific activity can be done by one health worker in a year, if they are doing only that activity.

Steps	Description
6. Calculate allowance factors	Allowance factors are multipliers that take into account activities done by different categories of workers, but for which annual statistics are not regularly collected. The technical team calculated two types of allowance factors: a category allowance factor and an individual allowance factor. The category allowance considers support activities performed by all members of a staff category (e.g., attending staff meetings). The individual allowance takes into consideration activities done only by certain staff within a category (e.g., writing an annual report).
7: Determine required staff	The technical team drew from Namibia's SYSPRO© enterprise resource planning database to estimate the service statistics for each facility. The database captures information about the number of orders, deliveries, and pharmaceutical and nonpharmaceutical stock items for each facility. Unfortunately, the system was not compatible with the WISN software, which is used to calculate staffing requirements. To overcome this challenge, the technical team collected information from SYSPRO© and reorganized it into workload standards that could be used in the WISN software. The technical team then used the WISN software to determine the required number of staff in each category based on the working time available per staff member and the projected workload at each facility. The team compared the resulting staffing requirements to the existing number of staff to determine whether the CMS and RMDs were overstaffed or understaffed for each category of worker. In addition, they calculated a WISN ratio to measure the workload pressure. (A ratio less than one indicates that the existing number of staff is inadequate to deal with the workload. A ratio of greater than one indicates that the number of staff is more than needed to respond to the workload. A WISN ratio of one demonstrates a balance of workload pressure with existing staff.) The results generated by the WISN software were verified and refined using manual calculations.

Source: WHO 2010a.

Table 4 provides an example of Step 3, in which the expert working groups identify the most important workload components done by a given category of workers on a daily basis.

Table 4: Example of Defining Workload Components in the WISN Method

Staff Category: Pharmacist Assistants at Regional Medical Depots	
Workload group	**Workload component**
Service activities for which statistics are regularly collected*	Processing purchase orders
	Dispatching client orders
	Issuing client orders
	Receiving and sorting returned stock from health facilities
	Stock Management
Support activities done by all pharmacist assistants (category allowance)	Storing of stock in warehouses
	Attending staff meetings
	Annual stock taking
	Attending training
	Taking tea breaks

Additional activities done by certain pharmacist assistants (individual allowance)	Capturing client orders in SYSPRO©
	Receiving stock from CMS
	Setting minimum and maximum stock levels
	Conduct pharmacy week activites
	Checking printed order checklists
	Removal and disposal of expired/damaged stock
	Compiling various monthly and quarterly reports

Note: These represent broad workload components for this cadre and have been updated and enhanced since. A full outline of workload components and activity standards are available in the technical report

After completing the final step in the process, the technical team met with members of the steering committee and expert working groups to discuss and validate the findings.

Findings

Table 5 outlines the workforce estimates for the three supply chain facilities (i.e. CMS and RMDs). The study found important shortages of staff relative to workload. The most pronounced shortages were observed at the CMS level across all staff categories, and among pharmacist assistants at both the CMS and RMD levels. The study also found a poor distribution of pharmacists and clerks/administrative officers at the RMD level in relation to workload pressure.

Table 5: WISN Results for the CMS and RMDs (Using Data from April 2013–March 2014)

Cadre	Existing Staff	Required Staff	Difference (- shortage, + surplus)	WISN Ratio*
CENTRAL MEDICAL STORE (KHOMAS)				
Distribution Pharmacist	8	8.25	-0.25	0.97
Distribution Pharmacist Assistant	6	28.14	-22.14	0.21
Distribution Clerk/Administrative Officer	14	15.74	-1.74	0.89
Procurement Pharmacist	2	2.21	-0.21	0.90
Procurement Pharmacist Assistant	1	2.59	-1.59	0.39
Procurement Clerk/Administrative Officer	2	2.30	-0.3	0.87
OSHAKATI MULTI-REGIONAL MEDICAL DEPOT (OSHANA)				
Pharmacist	2	0.93	+1.07	2.15
Pharmacist Assistant	2	5.87	-3.87	0.34
Clerk/Administrative Officer	7	2.80	+4.2	2.50
KAVANGO REGIONAL MEDICAL DEPOT (RUNDU)				
Pharmacist	1	0.82	+0.18	1.22
Pharmacist Assistant	1	4.96	-3.96	0.20
Clerk/Administrative Officer	0	2.40	-2.4	0.00

**The WISN ratio is the ratio of actual to required number of staff. A ratio of 1 indicates a balance of staff with workload pressure. A ratio less than 1 signifies an inadequate number of staff to deal with the workload. Greater than 1 signals a surplus of staff in relation to workload.*

Based on the WISN calculations, the study estimated shortages of one pharmacist, 24 pharmacist assistants, and two clerks/administrative officers at the CMS, and eight pharmacist assistants at the RMDs. At the regional level, the study found a surplus of one pharmacist and four clerks/administrative officers at one RMD, while the other RMD showed a shortage of two clerks/administrative officers. Better distribution of staff between the two RMDs could overcome shortages among certain staff categories.

Activity 2 also highlighted a need to consider expanding the scope of practice of clerks/ administrative officers to reduce workload pressure on pharmacist assistants. A review of the clerks/administrative officers' scope of practice showed that their role is limited to 30% of the total volume of supplies that pass through the medical store facilities. In light of the relatively narrow scope of practice among clerks/administrative officers, the study found a need for 32 additional pharmacist assistants at the three facilities, compared with a shortage of only five clerks/administrative officers at the CMS and one RMD, and a surplus of four clerks/ administrative officers at the other RMD. Given the country's currently more limited capacity to educate and train pharmacist assistants versus clerks/administrative officers, a broader scope of practice among the clerk/administrative officer category would allow human resources managers to transfer some of the workload from pharmacist assistants to clerks/administrative officers and, thereby, reduce the number of pharmacist assistants needed.

Recommendations

Based on the findings, the technical team presented the following recommendations related to staffing of the CMS and RMDs for consideration by the MOHSS:

1. **Update staffing norms and add positions to the existing staffing establishment.**
   Positions for pharmacist assistants should be added to the existing staffing establishment. Senior officials and policy-makers should advocate for the creation of additional positions, which could be justified due to the high workloads experienced by the three facilities.

2. **Consider task sharing/shifting options based on scope of practice and competency.**
   The scopes of practice for supply chain management cadres should be reviewed to ensure that responsibilities and tasks are optimally distributed among pharmacists, pharmacist assistants, and clerks/administrative officers to make the best use of each cadre's capabilities and training. It will be important to ensure that responsibilities and tasks are defined based on actual needs, challenges, and workloads faced in the CMS and RMDs. For example, some of the activities currently performed by pharmacists could be allocated to pharmacist assistants. Similarly, some of the activities done by pharmacist assistants could be allocated to clerks/administrative officers. The findings of the competency mapping exercise in Activity 1 supported this recommendation.

3. **Introduce streamlined education and training pathways with career ladders to produce more supply chain workers, provide career tracks for existing workers, and help fill staffing gaps.**
   Streamlined educational pathways such as clinical career ladder programs have been used to develop an expanded array of competencies for health workers in underserved areas and to promote advancement of practicing professionals (WHO 2013). Such programs provide progressive, unified, and continuous development of competencies with exits into service followed by re-entry to study programs to upgrade knowledge and skills. Service leaves between steps in the education ladder are important components of the program, providing opportunities for graduates from a lower level program to serve and learn before re-entering

the program at a higher level. Different academic credentials can be awarded at each step of the ladder—for example, starting from a certificate, followed by a diploma, degree, and postgraduate awards.

With this framework in mind, and considering the Namibian context, it is recommended to develop or strengthen advanced training, qualification, and career tracks for existing cadres, such as clerks/administrative officers, to fill employment gaps. For example, clerks/administrative officers could complete additional training to become logistics officers. Similarly, pharmacist assistants could complete additional education and training to become pharmacist technicians, allowing them to remain within the profession with the prospect of advancing to pharmacist level through the career ladder approach. This would be complemented by the fact that with the improved qualifications, the pharmacist assistant could assume additional activities and responsibilities. Overall, the objective should be to have health workforce cadres with appropriate training and skills to handle necessary supply chain management needs. The findings of the competency mapping exercise in Activity 1 also suggested creating a specialized track for clerks/administrative officers to take on higher-competency tasks such as data analysis, procurement, and contracting.

4. **Develop recruitment strategies for supply chain cadres (addressed in Activity 3).**
   Surveys suggest that Namibian youth do not perceive pharmacy careers as being a desirable or viable option (Brock et al. 2009). For this reason, it is recommended to develop recruitment strategies to attract workers to supply chain positions. Aggressive marketing and career day opportunities should advocate for these career tracks. Focus could be given to mobilizing Grade 12 learners to pursue a career in supply chain management since pharmacists, pharmacist assistants, and clerks/administrative officers are trained locally within Namibia. Activity 3, the rapid retention survey, also recommends the development of recruitment strategies, which could advertise an attractive package of salaries and benefits developed as a result of the study.

5. **Introduce incentives to attract and retain different cadres of workers to supply chain positions (addressed in Activity 3).**
   Specific salary and benefit packages should be introduced to help attract and retain workers to vacant supply chain positions, particularly in facilities with worker shortages. The Capacity*Plus* Rapid Retention Survey Toolkit (Jaskiewicz et al. 2014), which was applied in Activity 3, aimed to determine the right incentives for attracting and retaining workers to supply chain management positions.

6. **Update activity standards and rerun WISN estimates as needed.**
   After a significant change in the type or volume of work at a facility, activity standards should be updated and WISN estimates run anew. Over time, the volume or type of work at a facility may fluctuate in response to health system and population health needs. In addition, if scopes of practice for certain cadres of workers change or new categories of workers are added to a facility, these changes will affect the types and numbers of workers needed at a facility to respond to workload pressure, which could be estimated by updating activity standards and recalculating WISN results. During the course of the PtD collaboration in Namibia, and specifically under Activity 4 (supply chain performance improvement program), a number of tasks were shifted from the CMS to the RMD facilities. This may imply that the workload could increase at the RMD level and decrease at the CMS. New WISN calculations are needed to

update staffing estimates based on the revised type and volume of work at supply chain facilities.

A separate technical report provides the full results and recommendations of "Activity 2: Estimating Staffing Needs at the CMS and RMDs."

Activity 3: Rapid Retention Survey of Pharmacists and Pharmacist Assistants and Costed Retention Strategies

Purpose and Expected Outputs

This activity aimed to identify salary and benefit preferences among key health supply chain workforce cadres to attract and retain them in public sector supply chain positions, particularly in facilities located in rural areas, such as RMDs and hospitals. The expected outputs included:

- Recommendations for attracting and retaining pharmacists and pharmacist assistants in public sector supply chain positions, particularly in rural areas
- Costed salary and benefit packages for pharmacists and pharmacist assistants.

Methodology

The Rapid Retention Survey (RRS) is a quantitative method used to determine the relative importance health workers place on different characteristics related to employment options and to predict health workers' decision-making, using hypothetical choice data. Capacity*Plus* developed this method, which is based on the discrete choice experiment (DCE) approach, and modified it into a user-friendly application that allows human resources managers and policy-makers to quickly determine health workers' motivational preferences (Jaskiewicz et al. 2014). In Namibia, the RRS was achieved through a set of sequenced steps involving tool development (Phase I), data collection (Phase II), and data analysis (Phase III) (see Table 6).

Table 6: Activity 3—Rapid Retention Survey Process Overview

Steps	Description	
Phase I: Tool Development		
1. Determine the health worker cadres of interest	Capacity*Plus* and national stakeholders determined that two supply chain cadres were of interest for the Rapid Retention Survey (RRS) in Namibia: pharmacists and pharmacist assistants. Although the clerk/administrative officer cadre also contributes to the national supply chain, it is a generic, non-technical cadre within the public service, whereas this research focused on the clinical service delivery aspects of supply chain management.	
2. Identify job attributes for the survey	Building on an existing qualitative health worker incentives and retention study (MOHSS 2014b), the team conducted focus group discussions (FGDs) with representatives from both pharmacy cadres to gather data on what these health workers valued most in a job incentives package. The FGDs identified priority job attributes (i.e., benefits, incentives, or characteristics) that pharmacists and pharmacist assistants deemed most important to attract and retain them at underserved posts (see below). After consulting with in-country stakeholders to determine which strategies would be feasible to consider implementing, Capacity*Plus* defined levels of each job attribute to include in the RRS questionnaire. (Appendix 5 provides the complete table of job attributes and levels for each cadre.)	
	RRS Job Attributes: Pharmacists	**RRS Job Attributes: Pharmacist Assistants**

Steps	Description	
	• Salary increase (none, 10%, 20%, 30%) • Housing • Living conditions • Scope of practice • Children's education • Career advancement/promotion possibilities • Location	• Salary increase (none, 10%, 20%, 30%) • Housing • Living conditions • Scope of practice • Opportunities for continued education • Overtime • Location
3. Develop the survey questionnaire	The job attributes and levels were used to construct the RRS questionnaires using Sawtooth SSI Web software (Version 8.3.6) (Huber 2005; Johnson 2002; Sawtooth Technologies 2015), including job preference pair questions: 12 scenarios with randomized combinations of job attribute levels per respondent. Within each scenario, respondents were asked to choose which job they would prefer. (Appendix 5 and the technical report for Activity 3 provide examples of job preference scenario questions for pharmacists and pharmacist assistants.)	
Phase II: Data Collection		
4. Deploy the survey questionnaire	Five trained research assistants from UNAM used a laptop and Internet dongle to enable RRS data collection at the SCM cadres' place of work or preferred location from 52 pharmacists and 50 pharmacist assistants over a two-week period in seven regions: Erongo, Hardap, Karas, Kavango, Khomas, Oshana and Oshikoto. Respondents represented a range of levels not just at public sector facilities but also at private and faith-based facilities, so as to capture the broader labor market. The research assistants introduced the survey and oriented respondents to the web-based survey interface, guiding them through to the informed consent page and then allowing the respondents to complete the remainder of the survey at their own pace (20 minutes on average). The survey data were automatically uploaded to the Sawtooth survey hosting site and progress monitored in real time.	
Phase III. Analysis		
5. Prepare and analyze survey data	Data were extracted from the Sawtooth hosting site, cleaned, and loaded into STATA IC (Version 13.1) for analysis. A basic descriptive statistical analysis was undertaken to assess respondents' demographic and professional characteristics (available in Activity 3's technical report), followed by analysis using a logistical regression (mixlogit) model.	
6. Develop potential job packages	The regression outputs identified coefficients that measure the relative influence of the various job attributes and their levels on respondents' predicted willingness to choose a job in an underserved post over the standing job postings currently offered in the public health sector. Potential job packages with specific combinations of incentives and benefits are presented in terms of predicted preference impact rates (Jaskiewicz et al. 2014): higher percentages indicate higher preferences (Jaskiewicz et al. 2014; Ryan et al. 2012).	
7. Cost scenarios for supply chain workforce retention	Using iHRIS Retain software, as well as the RRS and WISN results, Capacity*Plus* developed multiple costed scenarios for SCM cadre retention strategies at the CMS, RMDs, and health facilities in Namibia for the next five years. iHRIS Retain is a web-based costing application developed by Capacity*Plus* and the WHO that	

Steps	Description
strategies	estimates the total costs of planning and implementing health worker retention strategies over a multiyear period. By costing the implementation of recommended supply chain workforce job packages, an evidence-based retention strategy can be developed for consideration by policy- and decision-makers. PtD-Namibia agreed to focus on costing incentives and benefits under two objectives: 1. **CMS and RMD levels**: Cost of incentives and benefits to attract and retain pharmacist assistants at the CMS and RMDs based on the PtD WISN findings. 2. **Hospital and health center levels:** Focusing on priority geographic areas identified by the government and partners,* and using the national WISN results to ensure that health supplies reach "the last mile," the analysis included pharmacists at the intermediate and district hospital levels, and pharmacist assistants at district hospitals, health centers, and the clinic level. See Appendix 5 for a table of the costing elements, approaches, and assumptions.

**The PEPFAR "Namibia Country Operation Plan (COP) 2015 Strategic Direction Summary" (dated May 15, 2015) prioritizes 144 facilities in seven regions: Kavango, Khomas, Ohangwena, Omusati, Oshana, Oshikoto, and Zambezi.*

Findings

The RRS found there were clear differences in non-salary preferences for pharmacists versus the pharmacist assistants, reflecting their unique levels of education, current salaries, and professional prospects. We analyzed potential retention job packages in relation to a standard job package—defined as what is currently offered in the public sector for each cadre. For pharmacists, the standard job package is the basic salary, excluding benefits; housing allowance; having good children's schools close by; and an urban location. For pharmacist assistants, the standard job package is the basic salary, excluding benefits; housing allowance; opportunities for further study and scholarship within the field after three years; and an urban location.

Analysis results are expressed as predicted preference impact rates, which indicate the percentage of health workers expected to prefer the retention job package to the standard job package. The results of the various combinations of incentive packages and their respective preference impact rates for pharmacists and pharmacist assistants are shown in Tables 7 and 8. (See Appendix 5 for tables of ranked job attributes, levels, and regression model results for pharmacists and pharmacist assistants.) The attributes of potential job packages are grouped in the left-hand column, with a range of predicted preference impact rates for the percentage salary increase option for each package. For example, Job Package 1 has a preference impact rate of 74% if there is no salary increase (Option A), whereas with a 10% salary increase (Option B) it has a preference impact rate of 86%.

Pharmacists

In ranking the regression model results for each of the job attributes for pharmacists, salary increases—whether 10%, 20%, or 30%—were the most valued job incentive. In addition to salary, pharmacists most valued the following job attributes and levels for a public sector posting, in order of preference:

1. Being close to good children's schools
2. Well-maintained government housing
3. Having a wide scope of practice and opportunity to apply skills
4. A housing allowance.

Job location, eligibility for promotion, and living conditions were not significant factors. The most-preferred job package was a combination of a 30% salary increase, good children's schools close by, well-maintained government housing, and having a wide scope of practice (Package 1, Option D), with a predicted 96% of pharmacists choosing a job with these characteristics over the currently offered post (Table 7). The job package options highlighted in Table 7 in bold were selected to be costed.

Table 7: Pharmacists' Most Preferred Job Packages: Predicted Preference Impact Rates (%) by Salary Increase Amount

Job Package (either urban or rural: CMS, RMD or district hospital)			**Monthly Salary *(basic salary excluding benefits)***			
			Option A: +0%	**Option B: +10%**	**Option C: +20%**	**Option D: +30%**
Package	1	Good children's schools close by Well-maintained government housing Wide scope of practice	**74%* *Alternate* moderate for costing**	86%	93%	96%
	2	Good children's schools close by Housing allowance provided Wide scope of practice	68%	82%	90%	**95% Most-preferred for costing**
	3	Good children's schools close by Well-maintained government housing	49%	**67% Minimum preferred for costing**	81%	90%
	4	Good children's schools near by Housing allowance provided	42%	60%	**76% Moderate for costing**	87%

**If the MOHSS does not want to consider salary increases, then alternatively this Job Package 1, Option A will be costed.*

Pharmacist assistants

Similar to pharmacists, salary increases—whether no increase, 10%, 20%, or 30% increase—were the most valued job incentive or condition for pharmacist assistants. In addition, they most valued the following job attributes and levels for a public sector posting, in order of preference:

1. Opportunities for continued education
2. Fixed overtime
3. Well-maintained government housing
4. Housing allowance
5. Urban job location.

Given the shortage of pharmacist assistants in the public sector in urban as well as rural areas and their preference for urban posts, preference impact rates were considered for both locations (Table 8). Pharmacist assistants would most prefer the combination of a 30% salary increase, housing allowance, fixed overtime, and eligibility for continued education after 3 years (Package 1, Option D); it is predicted that 90% would choose this job package in a rural setting, and 93% for an urban setting. The job package options in bold were identified in preliminary analysis for costing.

Table 8: Pharmacist Assistants' Most Preferred Job Packages: Predicted Preference Impact Rates (% Urban/Rural) by Salary Increase Amount

Urban / Rural Job Package (e.g., CMS, national tertiary hospital or RMD, district hospital)			Monthly Salary *(basic salary excluding benefits)*			
			Option A: +0%	**Option B: +10%**	**Option C: +20%**	**Option D: +30%**
Package	1	Housing allowance Fixed overtime Continued education - 3 years	**77% / 70% *Alternate* moderate for costing**	84% / 79%	89% / 85%	**93% / 90% Most-preferred for costing**
	2	Housing allowance Fixed overtime Continued education - 5 years	63% / 55%	72% / 65%	**80% / 74% Moderate for costing**	86% / 82%
	3	Well-maintained government housing Continued education - 3 years	52% / 44%	63% / 55%	72% / 65%	80% / 74%
	4	Housing allowance Continued education - 3 years	50%* / 42%	61% / 53%	**71% / 63% Minimum preferred for costing**	79% / 73%

**The predicted preference impact rate for this urban post, Job Package 4, Option A is the standard job posting.*

A separate technical report provide the full results and recommendations of the Activity 3 rapid retention survey of pharmacists and pharmacist assistants.

Preliminary costed retention strategies

Considering the preferred packages elicited through the RRS results, and taking into account the number of current pharmacists and pharmacist assistants and the estimated staffing needs at the CMS and RMDs, the team developed costed options for retention strategies. This exercise used iHRIS Retain to

consider current health and workforce expenditures, inflation, and the number of positions to be filled and maintained, and then disaggregated the costs of providing different job attributes and conditions to health workers. While the results of the rapid retention survey are representative of the preferences of pharmacists and pharmacist assistants across all levels of the Namibian health system, the costed options for the retention strategies shown in Table 9 are based on the staffing estimates for the CMS and RMDs only.

These costed options aim for a 0% vacancy rate at the CMS and RMDs for both pharmacists and pharmacist assistants at the end of a five-year period (i.e., by 2019). The total cost of the most-preferred package for both cadres is about N$41.1 million over five years (about US $40 million), for an average investment of N$210,725 (about US $20,000) per health worker, with more than 90% of pharmacists and pharmacist assistants preferring this job post over the current offering. In contrast, the minimum package is about N$15.2 million over five years, with an average investment of N$81,128 (about US $8,000) per health worker; about two-thirds of pharmacists and pharmacist assistants preferred this job post over the current offering. (The alternate moderate package meets moderate package criteria of a preference impact rate of close to 75% but does not include any salary increase in the event that the MOHSS does not want to consider a salary increase option.) The percentage of the 2015-16 annual health sector budget that these cost options represent ranges from 0.2% to 0.4%. The percentage of the 2015-16 pharmacist and pharmacist assistant personnel expenditures that these cost options represent ranges from 5.3% to 14.3%. The pharmacist job packages are a smaller proportion of total pharmacist personnel expenditures than are the pharmacist assistant job packages for total pharmacist assistant personnel expenditures, particularly for the most-preferred packages. This is in part because there are more pharmacist assistant vacancies to fill to attain 0% vacancy.

Table 9: Preliminary Costed Retention Strategy Options and Current Expenditures (N$) for Pharmacists and Pharmacist Assistants at the CMS and RMD Levels

	Current/ Standard Package	Minimum Preferred Packages	Alternate Moderate Package	Moderate Packages	Most-Preferred Packages
Predicted preference rates - Pharmacist - Pharmacist assistant (urban/rural)	-	67% 71%/63%	74% 77%/70%	76% 80%/74%	95% 93%/90%
Total cost of package (pharmacists and pharmacist assistants)	-	$15,264,720	$26,924,083	$35,457,209	$41,086,371
Average annual cost per health worker	-	$81,128	$135,983	$180,511	$210,725
Average annual cost	-	$3,052,944	$5,384,817	$7,091,442	$8,217,274
National health personnel expenditures 2015-16	$1,875,017,000	-	-	-	-
Average annual cost as percent of national health personnel expenditures		0.2%	0.3%	0.4%	0.4%
Pharmacist and pharmacist assistant personnel expenditures budget 2015-16	$57,562,385	-	-	-	-

	Current/ Standard Package	Minimum Preferred Packages	Alternate Moderate Package	Moderate Packages	Most-Preferred Packages
Average annual cost as percent of pharmacist/pharmacist assistant personnel expenditures (over 5 years)	-	5.3%	9.4%	12.3%	14.3%
Total cost of pharmacist package	-	$11,949,573	$10,915,309	$7,608,508	$15,726,568
Average annual cost of pharmacist package	-	$2,389,915	$2,183,062	$1,521,702	$3,145,314
Pharmacist personnel expenditures budget 2015-16	$35,062,181				
Pharmacist package as percent of pharmacist personnel expenditures budget	-	6.8%	6.2%	4.3%	9.0%
Total cost of pharmacist assistant package	-	$8,841,965	$20,937,373	$27,848,701	$31,304,366
Average annual cost of pharmacist assistant package	-	$1,768,393	$4,187475	$5,569,740	$6,260,873
Pharmacist assistant personnel expenditures budget 2015-16	22,500,204				
Pharmacist assistant package as percent of pharmacist assistant personnel expenditures budget	-	7.9%	18.6%	24.8%	27.8%

Recommendations

The findings of the Rapid Retention Survey and iHRIS Retain costing exercise generated evidence that can be used to develop policy and strategy options for attracting and retaining pharmacists and pharmacist assistants at rural facilities such as RMDs and district hospitals. Recommendations for moving forward are briefly outlined below.

1. **Implement viable, evidence-based, and costed attraction and retention packages.** Using the results of the Rapid Retention Survey and the iHRIS Retain costing exercise, the government of Namibia should introduce viable, evidence-based, and costed salary and benefit packages to attract and retain pharmacists and pharmacist assistants in public sector positions with supply chain management responsibilities.

2. **Increase the production and availability of supply chain workers so that more potential hires will be available in-country.**
   While it is important to attract and retain more trained supply chain cadres to underserved facilities, strategies to produce more SC technical graduates should also be considered. Initiatives to sponsor or promote supply chain workers through accredited national training programs would increase the number of graduates entering the labor market.

3. **Develop and implement strategies to promote careers in supply chain management**. Salary and benefit packages can help attract and retain workers in SC-related posts if people are aware of them. The government should develop strategies to encourage young people to pursue careers in

SCM to increase the number of health workers available to meet current needs, and then successfully recruit pharmacy graduates into vacant positions. Strategies could include providing information about supply-chain-related education pathways and careers to secondary school students, and aggressively marketing vacant posts through channels available to pharmacy students, such as conferences, online discussion groups, job boards, and career days. Marketing efforts could reference the attractive salary and benefit packages developed as a result of the RRS and iHRIS Retain costing exercise.

4. **Introduce formal, competency-based education and training programs for cadres with supply chain responsibilities**.
   Consideration should be given to strengthening the capacity of local institutions to provide education and training, assess qualifications, and build career tracks to locally produce and retain pharmacists, pharmacist assistants, and the supply chain professionals needed to fill public sector supply-chain-related employment gaps (McQuide et al. 2013). To increase the number of graduates posted to rural and remote areas, the government should consider the development of long-term education strategies to increase access to health workers in remote and rural areas through improved retention (WHO 2010b). In addition, the MOHSS should determine what types of continuing education opportunities would present the greatest added value to the supply chain management system in support of Namibia's vision to achieve an AIDS-free generation. Training opportunities should be local and as practical as possible, including engagement with the country's regional health training centers and investigation of flexible and/or remote learning (i.e., eLearning) opportunities.

ACTIVITY 4: SUPPLY CHAIN PERFORMANCE IMPROVEMENT (SCPI) PROGRAM

Purpose and Expected Outputs

Local, country-tailored training programs are in high demand, given that for years off-site, in-service training has been the traditional capacity-building approach in warehouse management for central and regional medical store staff around the world. Staff members typically leave their posts for weeks at a time, usually with travel fees and course tuition funded by donor agencies, and return to post unable to easily apply lessons learned in state-of-the-art warehouse training facilities to their own warehouse environments. In response to increasing requests, including a request from the Namibia MOHSS, for a more country-specific, less resource-intensive warehouse operations management course, the SCMS project, through its warehousing and distribution experts at Imperial Health Sciences, designed the Supply Chain Performance Improvement (SCPI) program.

The SCPI program was designed to be rolled out in three phases over six months: initiation (Phase 1), on-site training (Phase 2), and post-review (Phase 3).

1. **Initiation phase**: The program begins by assessing the performance of the current system (a central medical store or another nominated system), identifying and/or establishing baseline metrics, and working with the system's owner(s) to set performance metric targets. Additionally, a local academic or training institution—able to assist with local accreditation of the SCPI program in line with local legislation—is identified to sustainably continue to meet the capacity-building needs of the staff of the identified system.
2. **On-site training phase**: The SCPI program deploys the tailored training interventions with a focus on staff ability to meet identified key performance indicators (KPIs).
3. **Post-review phase**: At the end of the implementation period (approximately six months), a team evaluates performance improvements against the baseline measures of the originally identified KPIs. Program materials are also transitioned to the identified local partner.

Namibia was the first country to pilot the SCPI program in its entirety. Implementing the SCPI program in Namibia was a natural complement to the competency mapping exercise (Activity 1) conducted in January/February 2014. With a full set of competencies identified for CMS and RMD pharmacists, pharmacist assistants, and clerks/administrative officers, the SCPI program could be tailored to address those specific competencies. The drive behind the SCPI program was to enable CMS management to achieve the following:

- Identify non-compliance within warehouse operations and prioritize tasks to promote change in non-compliance areas
- Leverage change management processes to ensure sustainability of the applied changes
- Identify further capacity development needs for CMS staff to improve capabilities in state-of-the-art warehouse regulations and requirements
- Identify KPIs against which CMS performance could be benchmarked over the course of the SCPI program and beyond.

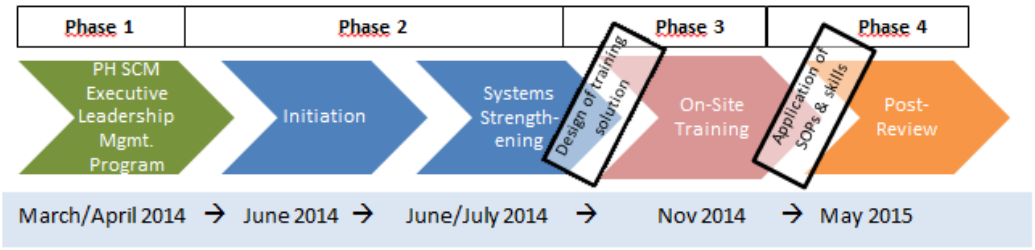
The following specific outputs of the SCPI program were expected to result from the above-mentioned achievements:

- Updated SOPs and process flows in line with ISO (International Organization for Standardization) standards and WHO good warehousing practices
- Updated job descriptions
- Increased staff capacity to implement tasks and activities as outlined in the SOPs
- Improvements in KPIs and self-inspection checklists as a result of increased staff capacity, as well as an organizational cultural shift that values such metric systems
- Implementation of a quality management system to manage SOP revisions, including a filing system.

Methodology

SCMS, through its South Africa warehousing and distribution partner, Imperial Health Sciences, designed SCPI to be rolled out over the three phases described in the previous section. However, during the initial management meetings to outline the scope of pilot implementation of SCPI in Namibia, the SCMS team, including MSH (the SCMS-Namibia project implementer) proposed a few adaptations to the originally designed SCPI program to best suit Namibia's needs and staffing structures. Figure 8 visually displays how SCPI was modified to four phases for Namibia, and illustrates the timeline and components of the SCPI pilot program. Given the ongoing supply chain challenges occurring at the central level in Namibia, the SCPI pilot program focused primarily on the CMS level.

Figure 8: SCPI Pilot Program with Phases Modified for Namibia



The four-phase methodology included the series of activities briefly described in Table 10.

Table 10: Activity 4—SCPI Program Steps and Descriptions by Phase

Steps	Description
Phase 1: Initiation	
1. Public Health SCM Executive Leadership Management Program	Equip the newly hired CMS managers with essential management and leadership competencies, based on pharmaceutical supply chain principles, for effective stewardship of SCPI program implementation.
Phase 2	
2. Initiation	Outline the key components of SCPI with the main stakeholders. Complete the "SCPI Self-Inspection Checklist." (See Appendix 6 to assess CMS compliance on 251 different supply chain areas and record a baseline for CMS performance.) Select and prioritize activities to address identified gaps

	and design on-site training curriculum to overcome those gaps.
3. Systems Strengthening	Meet with CMS management to review and update systems and procedures critical to ongoing training and capacity building, including process flows, SOPs, quality management, and job descriptions. Establish KPIs for the overall SCPI program in Namibia. Identify in-country SCPI academic training partner to accredit and continue to offer SCPI training in the future.
4. Design of Training Solution	Adapt the existing SCPI warehousing best practices curriculum, based on ISO, WHO, and Good Warehouse Practice/Good Distribution Practice standards, to address the identified CMS gaps and suit the varying competency levels of CMS management and staff.
Phase 3	
5. On-Site Training	Provide on-site competency-based two-week training within the physical warehouse—alternating between theory-based training sessions in a classroom format and in-the-warehouse observed training.
6. Application of SOPs and Skills	As part of the on-site training, include time for participants to directly apply what they learned in a warehouse setting under the supervision of trainers, managers, and supervisors. Assess SOP knowledge through both a competency exam as well as direct observation.
Phase 4	
7. Post-Review	Assess how well staff at the CMS implemented the methodologies and processes in which they were trained. Complete a follow-up of the SCPI Self-Inspection Checklist and analyze KPI measures established in Phase 1 to determine system improvements. Share results with stakeholders and CMS senior management to help direct ongoing implementation of best practice standards at the CMS in the future.

Findings

Over the course of just over 12 months and four different phases, the SCPI program gained extensive insight into operations at the CMS and particularly the CMS's distribution section. The program also made significant strides in building the capacity of the supply chain workforce within the CMS. This first-ever pilot of phased performance improvement spanned a wide range of concepts and activities—from executive leadership engagement and SOP development to interactive, competency-based training activities. The findings and recommendations demonstrate the valuable potential for other countries to apply this suite of performance improvement activities.

At the conclusion of the post-review phase (Phase 4), the impact of SCPI was evident. Not only were improvements observed in the baseline measures of the established KPIs, but numerous lessons also were learned from the initial pilot. In addition to the KPI progress measured, the consultants implementing the SCPI program successfully completed the following for the CMS:

- Reformatted and updated existing operational SOPs and developed new core SOPs (i.e., quality, health and safety) that were not previously available at the CMS
- Reviewed and redesigned of all process flows, including:
  - Receiving and acceptance procedures
    - Cold chain
    - General pharmaceutical and clinical supplies
    - Security products and Schedule 4

- Put away process
- Order capture procedures
- Picking procedures
- Packing and checking procedures
- Dispatch of customer order procedures

- Reformatted and updated job descriptions to include a focus on KPIs and developed "to be" job descriptions based on competency mapping findings to be used when the CMS staffing structure is updated
- Designed a quality manual and a health and safety file, enabling effective quality management of services and products
- Designed a site master file, readying the CMS for inspections
- Tailored a two-week on-site training curriculum (see detailed outline in Appendix 7, including session objectives).

Progress against key performance indicators

The SCPI program resulted in clear improvement in the following four KPIs:

- Percentage of self-inspection checklist items found to be compliant
- Percentage of functions completed according to SOPs
- Order fulfillment rate
- On-time delivery rate from central to lower level.

***Percentage of self-inspection checklist items found to be compliant*.** During the initiation phase at baseline, 84 out of 251 (33%) areas inspected were found to be compliant; by the completion of SCPI, compliance increased to 180 out of 251 (72%) of the areas inspected. The SCPI program thus facilitated an 110% increase in compliance—an overall change of 39% (from 33% to 72%).

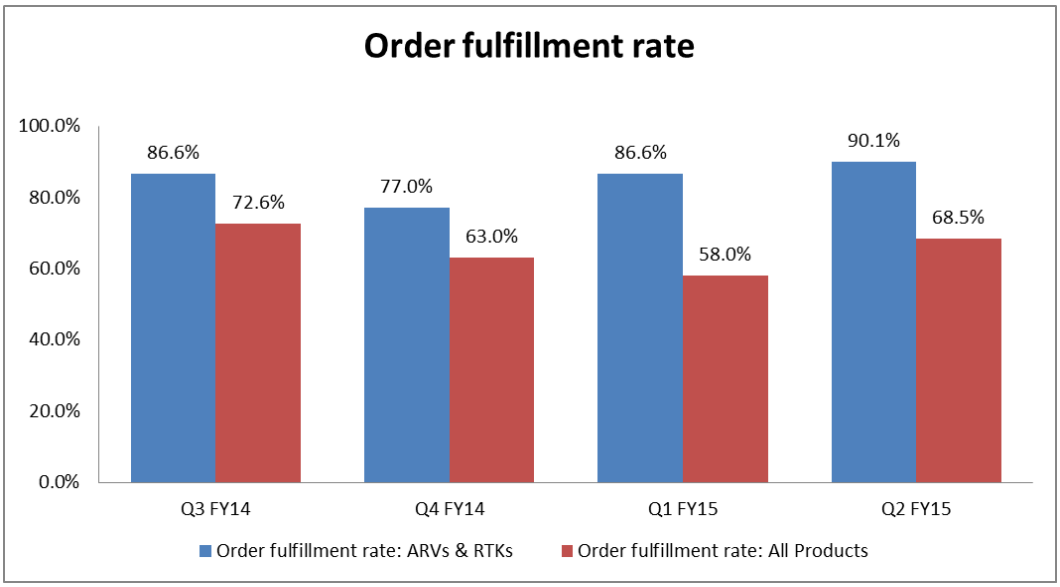
***Percentage of functions completed according to SOPs*.** This KPI was not measured at baseline because the SOPs were not fully implemented or documented at the CMS, and the SCPI program required a comprehensive review and update of all SOPs for the CMS's distribution section. During the post-review phase, a consultant conducted interviews with the individuals responsible for the various areas (receiving, warehouse, and dispatch) in distribution and through observation confirmed the interview findings to complete the SOP implementation checklists. On completion of this intervention, the CMS SOP compliance rates ranked as follows:

- Operational SOPs: 96%
- Quality SOPs: 55% (brand-new to the CMS)
- Health and safety SOPs: 42% (brand-new to the CMS).

***Order fulfillment rate*.** At the start of the SCPI program, CMS order fulfillment rates for ARVs (considered full-supply commodities) were at an all-time low of 77% in the fourth quarter of fiscal year 2014 (FY14); these gradually increased to above 90% in the second quarter Q2 of FY15 during the post-review (see Figure 9). However, the order fulfillment rates (also known as service levels) for other essential medicines did not rise above the "acceptable" level of 80% over the entire year. While the ARV

fulfillment rate increased, the SCPI program likely had no impact on either ARVor other product fulfillment. The underlying cause of fulfillment rate problems were related to the absence of long-term contracts with suppliers.; this absence resulted in multiple requests for quotations and long order replenishment cycle times—two areas in which the SCPI program did not focus. Order fulfillment remained a challenge for the CMS throughout the implementation of SCPI.

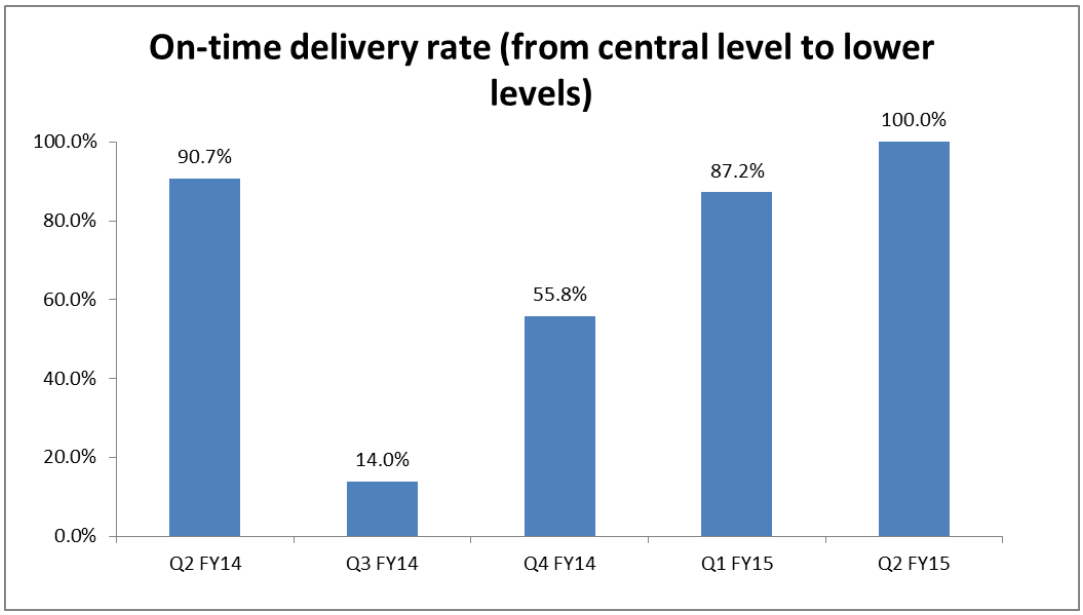
Figure 9: Namibia Public Health Supply Chain Order Fulfillment Rate during the SCPI Program



Key: ARV: Antiretroviral; RTK: Rapid test kit.

***On-time delivery rate from central to lower level*.** From an all-time low of 14% in the third quarter of FY14 due to multiple procurement and distribution challenges outside SCPI's control, CMS on-time delivery of orders to health facilities improved remarkably to 100% (see Figure 10) as a result of multiple factors including the SCPI program. Additionally, CMS recruited new drivers, work hands, and pharmacists and also instituted weekly distribution section staff meetings. As a result of the 2014 procurement crisis, the Deputy Permanent Secretary attended the weekly CMS management meetings. Increased capacity building coupled with active management and oversight likely contributed to the increased on-time delivery rates.

Figure 10: Namibia Public Health Supply Chain On-Time Delivery Rate during SCPI Program



Systemic findings

Local buy-in and stewardship. Central to the success of any SCPI program is continuous local buy-in and stewardship of the SCPI initiative at all phases. The change management process involved in the SCPI program requires buy-in and stewardship from both senior and frontline management that must be sustained throughout the program. The SCPI executive leadership program created the awareness for change among senior management and was a valuable addition to the overall program.

Flexible structure. The SCPI framework provides a state-of-the-art yet flexible structure that can be tailored or adapted to a variety of circumstances affecting a CMS or RMD. For example, in the original design, the initiation phase was intended to lead directly to development of the training curriculum and delivery of the on-site training. In the context of Namibia and after the initial assessments and visit, the CMS leadership indicated its desire to rethink some of the CMS systems before launching into training. Imperial Health Sciences consultants were able to adapt the SCPI model, conducting a systems strengthening exercise to review systems and procedures critical to ongoing training and capacity building. The training curriculum was then updated to reflect this new systems focus.

Pre-program assessment. Although the SCPI program framework is flexible and adaptable, any changes, especially to the system strengthening component, are likely to have a significant impact on the program scope, timelines, and budget. A pre-SCPI assessment may be necessary to thoroughly review the local client environment and systems before planning and designing the adaptation and budget for actual SCPI activities.

Impact of staff morale. Staff morale can affect the effectiveness of the SCPI program. Management buy-in for change is important, but staff buy-in and morale are equally important. At the onset of the training, it was clear that staff morale was at a low. SCPI facilitated open discussion of issues between management and staff, which in turn generated practical recommendations. Staff would have been less open to making changes in the absence of clear communication about the benefits of the changes.

Relevance of organizational structure. Central medical stores in various countries operate under diverse organizational and management structures. The existing organizational structure affects the change management process, including the level of autonomy and control that CMS managers can exercise over functions and resources such as procurement, staff deployment, training, and performance management. To achieve sustainable institutional change where the CMS is embedded within the Ministry of Health and under the civil service structure, as is the case in Namibia, requires coordinated involvement and support of multiple actors.

Importance of practical application and evaluation. In Namibia, the classroom-based training was completed and proved beneficial to staff, but the ongoing procurement crisis and delivery delays prevented the on-site training component of Phase 3 from being entirely completed. Comprehensive training requires classroom learning and on-the-job application of newly gained skills, both of which are extremely important in ensuring that new skills are engrained into participants' understanding and also evaluated continuously over time.

In-country certification and local credibility. Currently, the SCPI program is accredited by the South African Department of Higher Education and demonstrates in-country ownership through a partnership with a local South African University that has aligned the training content with the requirements of the Department. In South Africa, the complete SCPI program contributes 30% of the credits required for a Bachelor's degree in Logistics. SCPI aims to align itself with other African universities in order to ensure the local availability and sustainability of the program. However, efforts to accredit the SCPI with the Namibian German Centre for Logistics (NGCL) at the Polytechnic of Namibia were not immediately successful due to changes in leadership at these institutions. The Polytechnic of Namibia was also reluctant to invest in accreditation of the course with the Namibia Qualifications Authority without being assured of the demand for the course through a commitment from the MOHSS accreditation requirements by the South African University in Namibia. *A key lesson learned is that in-country certification is a lengthy process requiring technical support to the targeted institution to build a business case that will justify the investment needed to introduce and accredit a new course.*

Recommendations

It is recommended that the following issues be addressed by management, both at the CMS and within higher levels of the MOHSS:

1. **Implement continuous professional development and mentorship for CMS management and staff.**
   It is important that the current management of CMS receive support to ensure that they will be successful in carrying out their required functions. This support includes leadership and management development and a dedicated mentor to help ensure, introduce, and/or reinforce the required management skills and self-confidence in a timely fashion. Additionally, CMS staff would benefit from more regular monitoring and supervision of their performance and opportunities for professional advancement.

2. **Hold compulsory standard operating procedures refresher training annually for the CMS and extend to the RMDs.**
   SOPs need to be reviewed annually and staff trained to ensure that all CMS staff members are informed of any changes or updates. This also allows new staff to gain the appropriate skills and implement the SOPs effectively. More frequent (monthly and on a rotational basis) SOP training that takes a hands-on approach will ensure that the correct procedures are followed and that

quality standards are maintained within the CMS. SOPs also should be revised for the RMDs, and SOP training extended to RMD staff.

3. **Maintain weekly staff meetings.**
   It is extremely important that the management of the CMS engage with its workforce regularly. This will ensure that CMS management and team members can openly discuss and learn about successes and challenges in their work environment.

4. **Elevate the CMS to become a Directorate under the MOHSS.**
   This strategic move would allow the CMS to gain some autonomy and flexibility to adopt best practice activities and behaviors. It would also elevate supply chain management issues to the senior management level, enabling more effective advocacy for resources and resolution of supply chain bottlenecks such as those currently plaguing the procurement of medicines. With this elevation, it expected that human resources performance management would be accorded greater attention, with dedicated staff to coordinate staff recruitment, deployment, on-boarding, performance appraisal (including disciplinary matters and separation), and retention and performance incentives.

5. **Review the staff structure to establish posts for critical areas of responsibility.**
   Three positions are recommended at the CMS to ensure a well-functioning facility and to promote accountability. (Draft job descriptions for these positions have already been designed.)

   - Head of CMS (Director): Provide overall strategic direction for the CMS while the Chief Pharmacist takes the role of the Responsible Pharmacist.
   - Inventory Manager: Focus on the core task of monitoring inventory across the entire supply chain, forecasting future requirements as well as carrying out supply planning.
   - Quality Assurance Pharmacist: Take responsibility for the quality management system at the CMS, including undertaking self-audits and instigating corrective actions.

6. **Continued engagement between the MOHSS and NGCL/Polytechnic.**
   It is recommended that the MOHSS establish a memorandum of understanding with the NGCL to clarify the way forward for the SCPI. It is important that the two partners remain engaged to ensure that the SCPI is utilized to its full potential within Namibia. It is also recommended that the partners ensure that the SCPI material is accredited by the Namibian Qualifications Authority.

7. **CMS managers require continuous professional development and mentorship.**
   It is important that the current management of the CMS receive all the required support to ensure its success in managing the required functions. CMS management requires further management development and a dedicated mentor. These recommendations will ensure that the team gains the required skills and self-confidence sooner rather than later.

A separate technical report provides the full results and recommendations of "Activity 4: SCPI Program."

Activity 5: Documentation of the Collaborative Process and Sharing of Lessons Learned

Purpose and Expected Outputs

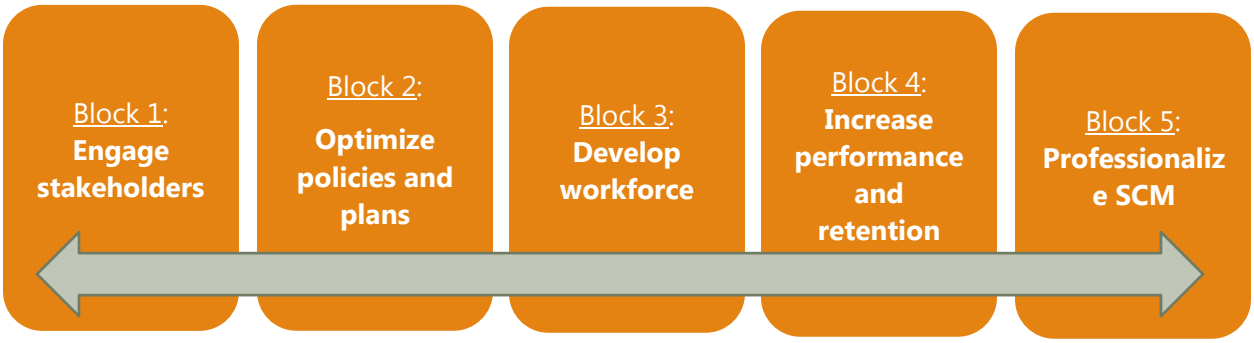
The purpose of Activity 5 was to share experiences and lessons learned from the Namibia collaboration with other governments and organizations undertaking similar efforts, and to formulate recommendations that could guide future collaborative efforts. Increased knowledge and understanding about how HRH approaches and tools can be used to achieve sustainable excellence in the supply chain workforce can contribute to an improved supply chain and better health system performance. The expected outputs of this activity were:

- Detailed technical reports for each activity
- A general synthesis document for use by the Namibian government
- A set of recommendations and lessons learned for Namibia as well as for other governments and organizations.

Methodology

The government and the collaborating PtD-Namibia team developed a common framework and plan of action with clearly defined deliverables, engaged in ongoing monitoring of progress and challenges, held regular information and knowledge-sharing meetings, discussed operational next steps, and proposed ways to address any impediments encountered. As part of the monitoring and documentation process, they produced detailed technical reports for each activity, and analyzed the process and results of each activity in relation to the scope of supply chain workforce strengthening, collaboration, and integration as well as the PtD human resources building blocks for supply chain management (see Figure 11).

Figure 11: Human Resources Building Blocks for Supply Chain Management



Source: Adapted from PtD 2014c.

Detailed Technical Reports

Technical leads for each activity documented findings and lessons learned in order to compile comprehensive technical reports for each individual activity:

- Activity 1: Competency mapping technical report
- Activity 2: WISN technical report
- Activity 3: Rapid retention study technical report
- Activity 4: SCPI technical report

- Activity 5: This synthesis report serves as the final technical report for the overall activity.

Recommendations

The integrated set of activities applied through the PtD collaboration produced evidence-based recommendations for strengthening the supply chain workforce. Activity outputs included validated supply chain competency frameworks, staffing needs estimates based on actual workload pressures, proposed salary and benefits packages to more effectively attract and retain health workers, and improved supply chain performance monitoring and improvements in relation to four key performance indicators.

The preceding Activity 1-4 sections provided detailed activity-specific recommendations, some of which were implemented within the time frame of the project or taken forward by the MOHSS, such as revising standard operating procedures and job descriptions. Additional recommendations are under discussion, such as updating staffing norms, scaling up education programs, and introducing salary and benefits packages. Nevertheless, within a short time frame, and primarily due to the heightened attention to supply chain management and capacity building at the CMS level, several of the key performance indicators already show improvements, including a better on-time delivery rate and fewer emergency orders. The intention of Activity 5 was to draw conclusions from the Namibian collaboration, generating the following recommendations to share with other countries and organizations.

Engage all levels of the supply chain and seek involvement across sectors

Various constituencies are essential in assuring the transparent and equitable allocation of health system resources within supply chains (e.g., finance, labor) and planning (e.g., education, social welfare, commerce). Such constituencies can provide technical and advocacy leadership in the fields of supply chain management and human resources management as well as furnishing financial resources. The success of any effort to improve the supply chain workforce is dependent on the commitment, engagement, leadership, and support of key stakeholders, particularly many in government. Other potential partners include professional associations, nongovernmental organizations, and the private and not-for-profit sectors.

1. Begin a collaborative process with government officials who have a vested interest in SCM as well as HRH, as well as with possible technical assistance providers and financing stakeholders, to understand who could do what, how, when, and where to improve the supply chain workforce.
2. Create a supply chain workforce steering group representing key stakeholders, public sector entities (e.g., health, education, labor, finance), educational and training institutions, and professional associations to guide and connect supply chain workforce policy and strategy development, planning, and implementation of activities (such as the overall collaboration described in this synthesis document).
3. Take advantage of external supply chain and HRH knowledge, technical expertise, and financing, as applied to the country context, with the government maintaining leadership and coordination.

Integrate results into evidence-based policies, strategies, and plans

Effective human resources policies and strategies provide a system of human resources practices for a particular job or collection of jobs aimed at facilitating the best employee performance to meet organizational goals. An appropriate workforce plan will: account for all levels of the health system

(including supply chain professionals); identify current and future human resources needs; align with the organizational design; use timely information from a human resources information system; and project the estimated resources needed to finance successful implementation. However, few national HRH development strategies and plans include explicit consideration of the supply chain workforce, nor does it tend to be addressed in national supply chain plans. Also often lacking is an information system that provides reliable data for health sector management to plan for and train necessary staff, appraise staff performance, and provide appropriate incentives and financial commitments.

Investment in the supply chain workforce can pay off with improvements in the efficiency and effectiveness of the health system as a whole. Those in the health and public finance sectors need to be aware and supportive of the evidence base for increasing supply chain human resources and consider long-term funding needs.

1. Explicitly address the supply chain workforce as a critical component of national HRH policies, strategies, and plans and within national supply chain policies, strategies, and plans.
2. Strengthen the HRH management information system with respect to the supply chain workforce so that the latter is prioritized and integrated into HRH efforts.
3. Ensure that those in the public health sector responsible for formulating, reviewing, and approving annual, medium-term, and long-term budgets are well apprised of supply chain workforce needs.

Clarify supply chain workforce competencies and career pathways and promote continued professional development

Supply chain workforce development is the process of building a workforce with the knowledge, skills, and attributes required to operate supply chain functions. The requisite knowledge, skills, and attributes are drawn from competency models, which provide a structured framework for recruiting, evaluating, and developing a qualified workforce. For any supply chain workforce, in addition to preservice education and in-service training, there should be opportunities for career advancement and professional growth. Having in place career pathways based on merit will increase the likelihood of a skilled and retained supply chain workforce. As a companion to improved education and training, competent and supportive supervision is essential so that any health worker engaged in some aspect of supply chain performance understands what needs to be done and can look to a professional to provide guidance.

1. Promote frequent interaction and dialogue between the education, health, and labor sectors to ensure that education programs respond to labor market needs, and that the labor market can absorb the graduates produced by the education sector.
2. Complete competency mapping of supply chain tasks, including at hospitals, health centers, and clinics, to ensure that supply-chain-related competencies are incorporated into the education of all relevant health workers and public sector employees.
3. If new academic programs or courses are needed, the Ministry of Health should engage in developing them with the appropriate national education and training authorities and institutions. Identify and strengthen local institutions to provide in-service training and/or implement performance improvement programs.
4. Create streamlined educational pathways, such as career ladder programs, that provide progressive, unified, and continuous development of competencies with exits into service followed by re-entry into study programs to upgrade knowledge and skills. Service leaves

between steps in the education ladder are important components of the program, providing opportunities for graduates from lower-level programs to serve and learn before re-entering a program at a higher level. Different academic credentials can be awarded at each step of the ladder, starting, for example, from a certificate, followed by a diploma, degree, and postgraduate awards (WHO 2013).

Build greater capacity to implement, monitor, and improve workforce retention, productivity, and performance interventions

Performance and productivity management is the systematic process of planning work, setting expectations, periodically rating performance in relation to job criteria, and determining what factors will retain skilled workers. Factors influencing supply chain performance include: organizational and management systems supporting the desired performance; incentives for the employee to perform and remain with the system; having adequate tools and a supportive working environment; employees having the knowledge and skills to do their jobs; personal attributes such as internal motivation and ability to work with others; and the external environment, such as national policies, societal norms, and socioeconomic conditions, which either impede or support the ability of the supply chain to function.

1. Develop or update standard operating procedures, key performance indicators, and clearly defined scopes of practice and job descriptions. Staffing norms should be based on actual workload pressures using the WISN approach. As supply chain tasks are streamlined or redistributed from one cadre to another, or new cadres are introduced, or functions devolve from one level of the system to another, WISN calculations should be rerun to update workload-based estimates of staffing needs and revise staffing norms.
2. WISN activity standards should be used to measure actual productivity. When defining activity standards, a local technical working group considers the time necessary for a trained, skilled, and motivated worker to perform each activity to a satisfactory standard within the particular environment.
3. Consider using the Health Workforce Productivity Analysis and Improvement Toolkit[5] (Maestad et al. 2014) to compare HR inputs and service delivery outputs across sites and over time.

Prioritize professionalization of supply chain personnel across the workforce life cycle

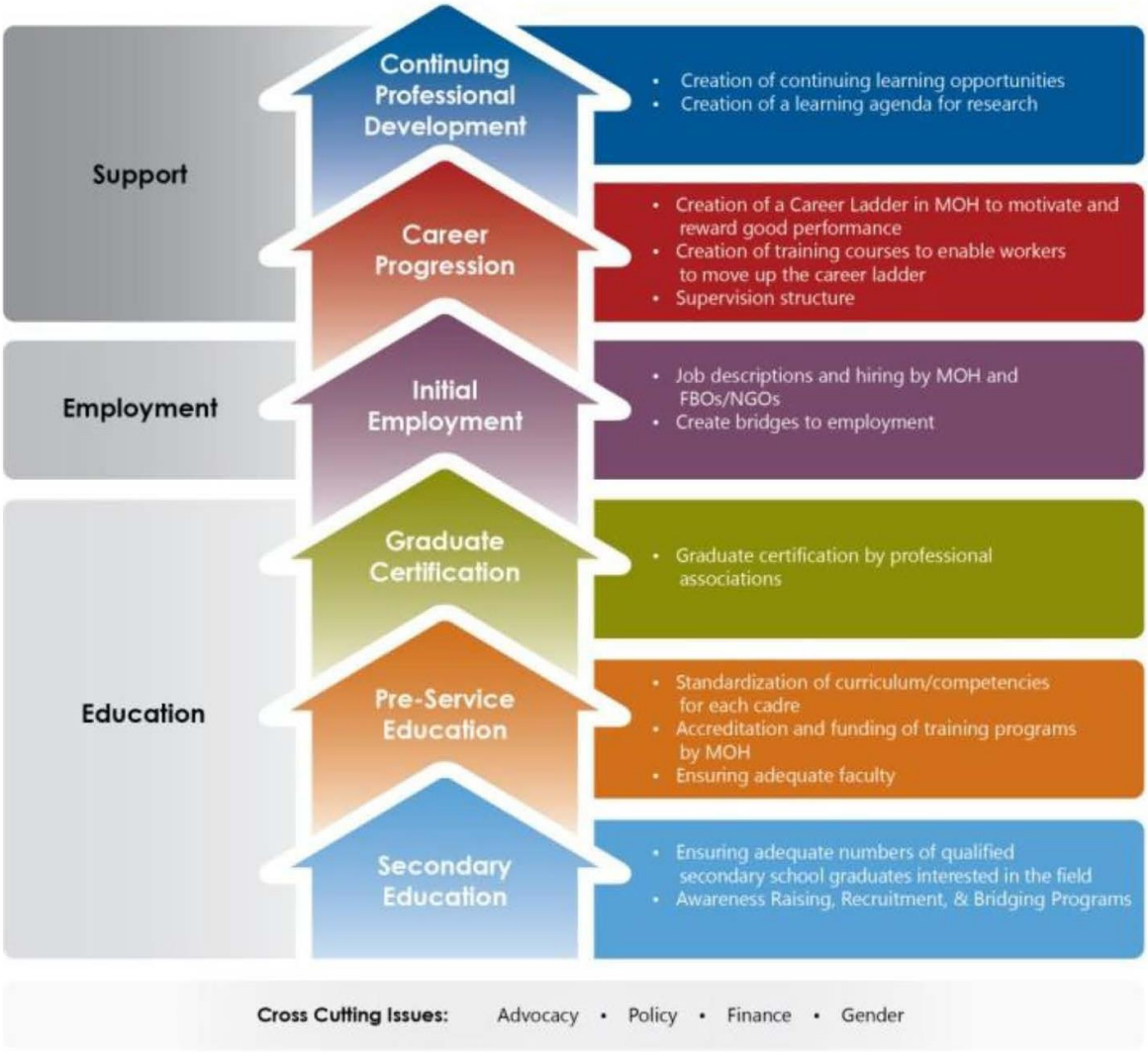
Professionalization is the process of recognizing a set of responsibilities or shared tasks as an established profession with standardized competency expectations. Those filling a professionalized role need to have completed an established curriculum that results in recognized credentials (either preservice or in-service) and is designed to develop the knowledge, skills, and attributes required by the tasks for successful completion. The life cycle approach to health worker professionalization describes the sequence of steps from secondary education, preservice education, graduate certification, initial employment, career progression and incentives, to continuing professional development (Figure 12).

In Namibia the need to have a professional voice was reflected in establishment of a pharmacist assistants' association to advocate for this cadre and provide a forum for sharing information and discussing innovations. The thought is that such bodies can more effectively advocate for specific career pathways in supply chain management, which do not yet exist either under health or nonmedical health and social-related career opportunities.

[5] http://www.capacityplus.org/productivity-analysis-improvement-toolkit/

1. Use the PtD competency compendium to guide the development or strengthening of competency frameworks for supply chain staff that are aligned with a country's supply chain system.
2. Use the resulting frameworks to institutionalize education and training programs that:
    - Provide recognized credentials for supply chain staff and careers in supply chain management
    - Incorporate aspects of supply chain management into the education and training of relevant clinical staff.
3. Develop career pathways that connect education and practice in a stepladder approach from junior to mid-level and senior positions, such as from pharmacist assistant to pharmacy technician to pharmacist—or from a clerk/administrative officer to a supply chain manager.
4. Update scopes of practice and job descriptions for supply chain staff.
5. Create or strengthen national professional associations for staff with supply chain responsibilities.

Figure 12: Life Cycle Approach for Professionalization of Under-Recognized Health Workforce Cadres



Source: Capacity*Plus 2013.*

Lessons Learned

The PtD-Namibia experience garnered two general lessons to consider prior to initiating a collaboration of the type described in this report.

Follow "end-to-end" scope in supply chain workforce strengthening

National health supply chains are a sequence or system of organizations or operations that connect central medical stores to subnational depots and health facilities and, in so doing, work together to deliver health commodities to people who need them. Actions to overcome obstacles within one part of the system can fail if made in isolation and without considering other parts of the system. For example, if tasks are shifted or shared from the central medical stores to regional medical depots to relieve workload pressure at the central level, but no efforts are made to increase workforce capacity at the regional level, then bottlenecks will be simply shifted from one level of the system to the next. Furthermore, certain actions within a facility may be difficult to implement without assistance from

associated systems components. For example, expanding the scope of practice of clerks/administrative officers requires the engagement of education and health leaders to drive forward not only the revision of scopes of practice but also related changes in human resources policies, practices, education, and financing.

1. Recognize that a competent and productive supply chain workforce is crucial to the effective, efficient, and sustainable functioning of a national health supply chain.
2. Appreciate that efficient supply chain workforce planning necessitates a comprehensive, optimized, and costed supply chain system design to determine the best use of resources, including human resources.
3. Focus on the entire system—from the national to subnational and facility levels—to build a supply chain workforce that is capable of ensuring that quality health commodities not only enter the system but are distributed where and when needed to reach the "last mile."
4. Define and measure key indicators of supply chain performance not only at the central level but also at the regional and facility levels.

Collaborate across partners via an integrated suite of activities

The use of the global PtD expertise and platform, coupled with effective partnership of several USAID-funded projects and leadership by the government of Namibia, represents an example of effective collaborative work over an extended period of time. The collaboration allowed the individual partner organizations to provide expertise in their specializations, bringing together skill sets in supply chain management and human resources for health with the objective of providing the greatest potential benefit for the people of Namibia. PtD, through member partner SCMS, coordinated regular teleconferences with partners in Namibia, the United States, and from the Copenhagen-based PtD leadership; was a global information resource; and provided teleconference minutes on progress and actions to be taken.

1. Engage potential technical and donor partners in the effort to improve the supply chain workforce, with the government partner both leading and facilitating the process.
2. Develop a clear scope of work, deliverables, and clearly defined roles and responsibilities for the collaboration, further detailed in an implementation workplan with indicative timelines and sufficient flexibility to allow for in-country and technical advisor changes in availability.
3. Secure funding for the implementation workplan and leverage multiple sources of financing from collaborating partner entities as well as ministerial support.

CONCLUSION

Many countries recognize the importance of the health supply system as an essential element in achieving national health sector strategies and reforms. There is, however, a tendency for countries to acknowledge the supply chain system's importance on a "business-as-usual" basis, and in a largely unsystematic way—concentrating on the infrastructure and the goods—and not on the workforce. Yet the supply chain workforce is a critical component of the health supply chain and can either facilitate or hamper well-intentioned investments in the supply chain and more broadly in the health sector. For example, PEPFAR's goal for an AIDS-free generation will not be achieved without having a well-skilled and well-distributed health supply chain workforce providing the prevention, care, and treatment supplies needed.

Namibia is among the countries leading efforts to recognize the importance of the supply chain workforce in reducing high levels of HIV, tuberculosis, and malaria, and addressing family planning needs. These are among its key national health goals, and it is taking steps to better address supply chain workforce needs in a broad policy, personnel, and programmatic context. Namibia was the first country, with the support the PtD Initiative through two USAID project partners, to apply a suite of supply chain human resources activities to gain a deeper understanding on the way forward. The government has accepted the notion that the supply chain is a multilevel system with connected sets of components that interact to achieve results, and the government recognizes that it needs to actively manage the supply chain human resources process and continue to engage in improvement and oversight.

Other countries should reflect on the path that Namibia is taking and recognize that health supply chains are "people chains." These chains are staffed by different types of workers at different levels of the health system with varying educational and training backgrounds, and requiring development and implementation of comprehensive HR strategies that maximize supply chain contributions to national health priorities. No single cadre of worker can be educated and trained to undertake all functions and tasks within a health supply chain. Rather, a strong workforce will be composed of personnel at the national, district, and health facility levels whose primary responsibilities are to ensure the optimal functioning of health supply chains—such as pharmacists, logisticians, supply chain managers, data managers, and warehouse and transport personnel—as well as people who contribute only a portion of their time to supply chain functions, such as doctors, nurses, and other clinical and administrative staff. Countries that view the health supply chain workforce from this perspective will significantly increase the likelihood that their national supply chain system will be a major contributor in reaching national health and vulnerable population objectives and achieving the post-2015 Sustainable Development Goals.

REFERENCES

Aboagye-Nyame, F., L. Akhlaghi, and V. Dias. 2003. An assessment of the public sector pharmaceutical supply system of the Republic of Namibia. Submitted to the U.S. Agency for International Development by the Rational Pharmaceutical Management Plus Program. Arlington, VA: Management Sciences for Health. http://www.who.int/hiv/amds/en/country9.pdf (accessed July 23, 2015).

Ahmad, A. 2014. Overview of WISN methodology. Presentation delivered at the Third Global Symposium on Health Systems Research, Cape Town, South Africa, September 29.

Brock, T., T. Wuliji, E. Sagwa, and D. Mabirizi. 2009. Technical report: Exploring the establishment of a pharmacy course at the University of Namibia, March 12–27, 2009. Arlington, VA: Management Sciences for Health, Strengthening Pharmaceutical Systems. http://pdf.usaid.gov/pdf_docs/Pnadu430.pdf (accessed July 23, 2015).

Campbell J., G. Dussault, J. Buchan, F. Pozo-Martin, M. Guerra Arias, C. Leone, A. Siyam, and G. Cometto. 2013. A universal truth: No health without a workforce. Forum report, Third Global Forum on Human Resources for Health, Recife, Brazil. Geneva, Switzerland: Global Health Workforce Alliance and World Health Organization. http://www.who.int/workforcealliance/knowledge/resources/GHWA-a_universal_truth_report.pdf?ua=1 (accessed July 7, 2015).

Capacity*Plus.* 2013. Professionalization of under-recognized health worker cadres. Capacity*Plus*/IntraHealth International. http://www.capacityplus.org/files/resources/under-recognized-cadres-overview.pdf (accessed July 11, 2015).

Deussom, R., M. Titus, and L. Kazembe. 2015. Strengthening the supply chain management workforce in Namibia: Results of a rapid retention survey for pharmacists and pharmacist assistants. Washington, DC: Capacity*Plus*/IntraHealth International. http://www.capacityplus.org/files/resources/rapid-retention-study-Namibia.pdf (accessed September 15, 2015).

Dussault, G. and C-A Dubois. 2003. "Human resources for health policies: A critical component of health policies." *Human Resources for Health* 1: 1. doi:10.1186/1478-4491-1-1

Government of Namibia. n.d. Census-projected population. http://www.gov.na/population (accessed July 7, 2015).

Habimana, G., B. Ongeri, A. Wolde, E. Sagwa, J. Lates, and D. Mabirizi. 2012. Government stewardship in sustaining uninterrupted availability of antiretroviral medicines towards achieving universal treatment coverage in Namibia. Presented at 19th International AIDS Conference, Washington, DC: Abstract no. MOPE 739. http://pag.aids2010.org/pagmaterial/aids2012/eposters/16756.pdf (accessed July 7, 2015).

Hasselberg, E., L. Indongo, T. Ngulu, K. Kambyambya, and B. Ongeri. 2014. "Improving access to health commodities by strengthening the supply chain management workforce: The case of Namibia." *Journal of Pharmaceutical Policy and Practice* 7, Suppl 1: O6.

Hasselberg, E., A. Van Buuren, B. Ongeri, and B. McHenry. 2014. Public health supply chain competency mapping in Namibia: Results and recommendations from the People that Deliver Initiative collaboration

between the Ministry of Health and Social Services, SCMS, and Capacity*Plus*. Submitted to the US Agency for International Development by the Supply Chain Management System (SCMS).

Huber, J. 2005. Conjoint analysis : How we got here and where we are (an update). Sawtooth Software Research Paper Series. http://www.sawtoothsoftware.com/support/technical-papers/general-conjoint-analysis/conjoint-analysis-how-we-got-here-and-where-we-are-an-update-2004 (accessed July 5, 2015).

Jaskiewicz, W., R. Deussom, L. Wurts, and G. Mgomella. 2014. Rapid retention survey toolkit: Designing evidence-based incentives for health workers. Washington, DC: Capacity*Plus*/IntraHealth International. http://www.capacityplus.org/rapid-retention-survey-toolkit (accessed July 5, 2015).

Johnson, R.M. 2001. History of ACA. Sawtooth Software Research Paper Series. https://www.sawtoothsoftware.com/download/techpap/histaca.pdf (accessed July 5, 2015).

Kapitako, A. 2014. "Namibia receives pharmacists from Ethiopia." *New Era*, September 16. https://www.newera.com.na/2014/09/16/namibia-receives-pharmacists-from-ethiopia/ (accessed September 8, 2015).

Levenger, M., B. Ongeri, A. Wolde, and H.R. Kagoya. 2013. Namibia national supply chain assessment: Capability and performance. Submitted to the US Agency for International Development by the Supply Chain Management System (SCMS).

Management Sciences for Health (MSH). 2006. Human capacity development assessment for public sector pharmaceutical services in Namibia: Strategies to scale up HIV/AIDS programs and ART therapy. Submitted to the US Agency for International Development by the Rational Pharmaceutical Management Plus Program and the Management and Leadership Program. Arlington, VA: Management Sciences for Health. http://pdf.usaid.gov/pdf_docs/Pnadg530.pdf (accessed July 23, 2015).

Management Sciences for Health (MSH). 2014. Competency Framework for a Pharmacy Technician. Windhoek, Namibia: Systems for Improved Access to Pharmaceuticals and Services. Submitted to the Ministry of Health and Social Services.

McQuide, P., R-L Kolehmainen-Aitken, and N. Forster. 2013. "Applying the Workload Indicators of Staffing Need (WISN) method in Namibia: Challenges and implications for human resources for health policy." *Human Resources for Health* 11, no. 1: 64.

Maestad, O., L.I. Berge Oppedal, K. Leonard, W. Jaskiewicz, and R. Deussom. 2015. *Health Workforce Productivity Analysis and Improvement Toolkit.* Washington, DC: USAID/Capacity*Plus*, IntraHealth International. http://www.capacityplus.org/productivity-analysis-improvement-toolkit/ (accessed September 15, 2015).

Ministry of Finance [Namibia]. 2012. Mid-term expenditure framework 2012-2015. Windhoek, Namibia: Minstry of Finance.

Ministry of Health and Social Services (MOHSS) [Namibia]. 2007. Human resource development: Annual report 2006/2007. Windhoek, Namibia: MOHSS.

Ministry of Health and Social Services (MOHSS) [Namibia]. 2009. Strategic Plan 2009-2013. Windhoek, Namibia: MOHSS. http://www.africanhealthleadership.org/wpc/uploads/MOHSSStrategicPlan.pdf (accessed September 8, 2015).

Ministry of Health and Social Services (MOHSS) [Namibia]. 2014a. Surveillance report of the 2014 National HIV Sentinel Survey. Windhoek, Namibia: MOHSS. http://www.mhss.gov.na/files/downloads/12f_2014%20National%20HIV%20Sentinel%20Survey.pdf (accessed September 8, 2015).

Ministry of Health and Social Services (MOHSS) [Namibia]. 2013a. Directorate of Special Programs, Annual Report (April 2012-March 2013). Windhoek, Namibia: MOHSS. http://www.mhss.gov.na/files/downloads/4f9_MoHSS_AnnualReport_REPRO_WithBleed.pdf (accessed September 8, 2015).

Ministry of Health and Social Services (MOHSS) [Namibia]. 2013b. Report of the Presidential Commission of Inquiry: Ministry of Health and Social Services to His Excellency, President Hifikepunye Pohamba. Windhoek, Namibia: MOHSS.

Ministry of Health and Social Services (MOHSS) [Namibia]. 2014b. Namibia incentives and retention study for remote, rural and hardship areas. Windhoek, Namibia: MOHSS.

Ministry of Health and Social Services (MOHSS) [Namibia]. n.d.(a). Career opportunities within the health and social welfare sector: Policy, planning, and human resources. MOHSS brochure. Windhoek, Namibia: MOHSS.

Ministry of Health and Social Services (MOHSS) [Namibia]. n.d. (b). Standard operating procedures manual for managing pharmaceutical and related supplies at central medical stores. Windhoek, Namibia: MOHSS.

The Nambia Ministry of Health and Social Services (MoHSS) and ICF International. 2014. The Namibia Demographic and Health Survey 2013. Windhoek, Namibia, and Rockville, Maryland, USA: MoHSS and ICF International.

Mongudhi, T. 2014. “Inexperience and theft caused medicine shortage.” *The Namibian*, July 17. http://www.namibian.com.na/indexx.php?archive_id=125723&page_type=archive_story_detail&page=1 (accessed September 8, 2015).

O'Malley, G., L. Asrat, A. Sharma, N. Hamunime, Y. Stephanus, L. Brandt, D. Ali, et al. 2014. "Nurse task shifting for antiretroviral treatment services in Namibia: Implementation research to move evidence into action.” *PLoS ONE* 9, no. 3: e92014. doi: 10.1371/journal.pone. 0092014

Ongeri, B. 2015. Alternative strategies for distribution of pharmaceuticals to public sector health facilities in Namibia. Submitted to the Polytechnic of Namibia in fulfillment of the requirements for the Masters in Logistics and Supply Chain Management.

People that Deliver. 2012. Improving health outcomes through sustainable health workforce excellence in supply chain management: White paper, 3rd edition.

http://peoplethatdeliver.org/sites/peoplethatdeliver.org/files/dominique/files/PtD%20White%20Paper%20EN.pdf (accessed July 7, 2015).

People that Deliver. 2013. Strategic plan: Final version for approval. http://peoplethatdeliver.org/sites/peoplethatdeliver.org/files/418/files/PtD%20Strategic%20Plan%20-%20FINAL%20%28website%20version%29.pdf (accessed July 7, 2015).

People that Deliver. 2014a. PtD competency compendium for health supply chain management: A reference for health supply chains, first edition. (http://www.peoplethatdeliver.org/sites/peoplethatdeliver.org/files/Feb%2014th%20FINAL%20PtD%20Public%20Health%20SCM%20Competency%20Compendium%20with%20ISBN%20and%20CC%20and%20publisher.pdf) (accessed July 7, 2015).

People that Deliver. 2014b. Advocacy toolkit. http://peoplethatdeliver.org/content/advocacy-toolkit (accessed July 7, 2015).

People that Deliver. 2014c. Why human resources in supply chain management are important and how can they be strengthened? http://www.peoplethatdeliver.org/sites/peoplethatdeliver.org/files/1%20WHAT%20is%20an%20HR%20for%20SCM%20approach%20Jan%202014.pdf (accessed July 7, 2015).

Prosser, W. and R. Bechtel. 2014. "Other duties as required: Efficient use of human resources in Mozambique." *Journal of Pharmaceutical Policy and Practice* 7, Suppl 1: O26.

Rennie, T., D. Kibuule, L. Haoses-Gorases, P. Nyarang'o, D. Mabirizi, E. Sagwa, D. Tjipura, G. Mazibuko, K. Payne, R. Indongo, B. Phulu. 2015. Namibia's first school of pharmacy: From creation to graduation. Systems for Improved Access to Pharmaceuticals and Services (SIAPS). http://siapsprogram.org/2015/04/27/namibias-first-school-of-pharmacy-from-creation-to-graduation/ (accessed July 7, 2015).

Sawtooth Technologies. 2015. www.sawtooth.com.

Seifman, R., R. Bailey, and E. Hasselberg. 2013. Applying the HRH Action Framework to develop sustainable excellence in the health supply chain workforce. Technical brief no. 12. http://www.capacityplus.org/new-publication-spotlight-applying-hrh-action-framework-develop-sustainable-excellence-health-supply-chain-workforce (accessed July 7, 2015).

Shipp, P. 1998. Workload Indicators of Staffing Need: A manual for implementation. Geneva, Switzerland: World Health Organization.

Titus M., and B. Ongeri. 2015. Strengthening the supply chain management workforce in Namibia: Applying the WISN methodology to estimate staffing needs. Washington, DC: Capacity*Plus*/IntraHealth International. http://www.capacityplus.org/files/resources/Applying-WISN-method-Namibia.pdf (accessed September 15, 2015).

Titus, M., R. Hendricks, J. Ndemueda, P. McQuide, E. Ohadi, and R-L Kolehmainen-Aitken. 2015. Namibia National WISN Report. Washington, DC: Capacity*Plus*/IntraHealth International.

UNAIDS. 2014. "Accelerating HIV prevention and treatment in Namibia" UNAIDS Feature Story: November 6, 2014. http://www.unaids.org/en/resources/presscentre/featurestories/2014/november/20141106_namibia (accessed September 8, 2015).

United States President's Emergency Plan for AIDS Relief (PEPFAR). 2015. PEPFAR human resources for health strategy: PEPFAR 3.0, February 2015. http://www.pepfar.gov/documents/organization/237389.pdf (accessed July 7, 2015).

USAID | DELIVER PROJECT, Task Order 1. 2010. Logistics management units: What, why, and how of the central coordination of supply chain management. Arlington, VA: USAID | DELIVER PROJECT, Task Order 1. http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/LogiManaUnits_Guide.pdf (accessed July 7, 2015).

USAID | DELIVER PROJECT, Task Order 4. 2013. Human resource capacity development in public health supply chain management: Assessment guide and tool. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4. http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/HumaResoCapaDeve_AsseGuid.pdf (accessed July 7, 2015).

World Health Organization (WHO). 2010a. Workload Indicators of Staffing Need (WISN): User's manual. Geneva, Switzerland: WHO.

WHO. 2010b. Increasing access to health workers in remote and rural areas through improved retention: Global policy recommendations. Geneva, Switzerland: WHO.

WHO. 2011. Transformative scale up of health professional education: An effort to increase the numbers of health professionals and to strengthen their impact on population health. Geneva, Switzerland: WHO.

WHO. 2013. Transforming and scaling up health professionals' education and training: World Health Organization guidelines 2013. Geneva, Switzerland: WHO. http://apps.who.int/iris/bitstream/10665/93635/1/9789241506502_eng.pdf (accessed July 11, 2015).

WHO. 2014a. Global tuberculosis report 2014. Geneva, Switzerland: WHO Press.

WHO. 2014b. Namibia. In World malaria report 2014, p. 127. Geneva, Switzerland: WHO Press. http://www.who.int/malaria/publications/country-profiles/profile_nam_en.pdf (accessed July 11, 2015).

APPENDIX 1: KEY ACTIONS TAKEN FROM 2003 TO 2014

Key Actions Taken to Review and Revise the Namibian Public Sector Human Resources for Health and Supply Chain Management System

2003: As a result of the decision to provide antiretroviral therapy (ART) to all state patients, the MOHSS began focusing on health supply chain management, given the need to cope with huge demands for ART and the need to adequately provide training to staff at Infectious Disease Care Clinics (IDCCs) where ART was principally provided.

2006: With assistance from USAID's Rational Pharmaceutical Management Plus Program, the "Human Capacity Development Assessment for Public Sector Pharmaceutical Services in Namibia: Strategies to Scale Up HIV/AIDS Programs and ART" and the "Standard Operating Procedures Manual for Managing Pharmaceutical and Related Supplies at Central Medical Stores, 2006," were produced (MOHSS n.d. [b]).

2008: As part of a broader University of Namibia (UNAM) strategic health plan, pharmaceutical training was included. USAID's Strengthening Pharmaceutical Systems Program provided technical support toward establishment and training of UNAM pharmaceutical training programs.

2009: The "Ministry of Health and Social Services Strategic Plan (2009–2013)" stated its goal "to provide integrated, affordable, accessible, quality health and social welfare services that is responsive to the needs of the Namibian population" with five broad strategic themes including "Service Provision" and "Human Resource Management." This was further endorsed in the 2010 MOHSS Policy Framework.

2011: SCMS, Capacity*Plus,* and SIAPS began a coordinated technical assistance effort to assist the MOHSS to improve its HRH/SCM programs.

2012: The "Human Development Policy Framework: For Accelerated Service Delivery in the Public Service of Namibia" and specifically the MOHSS "Namibian Pharmaceutical Management Information System (PMIS) Manual" were developed with assistance from the USAID-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) project.

2013: A Presidential Commission of Inquiry into the MOHSS found that the major barriers associated with HRH are high vacancy rates, high levels of attrition, and outdated staffing norms that do not respond to current and emerging health system needs. Inter alia, it noted that in the regions there were vehicles but a shortage of drivers "because the number of driver posts on the staff establishment was not sufficient."

2013: An in-depth analysis of Namibian supply chain capability and performance found "a sense of declining capability at the CMS, evidenced in the average levels of capability of key supply chain functions such as forecasting, procurement, warehousing and transportation."

2014: The Global Fund to Fight AIDS, Tuberculosis, and Malaria reviewed CMS standard operating procedures and provided recommendations for improvement.

2014–2015: The People that Deliver partner collaboration completed work on competency mapping, Workload Indicators of Staffing Needs, a retention-related discrete choice experiment, and the Supply Chain Performance Improvement program.

APPENDIX 2: LOGICAL FRAMEWORK FOR THE PTD-NAMIBIA COLLABORATION

Overarching Goal for Namibia's Health Supply Chain

An efficient, effective, and sustainable public sector supply chain system at the central, regional, and district levels

Key Supply Chain System Challenges that Workforce Interventions Could Address

- An almost 300% increase in the volume of supplies passing through the system since 2007 associated with the scale-up of HIV/AIDS programs
- Inadequate storage space at the central medical store (CMS)
- Poor availability and/or use of standard operating procedures (SOPs)
- Inefficiencies at the central level as demonstrated through poor performance in the four key performance indicators listed below.

Key performance indicators for the collaboration

- Percentage of self-inspection checklist items found compliant
- Percentage of functions completed according to SOPs
- Order fulfillment rate
- On-time delivery rate from central to lower levels.

Workforce Challenges ***(Note: These challenges can be transformed into long-term impact measures)***	**Activity to Address those Challenges**	**Immediate Outputs** ***(i.e., products)***	**Medium-Term Expected Results/Outcomes** (***in relation to the PtD building blocks***)*	**Synergies or Interactions with Other Activities**
Poor understanding of the competencies required by supply chain staff and how they should be developed and distributed among	**Activity 1: Competency Mapping of CMS and RMD Staff** Map PtD competency compendium	Validated competency frameworks for staff at CMS and RMD levels	Engaged stakeholders: • Engaged in defining key competency areas and behaviors for pharmacists, pharmacist assistants, and clerks/administrative officers, and in validating competency mapping findings Policies, strategies, plans: • Evidence for redistribution of tasks and/or	Competency frameworks contributed to the development of activity standards used to estimate workload-based staffing needs

Workforce Challenges ***(Note: These challenges can be transformed into long-term impact measures)***	**Activity to Address those Challenges**	**Immediate Outputs** ***(i.e., products)***	**Medium-Term Expected Results/Outcomes (*in relation to the PtD building blocks*)***	**Synergies or Interactions with Other Activities**
staff. Education and training programs, scopes of practice, and job descriptions poorly linked to supply chain system needs.	against tasks performed at CMS and RMD; identify overlaps, gaps and potential for redistribution of tasks		establishment of new cadres/subspecialties to fulfill all tasks • Establish minimum education requirements by cadre • Plan for creation of high level supply chain coordinating unit <u>Workforce development</u>: • Curricula for education and training programs informed by competencies of each cadre <u>Workforce performance and retention</u>: • Data and ready information to update scopes of practice, job descriptions, performance frameworks, and plan for redistribution of tasks among staff <u>Professionalization</u>: • Recognition of the critical role and functions of supply chain staff, particularly within the CMS and RMDs	through the WHO WISN approach
Staff shortages, poor distribution of staff between facilities at regional and district level, excessive workload, outdated staffing norms	**Activity 2: Estimating Staffing Needs at CMS and RMDs** Estimate supply chain staffing needs at CMS and RMDs based on workload pressures (to supplement the estimates for staff at hospital, health	Estimates of the number of staff in three key categories required to cope with the workload at the CMS and two RMDs Quantified shortages and/or surpluses of each category of staff at	<u>Engage stakeholders</u>: • Engaged in defining key tasks of supply chain staff and validating findings in terms of shortages, surpluses, and potential redistribution of tasks <u>Policies, strategies, plans:</u> • Updated HRH strategies and plans based on workload needs • Updated scopes of practice and staffing norms • Increased funding to develop and employ staff <u>Workforce development</u>: • Adjust education and training programs to respond to workload needs	Supplemented a national WISN study that estimated staffing needs for supply chain staff at regional hospitals and district health centers and clinics Identified the types of facilities and staff requiring salary and benefits packages to

Workforce Challenges ***(Note: These challenges can be transformed into long-term impact measures)***	**Activity to Address those Challenges**	**Immediate Outputs** ***(i.e., products)***	**Medium-Term Expected Results/Outcomes (*in relation to the PtD building blocks*)***	**Synergies or Interactions with Other Activities**
	center, and clinic levels) using the WISN approach	each facility	Workforce performance and retention: • Numbers and types of staff adjusted to respond to workload needs • WISN activity standards used as objective measures for conducting future productivity studies Professionalization: • Career pathways created through stepladder education and training programs	attract and retain supply chain staff to overcome staffing shortages and high turnover (for the Rapid Retention Survey).
Staff shortages, poor distribution of staff among facilities, high turnover, loss of staff to private sector, low salaries relative to other types of health workers	**Activity 3a: Rapid Retention Survey of Pharmacists and Pharmacist Assistants** Conduct a discrete choice experiment (DCE) to identify salary and benefits preferences among supply chain staff **Activity 3b: Costing of Potential Retention Strategies of Pharmacists and Pharmacist**	Determined preferences for various combinations of job incentives and conditions to develop a supply chain staff retention strategy at the CMS, RMD, and district levels Costed salary and benefit packages for pharmacists and pharmacist	Engaged stakeholders: • Engaged HRH directorate to review job incentives and conditions for inclusion in the rapid retention survey; the National Pharmaceutical Society of Namibia to sensitize supply chain cadres to respond to the survey; engaged the national pharmacist assistants forum to share preliminary results Policies, strategies, plans: • Applied the WHO Global Policy Recommendations (2010) to increase access to health workers in rural and remote areas through improved retention to the Namibia supply chain context • Relative importance of job incentives and conditions of pharmacist and pharmacist assistant cadres quantified, including willingness to work in the public sector at CMS, RMD, and district levels • Minimum-, moderate-, and most-preferred job incentive packages developed and costed to provide various scenarios for the MOHSS to scale up retention	Used staffing needs estimates from Activity 2 to target specific categories and types of facilities, and to estimate the cost of implementing those packages

Workforce Challenges *(Note: These challenges can be transformed into long-term impact measures)*	Activity to Address those Challenges	Immediate Outputs *(i.e., products)*	Medium-Term Expected Results/Outcomes (*in relation to the PtD building blocks*)*	Synergies or Interactions with Other Activities
	Assistants Use iHRIS Retain	assistants at the CMS, RMD, and district levels	strategies based on available budget Workforce development: • Role of continued professional development as part of supply chain staff motivation Workforce performance and retention: • Ability to apply full scope of practice on the job as part of pharmacists' motivation Professionalization: • Role of career path as part of pharmacist assistant motivations	
Poor performance at CMS, particularly within the distribution section, resulting from lack of management systems and out-of-date job descriptions	**Activity 4: Supply Chain Performance Improvement (SCPI) Program** Strengthen management systems and build the capacity of CMS staff (particularly distribution staff) through a tailored, three-phase performance improvement initiative	Enhanced supply chain capacity at CMS at the individual and institutional level Definition of and improvement in four identified CMS key performance indicators (KPIs) • % of self - inspection checklist items found to be compliant • % of functions	Engaged stakeholders: • Work with the MOHSS key stakeholders to formalize a solution to improve operational performance at the CMS Policies, strategies, plans: • Use local legislation, ISO, and WHO standards as benchmarks to develop and/or redesign SOPs, update all process flows, and implement a quality management system Workforce development: • Build leadership capability in CMS management and capacity on all quality and health and safety SOPs • CMS distribution staff section trained on all SOPs and evaluated on their competency and implementation of each Workforce performance and retention: • Evaluate progress against four KPIs and baseline self-	Defined and monitored KPIs to measure the need for and effect of the integrated set of activities As a result of this activity, some tasks were shifted from central to regional level, which will necessitate a recalculation of staffing estimates based on workload needs (using WISN) Additionally, job

Workforce Challenges *(Note: These challenges can be transformed into long-term impact measures)*	Activity to Address those Challenges	Immediate Outputs *(i.e., products)*	Medium-Term Expected Results/Outcomes (*in relation to the PtD building blocks*)*	Synergies or Interactions with Other Activities
		completed according to SOPs • Order fulfillment rate • On-time delivery rate from central to lower level Namibia-specific tailored SCPI curriculum Updated SOPs Established quality management system Updated job descriptions in line with SOPs and competencies	inspection checklist • Institutionalize a culture of monitoring and evaluation against standards and procedures <u>Professionalization</u>: • SCPI is accredited through DaVinci Institute in South Africa and contributes a portion of credits toward a bachelors degree from the Polytechnic of Namibiaengaged Namibian-German Center for Logistics to be comparable local accreditation partner and implementer of SCPI	descriptions were also updated as recommended by the competency mapping activity
Lack of experience at country level in applying HRH	**Activity 5: Documentation of the Collaborative**	Technical reports for activities 1 through 4		

Workforce Challenges ***(Note: These challenges can be transformed into long-term impact measures)***	**Activity to Address those Challenges**	**Immediate Outputs** ***(i.e., products)***	**Medium-Term Expected Results/Outcomes (*in relation to the PtD building blocks*)***	**Synergies or Interactions with Other Activities**
approaches and tools to the supply chain workforce	**Process and Sharing of Lessons Learned** Monitor and document processes, results, lessons learned, and recommendations	Synthesis report to use in validating the results and planning next steps with the government of Namibia Series of five short technical briefs: one per activity and one on the holistic approach		

** The five PtD building blocks are: (1) engaged stakeholders; (2) optimized policies, strategies, and plans; (3) workforce development; (4) increased performance and retention; and (5) professionalization of SCM*

APPENDIX 3: COMBINED COMPETENCY FRAMEWORK FOR PHARMACISTS, PHARMACIST ASSISTANTS, AND CLERKS/ADMINISTRATIVE OFFICERS AT THE CMS AND RMD LEVELS

The validated competency frameworks for the three cadres of workers at the central medical store and regional medical depots are summarized in the table below. When two cadres share responsibility for a competency area, the cadre with primary responsibility is indicated as "primary" and the cadre with secondary responsibility is listed as "support." In some cases, a pharmacist or clerk/administrative officer has primary responsibility, but a pharmacist is responsible for providing oversight. Some tasks are completed at the CMS level only, while others are performed at both levels. The level at which each task is done is indicated in parentheses. All selection, quantification, and procurement functions relate only to the CMS, as the RMDs do not have these responsibilities. Although the National Medicines Policy Coordination Subdivision (NMPC) was not included in the mapping exercise, a number of key tasks are done by pharmacists at this level. For this reason, we also indicate NMPC in parentheses for some behavioral competencies. In addition, when specific tasks could be redistributed to another cadre, this is indicated in the column titled "Suggestion: other cadre could do."

For each behavioral competency, the cadre with the primary or main responsibility for completing this task is denoted as "Primary" and the supporting cadre is noted as "Support." Additional details are provided on each of the three cadres in each column heading to note that Pharmacist may include the Chief or Senior Pharmacist; Pharmacist Assistant may also include Senior Pharmacists; and Clerks/Administrative Officers include Chief Clerks. Where competencies are only completed at specific levels, those are denoted with the level (CMS, for example) in parentheses; otherwise, tasks can be attributed to both the CMS and RMDs, as noted by (CMS/RMD).

It is important to note that in many cases where pharmacist assistants and clerks/administrative officers are both listed for a behavioral competency, pharmacist assistants are usually responsible for tasks related to pharmaceutical products (essential medicines) and clerks for nonpharmaceutical products (clinical supplies/medical consumables).

Domain 1: Selection and Quantification

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief, Principal, Sr)	Pharmacist Assistants (includes Sr)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
1.1 Select the appropriate product	Develop national list of essential medicines	Primary (NMPC)			
	Participate in NEMLIST Committee when invited and provide product data (pricing, availability, market info) to NEMLIST committee as needed	Primary (CMS)			
	Review health facility requests for item additions to be included in NEMLIST and use the established government system to add or delete items in the NEMLIST	Primary (NMPC)			
	Ensure review & implementation of National Comprehensive Treatment Guidelines for Namibia	Primary (NMPC)			
	Ensure regular review & implementation of NEMLIST	Primary (NMPC)			
1.2 Define the specifications and quality of the product	Develop and maintain specifications schedule for pharmaceutical and non-pharmaceutical products	Primary (CMS)	Support (CMS)		
	Prepare/format product specifications to create a Schedule of Requirements prior to advertisement of tenders		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
1.3 Forecast product needs	Gather data for forecast (e.g. from Syspro, population data) and document assumptions on quantification calculations	Primary (CMS)			Data Clerk could do all
	Review Syspro distribution data to determine annual forecast quantities for tendering	Primary (CMS)			Data Clerk could do calculations. Pharmacist should determine final forecast number

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief, Principal, Sr)	Pharmacist Assistants (includes Sr)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Run Syspro monthly to review forecast and update quantities, and if needed, based on assumptions, current usage, and max/min levels, calculate/update "forecasted" quantities required	Primary (CMS)			Data Clerk could do data piece; Distribution Pharmacist makes the request
	Convene regularly scheduled coordination meetings with stakeholders involved in financing, procuring or distributing commodities	Primary (CMS)			Currently a gap in/lack of forecasting procedures. Coordination of stake-holders involved in financing, procurement and distribution of health commodities is not well-defined. Recommend MoHSS to consider a unit with at least one senior Pharmacist and two Data Analysts to be responsible for overseeing the entire supply chain, forecasting and regular engagement with stakeholders.
	Establish policies and procedures for forecasting	Primary (CMS)			
	Establish key performance indicators of forecast accuracy	Primary (CMS)			
	Apply VEN or ABC analysis to program requirements for national level procurement	Primary (CMS)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief, Principal, Sr)	Pharmacist Assistants (includes Sr)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
1.4 Develop supply plans	Run Syspro MRP monthly to determine quantity to order	Primary (CMS)			Data Clerk could do data piece. Distribution Pharmacist makes the request
	Create purchase requisition report to indicate all products below minimum indicating quantity to order and send to Procurement & Tenders Section (CMS)	Primary (CMS)			

Domain 2: Procurement

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
2.1 Manage procurement costs and budget	Provide managerial oversight over CMS procurement function	Primary, Chief (CMS)			
	Provide information to MOHSS on value of orders placed and order received in last year	Primary (CMS)			Data Clerk
2.2 Manage tendering processes	Follow procurement legislation/policies/regulations	Primary, Chief (CMS)			
	Capture tender/bid prices and information into Syspro and the Tender Management System to develop a Tender Evaluation Report		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Verify bid information captured into Syspro	Primary (CMS)			
	Develop Standard Tender Document	Primary (CMS)			
	Seek approval of Standard Tender Document from Ministerial Tender committee	Primary (CMS)			
	Draft tender advert	Primary (CMS)			
	Approve tender advert	Primary, Chief (CMS)			
	Advertise tender				Admin section of CMS should do this
	Print tender documents			Primary (CMS)	
	Manage tender samples: including storage, registration, display and destruction		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Address questions from suppliers on the tender	Primary (CMS)			
	Register tenders in the Log Book		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Prepare pre-evaluation checklist	Primary (CMS)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Assist in tender opening meeting; Open tender envelopes in presence of bidders and tender committee		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Complete pre-evaluation checklist on all bidders		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Review pre-evaluation checklist to confirm all bidder information was captured accurately	Primary (CMS)			
	Prepare, review and print tender Price Ranking Report	Oversight (CMS)	Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Be the secretary and member of the Tender Adjudication Committee	Primary (CMS)			
	Prepare copies of tender evaluation report and product samples in readiness for the Technical Evaluation Committee meeting		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Liaise with Tender Board at all stages of the tender process and with regard to all subsequent matters which may arise concerning a tender (such as price, increase applications, change of pack size), etc., and ensure prompt action	Primary (CMS)			
	Evaluate the supplier responsiveness	Primary (CMS)			
	Close the tender	Primary (CMS)			
	Enter evaluation results in Tender Management System		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Write letters of award to suppliers	Oversight (CMS)		Primary (CMS)	
	Photocopy and file award letters			Primary (CMS)	
	Debrief unsuccessful suppliers	Primary (CMS)			
	For Buyouts-(Off Contract) & Emergency Order items				
	Receive request from facilities for buy-out products/emergency orders or for buy-outs against contracted suppliers not delivering on-time	Primary (CMS)			
	Send requisition report to Procurement & Tenders Section	Primary (CMS)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Manually generate a Request for Quotation to be used to seek quotations from approved suppliers for procurement of non-contract items and emergency requests		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Send out requests for quotation for items for buy-out items		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Enter data from signed buyout quotation into Tender Mgmt. System		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Produce price ranking /evaluation report	Oversight (CMS)	Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Evaluate quotations received	Oversight (CMS)	Primary (CMS)		
	Approve quotations	Primary (CMS)			
	Maintain electronic and hard copy files of RFQs			Primary (CMS)	
2.3 Execute management of contract, including maintain supplier relationships, risk & quality management	Draft contract for procuring commodities	Primary (CMS)			Contract Officer
	Send contract to suppliers for review and signature			Primary (CMS)	
	Negotiate contract with supplier	Primary (CMS)			
	Make copies and file signed contract			Primary (CMS)	
	Monitor and follow-up with suppliers (i.e. are orders received on time)	Oversight (CMS)		Primary (CMS)	
	Write letters to suppliers/contact suppliers when issues of product quality arise and/or late deliveries	Oversight (CMS)		Primary (CMS)	
	Review any changes to the technical specifications of contracts (including price increases, product specs, etc.)	Primary (CMS)			
	Make amendments to purchase orders	Primary (CMS)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Run Outstanding Order Reports		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Run Stock Level Reports (monthly)			Primary (CMS)	
	Assist in obtaining and maintaining procurement performance indicator statistics such as monthly value or purchases from tender contracts & buy-outs		Primary (CMS)		
	Review contract compliance (i.e. on-time orders, etc.)	Primary (CMS)			
	Calculate penalty charges against a contracted supplier for failure to delivery or for late delivery		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Assist in expediting overdue orders		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	React promptly to overdue orders and emergency orders, by initiating buy-out process or borrowing stock	Primary (CMS)			
	Update catalog item data in the computer	Primary (CMS)			
	Maintain complete and secure custody of procurement records			Primary (CMS)	
	Respond to queries from suppliers	Primary (CMS)			
	Respond to queries from Distribution section on order status and deliveries	Primary (CMS)			
	Develop and maintain supplier database	Currently not a task that is happening at CMS or RMS.			Should be linked to Tender Mgmt System; Recommend to be the Pharmacist Assistant.
	Maintain good communication with all suppliers (including order status updates)	Oversight (CMS)		Primary, Chief (CMS)	
	Address supplier challenges (i.e. in upstream logistics)	Primary (CMS)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Efficiently address product quality complaints	Primary (CMS)			
	Monitor and document performance of tender suppliers and bring to the attention of the Tender Board and tender adjudication committees if appropriate	Primary (CMS)			
	Terminate contracts legally and appropriately if necessary	Primary (CMS)			
	Ordering against a contract				
	Receive requisition report from Distribution Section; link to current contract and check/update product, supplier and price information		Primary (CMS)		
	Create a purchase order in SysPro for products with existing contracts			Primary (CMS)	
	Approve purchase order	Primary (CMS)			
	Send PO to supplier			Primary (CMS)	
	Ensure supplier receives PO			Primary (CMS)	
	Ordering w/o a contract (Buyout or Emergency Order)				
	Create a purchase order in SysPro for approved supplier from RFQ			Primary (CMS)	
	Approve purchase order	Primary (CMS)			
	Send PO to supplier			Primary (CMS)	
	Ensure supplier receives PO			Primary (CMS)	
	Ensure all possible action taken to recover buy out costs from defaulting tender suppliers	Primary (CMS)			
2.4 Assure quality of products	Ensure product quality by ensuring appropriate documentation/specification in the tender document, including provisions for packaging, labeling, shelf life (expiry date), storage specifications, etc.	Primary (CMS)			
	Ensure products called for in tender are registered in Namibia and approved for sale	Primary (CMS)			
	Check all goods delivered from suppliers for quality and compliance with specifications	Primary (CMS)			
	Address complaints received from Receiving Bay and/or customers	Primary (CMS)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Request adequate samples when needed for evaluation of quotations		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Check all goods returned from customers for quality and suitability for redistribution	Primary (CMS)			
2.5 Manage importation of products	Request in tender that suppliers comply with Delivery Duty Paid (i.e. deliver direct to CMS and cover importation costs)	Primary (CMS)			Contract Officer
	For supplies that can't be delivered DDP draft Standard RFQ for Customs Clearing Agent			Primary (CMS)	
	Authorize and approve RFQ for Customs Clearing Agent	Primary (CMS)			
	Generate a Purchase Order in SysPro for Customs Clearance			Primary (CMS)	
	Provide import documents (i.e. tax exemption) to Customs Clearing Agent			Primary (CMS)	
	Ensure timely completion and processing of customs clearance documentations			Primary (CMS)	
	Clear products from customs			Primary, Chief (CMS)	
2.6 Manage donations of products	Create a Purchase Order for Donated Products		Primary Pharma (CMS)	Primary Non-Pharma (CMS)	
	Coordinate receipt of donations with higher level officials	Primary (CMS)			
	Follow national donations policy; referring to appropriate ministry for advice.	Primary (CMS/NMCP)			

Domain 3: Storage and Distribution

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*	
3.1 Make product replenishment request to re-supply entity (RMD to CMS)	Create Purchase Order for re-supply quantities in Syspro according to Max-Min levels every 6 weeks to CMS	Oversight (RMD)	Primary Pharma (RMD)	Primary Non-Pharma (RMD)	Suggest pharmacists with overarching approval, policy setting authority, and responsibility for Schedule 3 and 4 medicines (5 percent of the task); Give pharmacist assistants supervision over clerks (15 percent of the task), and have clerks complete the tasks for all products (80 percent of the task).	
	Complete Purchase Order for resupply of Schedule 4 Commodities	Primary (RMD)				
	Approve orders and make any amendments in SysPro	Primary (CMS)				
	Send email with Purchase Orders to CMS	Primary (RMD)				
	Annually, calculate Max-Min quantities (based on set Max/Min levels) to assist RMDs with re-supply calculations	Primary (RMD)	Primary (RMD)			
	Update physical Stock Cards and electronic records with updated Max/Min quantities	Oversight (RMD)	Primary Pharma (RMD)	Primary Non-Pharma (RMD)		
	Approve interim/emergency orders	Primary (RMD)				
3.2 Receive products	Receive delivery note and purchase order upon receipt of goods/Confirm against Delivery book w/delivery note and invoice (if shipment from CMS)	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		Suggest pharmacists with overarching approval, policy setting authority, and responsibility for Schedule 3 and 4 medicines (5 percent of the task);
	Observe opening of truck, verify seal, and verify quantities match delivery book numbers			Primary (CMS/RMD)	Include Security Guard	
	Enter purchase order info into Syspro to verify that it matches the PO in the system	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Perform visual inspection (i.e. expiry dates, pack size, quantities, etc) to check invoice and delivery note against products; Sign delivery note, keep one copy and return a copy with the driver	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*	
	Send back damaged products with driver OR if count does not match then do not sign for delivery, request credit from supplier	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		Give pharmacist assistants supervision over clerks (15 percent of the task), and have clerks complete the tasks for all products (80 percent of the task).
	Complete Supply Discrepancy/Reject report if required	Currently not a task that is happening at CMS or RMD.				
	Generate Goods Received Note in Syspro	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Transfer delivery note and accompanying paperwork to accountants for payment and sign log to record receipt	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	Accountants, Workhands/ Messengers	
	Generate transfer note for each Warehouse In-Charge to collect respective products from receiving bay	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Countercheck and pick up stock from receiving bay and transfer to respective warehouses	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	Workhands	
	Select products for testing based on direction from procurement and follow QSL sampling procedures	Primary (CMS/RMD)				
	Adjust stock levels to remove sampled stock from Syspro	Primary (CMS/RMD)				
	Give samples for testing to dispatch and register them in sampling log; inform QSL to pick-up			Primary (CMS)	Pharm Assistant	
	Enter stock received on stock cards	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	@RMD clerk only	
	Organize warehouse at end of week to be ready to receive the week's deliveries of new stock	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	Clerks only	
	Receive non-NEMLIST goods and notify hospital that Buyout Stock is available and send to dispatch		Primary (CMS/RMD)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*	
3.3 Properly store products/Implement good warehousing practices	Check stock regularly for expiry (visual inspection) and rotate if necessary	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		Suggest pharmacists with overarching approval, policy setting authority, and responsibility for Schedule 3 and 4 medicines (5 percent of the task); Give pharmacist assistants supervision over clerks (15 percent of the task), and have clerks complete the tasks for all products (80 percent of the task).
	Monitor temperature in the warehouse and complete the temperature log-sheet	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Conduct annual stock take	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Secure medical store and restrict access into the warehouse	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	Security Guards	
	Monitor stock levels and notify head of distribution if minimum stock level is reached (after checking warehouse stock and pending orders) or stocked out		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Conduct periodic cycle stock count to identify discrepancies between physical stock and what is in Syspro; determine cause and inform Distribution pharmacist		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Initiate stock adjustment request and complete stock adjustment request form		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Approve stock adjustments and make adjustment in Syspro	Primary (CMS/RMD)				
	Maintain internationally accepted housekeeping standards inside the warehouse		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	Workhands	
	Establish and maintain a logical stock arrangement system in the warehouse in compliance with SOPs and First-Expired, First-Out methodology	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*	
	Make judgment calls about distribution of stock based on space and shelf life of products	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Keep all warehouse documents in order	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Maintain a credible batch tracking system for ARVs, HIV test kits, anti-malarials, and anti-TB medicines	Primary (CMS/RMD)				
	Collect stocks and put away products in their appropriate location/bin/warehouse under supervision		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
3.4 Process customer orders (capture order/pick/pack/dispatch)	Capture scheduled requests/orders from facilities into Syspro				Admin Assistant /Data Typist at CMS /RMS	Suggest pharmacists with overarching approval, policy setting authority, and responsibility for Schedule 3 and 4 medicines (5 percent of the task); Give pharmacist assistants supervision over clerks
	Generate & print out picking list from orders				Admin Assist/Data Typist	
	Place the picking slip in the respective "warehouse" file/or give to warehouse managers				Admin Assist/Data Typist	
	Retrieve picking slips for responsible warehouse	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	"Warehouse Clerks"	
	Pick and pack the products as directed by supervisor, and according to batch number (where applicable)		Oversight Pharma (CMS/RMD)	Oversight Non-Pharma (CMS/RMD)	Workhands	
	Pick and pack Schedule 4 (Narcotics) & ARVs, and according to batch number	Oversight (CMS/RMD)				

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*	
	Review order and make any amendments to picking slip quantities (i.e. to issue full boxes, ration quantities) and enter in Syspro	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		(15 percent of the task), and have clerks complete the tasks for all products (80 percent of the task).
	Record total boxes in log book then transfer products and pick slips to dispatch manager	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	At dispatch, check quantity, items, and expiry of items from warehouse against pick list and correct any discrepancies noted		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Palletize shipments to be ready for loading			Primary (CMS/RMD)	Workhands with supervision from clerks	
	Label and secure shipments in cages according to facility prior to loading		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Print out the final order (invoice & delivery note)				Admin Assistant	
	Complete loading control sheet as products are loaded on truck; segregate orders		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Supervise work hands to load truck according to delivery sequence		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Complete Stock Movement Form/Deliver Book in duplicate for each order			Primary (CMS/RMD)	With Security Officer	
	Complete separate dispatch documents for ARVs and Schedule 3/4 commodities		Primary (CMS/RMD)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Seal truck prior to departure, and record seal number, picking list number, invoice number in delivery book/dispatch register; # boxes loaded, sign and have driver sign			Primary (CMS/RMD)	With Security Officer
	Process the dispatch of emergency orders & buy-outs			Primary (CMS/RMD)	
3.5 Manage transport for commodities	Prepare annual delivery schedule including truck routing	Oversight (CMS/RMD)	Support	Primary (CMS/RMD)	Transport/Fleet Manager would be useful here; Clerk could get specialized training
	Receive & process transport requests from different departments			Primary (CMS/RMD)	
	Participate in weekly briefing meeting with warehouse and dispatch clerks to identify where variations should be made from standard weekly schedule	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	
	Dispatch informs transport clerk(s) on daily activities (what will go out today/tomorrow); Receive dispatch schedule for planning			Primary (CMS/RMD)	
	Prepare trip authorization for drivers			Primary (CMS/RMD)	
	Arrange for renewal of road licenses			Primary (CMS/RMD)	
	Review logbooks, and validate travel for drivers by comparing with GPS tracking system			Primary (CMS/RMD)	
	Use a spreadsheet to track and calculate fuel consumption using receipts & vouchers from drivers on a daily basis			Primary (CMS/RMD)	
	Debrief with drivers and inspect vehicles after daily deliveries			Primary (CMS/RMD)	
	Prepare and file accident reports			Primary (CMS/RMD)	Along with Drivers

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*	
	Develop and implement a vehicle maintenance plan			Primary (CMS/RMD)	Transport/Fleet Manager would be useful here; Clerk could get specialized training	
	Compile monthly fleet management reports			Primary (CMS/RMD)		
	Process travel allowances, expenditure reconciliations, overtime claims, and payments for drivers			Primary, Chief (CMS/RMD)		
	Deliver documents/mail to Head Office			Primary (CMS/RMD)	Drivers or Couriers	
3.6 Manage the return of products (expired, damaged, overstocked, redundant)	Prepare a Goods Returned to Supplier Note for product recalls		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Inform Procurement & Tenders Section to liaise with supplier to receive a credit note or replace stock if the returning of stock is due to quality,	Primary (CMS)				
	Handle requests from customers to return goods; grant approval when appropriate	Primary (CMS/RMD)				
	Inspect returned goods to confirm quantity received and that the products match the description of what was approved for return	Oversight (CMS/RMD)		Primary (CMS/RMD)		
	Process credit note for approved returned products	Primary (CMS)				
	Put away the usable returned stock to warehouse and damaged/expired returned stock to separate area		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
3.7 Manage disposal of products (e.g. expired, damaged, redundant products)	Initiate stock disposal request & complete a "Expired/Damaged Stock Removal Request Form"	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		Suggest pharmacists with overarching approval,
	Approve stock disposal request and remove stock in Syspro by making a stock adjustment	X				

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*	
	Store expired stock for disposal separately	Oversight (CMS/RMD)	Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)	Workhands	policy setting authority, and responsibility for Schedule 3 and 4 medicines (5 percent of the task); Give pharmacist assistants supervision over clerks (15 percent of the task), and have clerks complete the tasks for all products (80 percent of the task).
	Complete "Goods Disposal Form"		Support (CMS/RMD)	Primary (CMS/RMD)		
	Arrange with municipality for disposal at the landfill site	Primary (CMS/RMD)			Does not need to be a pharmacist but does need to be something with authority	
	Load and Seal truck with commodities for disposal			Primary (CMS/RMD)	With Security officers and work hands	
	Accompany driver to landfill, sign invoice for disposal services, return to CMS		Primary Pharma (CMS/RMD)	Primary Non-Pharma (CMS/RMD)		
	Accompany driver to landfill and witness destruction of schedule 3&4 drugs	Primary (CMS/RMD)				

Domain 4: Resource Management

Many of the competencies in this section that fall to pharmacists are not related to their pharmaceutical training, but rather to their status as the highest level of authority in the CMS/RMDs. These tasks are about management and do not require technical pharmaceutical expertise, but they do need to rest with upper management, which is how they end up under pharmacists by default. It is worth considering additional managerial training/experience for pharmacists in these roles and/or a different executive managerial cadre to take on some of these tasks.

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
4.1 Design or recommend changes to the design of a public health supply chain	Provide input to some decisions, such as decisions around where to build new warehouse, how it should look, etc.	Primary (CMS/RMD)			Doesn't have to be a pharmacist but needs to have high level vision
	Participate in the establishment of clinics ordering from hospitals instead of RMS directly in consultation with the regional directorate	Primary (Reg. Pharm)			
	Set Max Min levels for regional depots	Primary (Reg. Pharm)			
4.2 Oversee operation of a Logistic Management Information System	Review and manage logistics data from facilities (EDT reports) (on a monthly basis) and analyze quarterly; communicate directly with facilities for receipt, review and approval of reports; generate feedback reports (ART only)	Primary (NMPC)			
	Facilitate implementation of computerized inventory control system (EDT)	Primary (NMPC)			
	Provide EDT manuals to all necessary staff	Primary (NMPC)			
	Prepare ARV stock report based on SysPro data; send to NMPC	Primary (CMS)			
	Monitor the supply pipeline and assess stock status	Primary (NMPC)			
	Establish the urgency of required information (i.e. supervise flow of information, including receipt and review of EDT reports)	Primary (NMPC & Reg. Pharm)			
4.3 Maintain safe and secure working conditions	Oversee material forklifts, trollies, pallets, fire extinguishers			Primary (CMS/RMD)	Workhands
	Determine when equipment needs service & request as required			Primary (CMS/RMD)	Artisans (mechanics)
	Maintain the official Inventory of materials			Primary (CMS/RMD)	
	Lock doors and otherwise secure warehouse		Primary (CMS/RMD)		
	All staff responsible to wear uniforms when in the warehouse (blue overalls, boots and hardhat)	Primary (CMS/RMD)	Primary (CMS/RMD)	Primary (CMS/RMD)	work hands

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Notify supervisor when there are any hazardous conditions such as slippery floors	Primary (CMS/RMD)	Primary (CMS/RMD)	Primary (CMS/RMD)	work hands
	Responsible for ensuring overall safety of warehouse	Primary (CMS/RMD)			
	Clean office space and bathrooms			Primary (CMS/RMD)	Needs a cleaning service
	Adhere to and monitor minimum safety standards set out in Labor Act; responsible for any additions and to monitor that the minimum standards in place	Primary (Reg. Pharm)			
4.4 Monitor and evaluate supply chain activities	Enhance day-to-day efficiency by contributing suggestions for improvement	Primary (CMS/RMD)	Primary (CMS/RMD)	Primary (CMS/RMD)	
	Collect, record and report data from Stock Cards and Syspro for PMIS- to submit to Regional Pharmacist or NMPC	Primary (CMS/RMD)	Primary (CMS/RMD)	Primary (CMS/RMD)	M&E Officer could help CMS/RMS compile all this data for submission
	Coordinate ART PMIS so appropriate data is shared for decision-making	Primary (NMPC)			
	Coordinate PMIS data collection exercises and oversee data analysis necessary to monitor implementation and effects of National Medicine Policy (Overall)	Primary (NMPC)			
	Review reports and validate information before submission to national level	Primary (Reg. Pharm)			
	Receive feedback reports from national level; reviews and utilizes information	Primary (Reg. Pharm)			
	Monitor/track CMS order fill rate for facilities	Primary (CMS)			
4.5 Manage outsourcing SCM functions	Manage warehouse security services and contracts				MOH Finance & Logistics Unit
	Provide feedback on warehouse security services			Primary, Chief (CMS/RMD)	
	Manage customs clearing agent services and contracts	Oversight (CMS)		Primary (CMS)	

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Manage warehouse cleaner services and contracts				MOH Finance & Logistics Unit; service needs to be outsourced
	Provide feedback on warehouse cleaner services		Primary (CMS/RMD)	Primary (CMS/RMD)	
	Manage outsourcing of transport services (NamCourier or NamPost to make urgent deliveries)			Primary (CMS/RMD)	
4.6 Manage and plan projects (Senior Level Mgmt)	Participate in national strategic and policy planning meetings	X			
	Advise Regional Director on Pharmaceutical Sector	Primary (Reg. Pharm)			
	Participate in monthly regional management meetings	Primary (Reg. Pharm)			
	Attend Executive meetings (Bi-weekly)	Primary (CMS)			
	Complete pharmaceutical sections of annual regional plans	Primary (CMS)			
	Participate in CMS Senior Management meetings/decisions	Primary (CMS)			
	Prepare annual and quarterly reports	Primary (CMS/RMD)			
	Monitor implementation of Medicines & Related Substances Control Act	Primary (Pharmaceutical Control & Inspection: sub-division of Pharmaceutical Services)			
	Oversee implementation of National Medicine Policy through National Pharmaceutical Master Plan	Primary (NMPC)			
	Regularly review SOPs to ensure compliant with current practice	Primary (CMS/RMD)			Doesn't need to be a pharmacist
	Enforce compliance with SOPS by staff	Primary (CMS/RMD)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
4.7 Manage finances/financial activities	Develop budget for pharmaceutical section of Annual Regional Plan	Primary (Reg. Pharm)			
	Provide information on high level pharmaceuticals budget estimate to Director of Pharmaceutical Services annually	Primary, Chief (CMS)			Accountant
	Complete Global Fund financial reports for reimbursement for ARVs	Primary, Chief (CMS)			Accountant
	Prepare and send financial reports to facilities (monthly account balances) and regional facility summaries to regional pharmacist				Accountant
	Compile Regional Depot Financial Report	Primary (Reg. Pharm)			
	Monitor costs of medicines within the public and private sector and work together with stakeholders to ensure medicines are appropriately priced	Primary (NMPC)			
4.8 Support human resources (e.g. recruitment, training, team management/supervision)	Supervise subordinate staff (including reporting disciplinary actions, and enforcing CMS Code of Conduct & Public Service Staff Rules)	Primary (CMS/RMD)	Primary (CMS/RMD)	Primary (CMS/RMD)	
	Conduct performance appraisals & keep appropriate records	Primary (CMS/RMD)			
	Develop/update job descriptions	Primary (CMS/RMD)			HR should be involved
	Determine future needs of various categories of staff	Primary (CMS/RMD)			
	Initiate hiring process on requests for new positions with approvals from Director and PS	Primary (Reg. Pharm)			
	Sit on disciplinary hearings and boards as requested	Primary (Reg. Pharm)			
	Assist in orientation/induction of new staff	Primary (CMS/RMD)			
	Identify training needs for staff and develop budget	Primary (CMS/RMD)			

Competency Area	Behavioral Competencies (Tasks/Skills)	Pharmacists (includes Chief/ Principal/Sr)	Pharmacist Assistants (includes Sr PA)	Admin. Officer/Clerk (includes Chief)	*Suggestion: other cadre could do*
	Provide on-the-job training to ensure adherence to policies and guidelines and provide necessary knowledge, equipment, materials to complete job efficiently	Primary (CMS/RMD)			
	Prepare and implement a daily set of tasks for subordinate staff		Primary (CMS/RMD)	Primary (CMS/RMD)	
	Plan for staff coverage in cases of absences/leave	Primary (CMS/RMD)	Primary (CMS/RMD)	Primary (CMS/RMD)	
	Manage leave of absence so as to ensure adequate staffing of section	Primary (CMS/RMD)			

Domain 5: Personal and Professional

Given time restrictions and the general nature of this domain, the team was not able to validate its behavioral competencies with CMS/RMD staff. Participants at the stakeholder workshop did validate the competency areas for this domain, which are:

- 6.1 Demonstrate basic generic skills (e.g., literacy, numeracy, technology)
- 6.2 Demonstrate communication skills
- 6.3 Utilize problem solving skills
- 6.4 Exhibit professional and ethical values
- 6.5 Prove leadership abilities
- 6.6 Abide by rules/laws/legislation.

The team selected three to four behavioral competencies per area from the PtD competency compendium that applied across all three cadres; however, since these behavioral competencies were not validated, they are not included in this report. It was recommended that when completing the WISN exercise, as well as through the Supply Chain Performance Improvement program, additional time be taken to review the behavioral competencies of this domain across all three cadres to complete the full competency map.

Appendix 4: WISN Activity Standards, Category and Individual Allowance Standards by Supply Chain Cadre Type and Site

Procurement Pharmacists at the CMS

Activity Standards			
Activity	**Standard**	**Unit**	**Workload Data Description**
Preparing specifications and forecasting requirements - pharmaceuticals	10	minutes/item	# items procured
Preparing specifications and forecasting requirements - clinical supplies	30	minutes/item	# items procured
Preparing documents for bid process	40	hours/tender	# tenders
Adjudication, evaluation, and tender committee meetings	80	hour/tender	# tenders
Evaluating and awarding RFQs	20	minutes/item	# buy-out total line items
Placing orders	5	minutes/item	# items ordered
Expediting orders	60	minutes/item	10% of 50% of # total pharmaceutical items
Penalty charges against defaulting suppliers	20	minutes/item	10% of 30% of # total pharmaceutical items
Meetings with suppliers	60	minutes/meeting	70 % of # of suppliers/ 1 per month
Manage queries on purchase orders (expiry, pack size, etc.)	10	minutes/item	70% of 50% of # total items

Category Allowance Standards		
Activity	**Standard**	**Unit**
Annual stock taking	80	hours/year
Tea breaks	30	mins/day
Quarterly staff meetings	4	hours/quarter
Program coordination meetings	1	day/quarter
Workshops	4	weeks/year
Reporting (quarterly, annual, budget, costs, etc.)	8	hours/quarter
Procurement section staff meetings	30	minutes/week

Individual Allowance Standards			
Activity	**Number**	**Standard**	**Unit**
Staff supervision and management	1	4	hours/week
Acting duties for chief pharmacist	1	4	weeks/year
Manage procurement costs and budgets – reporting	1	8	hours/quarter

Procurement Pharmacist Assistants at the CMS

Activity Standards			
Activity	**Standard**	**Unit**	**Workload Data Description**
Adjudication, evaluation, and tender committee meetings	8	hours/tender	# tenders
Manage tender samples (registering, sorting, prepare on shelves, presenting samples)	3	minutes/sample	66% of # samples
Prepare RFQ	30	minutes/item	40% of # items
Evaluating and awarding RFQs	10	minutes/item	100% of # of buy-out order lines
Placing orders	5	minutes/item	# items
Expediting orders	60	minutes/item	90% of 50% of # total pharmaceutical items
Penalty charges against defaulting suppliers	20	minutes/item	90% of 30% of # total pharmaceutical items
Meetings with suppliers	60	minutes/meeting	15% of # of suppliers/ 1 per month

Category Allowance Standards		
Activity	**Standard**	**Unit**
Annual stock taking	80	hours/year
Tea breaks	30	mins/day
Quarterly staff meetings	4	hours/quarter
Reporting	1	hours/month
Workshops	4	weeks/year
Procurement section staff meetings	30	minutes/week

Individual Allowance Standards			
Activity	**Number**	**Standard**	**Unit**
Manage donations of products	1	3	hours/year

Procurement Clerks/Administrative Officers at the CMS

Activity Standards			
Activity	**Standard**	**Unit**	**Workload Data Description**
Adjudication, evaluation, and tender committee meetings	8	hours/tender	# tenders
Manage tender samples (registering, sorting, prepare on shelves, presenting samples)	3	minutes/sample	34% of # samples
Printing and compiling	2	hours/tender	# tenders
Prepare RFQ	30	minutes/item	60% of # items
Placing orders	10	minutes/item	# items
Sending out orders	5	minutes/item	# orders
Expediting orders	60	minutes/item	100% of 50% of # total non-pharmaceutical items
Penalty charges against defaulting suppliers	20	minutes/item	30% of # total non-pharmaceutical items
Meetings with suppliers	60	minutes/meeting	15% of # of suppliers/ 1 per month
Manage queries on purchase orders (expiry, pack size, etc.)	10	minutes/item	30% of 50% of # total items

Category Allowance Standards		
Activity	**Standard**	**Unit**
Annual stock taking	80	hours/year
Tea breaks	30	mins/day
Quarterly staff meetings	4	hours/quarter
Reporting	1	hours/month
Workshops	4	weeks/year
Procurement section staff meetings	30	minutes/week

Individual Allowance Standards			
Activity	**Number**	**Standard**	**Unit**
Record management and maintenance	1	2	hours/week

Distribution Pharmacists at the CMS

Activity Standards			
Activity	**Standard**	**Unit**	**Workload Data Description**
Picking and packing main customer order items	7.5	mins/item ordered	10% # of pharmaceutical main item order
Amending main customer orders	30	mins/order/warehouse	10% of # of total main order
Checking main customer orders	1.5	hours/order/warehouse	10% of # of total main order
Process emergency customer orders	10	mins/item ordered	10% # of emergency pharmaceutical item orders
Follow-up on supplier/delivery discrepancy	20	mins/item delivered	# items delivers for 10% of total items delivered
Quality inspection	10	mins/item delivered	100% of pharmaceutical items delivered
Sampling	60	mins/item delivered	100% of # of all pharmaceutical order lines
Receiving Schedule III & IV pharmaceuticals & ARVs (physical inspection, enter into Syspro, prepare transfer doc, prepare for payment)	40	mins/item delivered	10% of total items delivered
Warehousing - put away process	15	mins/item delivered	10% # of pharmaceutical items delivered
Stock management	120	mins/warehouse/day	# warehouses/cadre*AWT

Category Allowance Standards		
Activity	**Standard**	**Unit**
Annual stock taking	80	hours/year
Distribution staff meetings	1	hour/week
Tea breaks	30	mins/day
Quarterly staff meetings - all CMS	4	hours/quarter
Program coordination meetings	1	day/quarter
Reporting	3	hours/month
Workshops	4	weeks/year
Customer care issues	2	hour/day
Checking stock for disposal	60	mins/month

Individual Allowance Standards			
Activity	**Number**	**Standard**	**Unit**
Develop requisition and supply plans	1	2	days/month
Annual delivery - delivery schedule	1	1	day/year
Manage the return of products	1	20	mins/day
Dispose at dump site	1	3	hours/quarter
Briefing meetings	1	30	mins/day
Staff supervision and management	1	8	hour/week
Oversight of all pharmaceutical warehouses	1	3	hours/week
Commodity transport weekly meetings	1	30	mins/day
Ad hoc meetings/management meetings	1	10	hours/week
Acting duties for chief pharmacist	1	4	weeks/year

Distribution Pharmacist Assistants at the CMS

Activity Standards for Distribution Pharmacist Assistants at CMS			
Activity	**Standard**	**Unit**	**Workload Data Description**
Picking and packing main customer order items	7.5	mins/item ordered	90% # of pharmaceutical main item orders
Amending main customer orders	30	mins/order/ warehouse	60% of # of total main orders
Checking main customer orders	1.5	hours/order/ warehouse	60% of # of total main orders
Process emergency customer orders	10	mins/item ordered	90% # of emergency pharmaceutical item orders
Receive products (physical inspection, enter into Syspro, prepare transfer doc, prepare for payment)	40	mins/item delivered	60% of total items delivered
Follow-up on supply discrepancy	10	mins/item delivered	for 10% of items delivered
Warehousing - put away process	15	mins/item delivered	90% # of pharmaceutical items delivered
Stock management	120	mins/warehouse	(# warehouses/cadre*AWT)

Category Allowance Standards for Distribution Pharmacist Assistants at CMS		
Activity	**Standard**	**Unit**
Annual stock taking	80	hours/year
Checking stock for disposal	30	mins/month
Distribution staff meetings	1	hour/week
Tea breaks	30	mins/day
Quarterly staff meetings - all CMS	4	hours/quarter
Reporting	1	hours/month
Workshops	4	weeks/year

Individual Allowance Standards for Distribution Pharmacist Assistants at CMS			
Activity	**Number**	**Standard**	**Unit**
Commodity transport weekly meetings	1	30	mins/week

Distribution Clerks/Administrative Officers at the CMS

Activity Standards for Distribution Administrative Officers/Clerks at CMS			
Activity	**Standard**	**Unit**	**Workload Data Description**
Picking and packing main customer order items	7.5	mins/item ordered	# of non-pharmaceutical main item order
Amending main customer orders	30	mins/order/ warehouse	30% of # of total main order
Checking main customer orders	1.5	hours/order/ warehouse	30% # of main orders * # warehouses
Loading stock for delivery	240	min/main order	# total main orders
Process emergency customer orders	10	mins/item ordered	# of emergency non-pharmaceutical item orders
Receive products (physical inspection, enter into Syspro, prepare transfer doc, prepare for payment)	40	mins/item delivered	30% of total items delivered
Follow-up on supply discrepancy	10	mins/item delivered	for 10% of items delivered
Warehousing - put away process	15	mins/item delivered	# of non-pharmaceutical items delivered
Stock management	120	mins/warehouse	# warehouses/cadre*AWT
Capture main customer orders	90	min/order	# total non-pharmaceutical main order items

Category Allowance Standards for Distribution Admin. Officers/Clerks at CMS		
Activity	**Standard**	**Unit**
Annual stock taking	80	hours/year
Checking stock for disposal	30	mins/month
Distribution staff meetings	1	hour/week
Tea breaks	30	mins/day
Quarterly staff meetings	4	hours/quarter
Reporting	1	hours/month
Workshops	4	weeks/year

Individual Allowance Standards for Distribution Administrative Officers/Clerks at CMS			
Activity	**Number**	**Standard**	**Unit**
Preparing trip authorizations for vehicles	1	30	mins/day
Managing commodity transport vehicles - vehicles tracking	1	2	hour/day
Manage the return of products	1	10	mins/day
Dispose at dump site	1	2	hours/quarter
Commodity transport weekly meetings	1	30	mins/week
Arrange for vehicle maintenance, licenses, mass distance charges	1	4	hours/week
Record keeping and fuel slip management	1	3	hours/week
Process customer invoices and delivery notes	1	8	hours/day
Preparing courier documents for emergency orders	1	2	hours/day
Processing S&T payments for drivers	1	3	hours/week

Pharmacists at the RMDs

Activity Standards			
Activity	**Standard**	**Unit**	**Workload Data Description**
Processing purchase order to CMS	4	hours/order	5% # of purchase orders
Issuing client order	90	minutes/order	5% # of client orders issued
Updating Syspro master inventory file	60	minutes/update	100% # of updates
Stock management	40	hours/week	# warehouses/cadre

Category Allowance Standards		
Activity	**Standard**	**Unit**
Storing of stocks in warehouses (put-away process)	2.5	days/month
Staff meetings	1	hour/month
Annual stock taking	14	days/year
CPD	60	mins/week
Tea breaks	30	mins/day

Individual Allowance Standards			
Activity	**Number**	**Standard**	**Unit**
Receiving stock from CMS	2	2.5	days/month
Setting minimum and maximum stock levels	2	5	days/year
Compile the order to CMS	1	20	minutes/week
Receiving purchase order into Syspro	1	20	minutes/week
Conduct pharmacy week activities	1	5	days/year
Attend management meeting	1	3	hours/month
Attend economizing meeting	1	4	hours/month
Attend Regional Therapeutics Committee meeting	1	4	days/year
Support supervision	1	140	hours/year
Compile monthly ART report	1	30	minutes/month
Compile quarterly PMIS report	1	8	hours/year
Attend National Pharmacist Forum	1	4	days/year
Conduct ABC analysis	1	5	days/year
Compile annual plan	1	2	hours/year
Compile quarterly report	1	4	hours/year
Compile annual report	1	5	days/year
Removal and disposal of expired/damaged stock	2	1	hours/month

Pharmacist Assistants at the RMDs

Activity Standards			
Activity	**Standard**	**Unit**	**Workload Data Description**
Processing purchase order	4	hours	65% # of purchase orders
Dispatching client order	3	hours/order	60% # of client orders dispatched
Issuing client order (picking and moving to dispatch)	90	minutes/order	65% # of client orders issued
Receiving and sorting returned stock from health facilities	30	minutes/update	60% # of adjustment reports
Stock management	40	hours/week	# warehouses/cadre

Category Allowance Standards		
Activity	**Standard**	**Unit**
Storing of stocks in warehouses (put-away process)	2	days/month
Staff meetings	1	hour/month
Annual stock taking	14	days/year
CPD	60	mins/week
Tea breaks	30	mins/day

Individual Allowance Standards			
Activity	**Number**	**Standard**	**Unit**
Receiving stock from CMS	8	10	days/year
Setting minimum and maximum stock levels	8	5	days/year
Capturing client order into Syspro	1	70	hours/month
Conduct pharmacy week activities	1	5	days/year
Checking printed order checklists	1	35	hours/month
Compile monthly TB report	1	1	hours/month
Compile quarterly malaria report	1	8	hours/year
Removal and disposal of expired/damaged stock	8	1	hour/month

Administrative Officers/Clerks at the RMDs

Activity Standards for Administrative Officers/Clerks at RMDs			
Activity	**Standard**	**Unit**	**Workload Data Description**
Processing purchase order	4	Hours	30% # of purchase orders
Dispatching client order	3	hours/order	40% # of client orders dispatched
Issuing client order	90	minutes/order	30% # of client orders issued
Receiving and sorting returned stock from health facilities	30	minutes/update	40% # of adjustment reports
Stock management	40	hours/week	# warehouses/cadre

Category Allowance Standards for Administrative Officers/Clerks at RMDs		
Activity	**Standard**	**Unit**
Storing of stocks in warehouses (put-away process)	2.5	days/month
Staff meetings	1	hour/month
Annual stock taking	14	days/year
Tea breaks	30	mins/day

Individual Allowance Standards for Administrative Officers/Clerks at RMDs			
Activity	**Number**	**Standard**	**Unit**
Mini stock taking	2	2.5	days/month
Removal and disposal of expired/damaged stock	2	1	hours/month

APPENDIX 5: RAPID RETENTION SURVEY AND COSTING STRATEGY

Job Attributes and Levels included in RRS for Pharmacists

Attributes	Levels
Monthly salary (basic salary excluding benefits)	1. No additional basic salary
	2. 10% additional basic salary
	3. 20% additional basic salary
	4. 30% additional basic salary
Housing	1. No housing allowance
	2. Housing allowance (extra to basic salary)
	3. Well-maintained government housing provided
Living conditions	1. Availability and access to basic amenities (running water, electricity)
	2. Always good availability and access to amenities (running water, electricity, supermarkets, Internet)
Children's education	1. No good schools close by
	2. Good schools close by
Career advancement/promotion possibilities	1. Eligible for promotion after 2 years
	2. Eligible for promotion after 1 year
Scope of practice (range of responsibility with available resources)	1. Narrow scope of practice with limited opportunity to apply skills due to lack of resources (human, supplies, equipment, etc.)
	2. Wide scope of practice and ability to apply skills

Job Attributes and Levels included in RRS for Pharmacist Assistants

Attributes	Levels
Monthly salary (basic salary excluding benefits)	1. No additional basic salary
	2. 10% additional basic salary
	3. 20% additional basic salary
	4. 30% additional basic salary
Opportunities for continued education	1. No opportunity for continued education
	2. Opportunities for further study and scholarship within field after 5 years
	3. Opportunities for further study and scholarship within field after 3 years
Housing	1. No housing allowance
	2. Housing allowance (extra to basic salary)
	3. Well-maintained government housing provided
Fixed overtime	1. No overtime payable
	2. Fixed overtime payable (set amount irrespective of overtime hours worked)
Living conditions	1. Availability and access to basic amenities (running water, electricity)
	2. Always good availability and access to amenities (running water, electricity, supermarkets, Internet)
Scope of practice (range of responsibility with available resources)	1. Narrow scope of practice with limited opportunity to apply skills due to lack of resources (human, supplies, equipment, etc.)
	2. Wide scope of practice and ability to apply skills

Sample Job Preference Survey Question for Pharmacists

Which of these two job postings do you prefer? Select one by marking the circle under the job you prefer.

	District Hospital	National Tertiary Hospital
Housing	No housing allowance	Well-maintained government housing provided
Living Conditions	Availability and access to basic amenities (running water, electricity)	Always good availability and access to amenities (running water, electricity, supermarkets, internet)
Monthly Salary (basic salary excl. benefits)	10% additional basic salary	20% additional basic salary
Children's Education	No good schools close-by	Good schools close-by
Career Advancement/Promotion Possibilities	Eligible for promotion after 2 years	Eligible for promotion after 1 year
Scope of Practice with Available Resources	Narrow scope of practice with limited opportunity to apply skills due to lack of resources (human, supplies, equipment, infrastructure, etc.)	Wide scope of practice and opportunity to apply skills due to availability of resources (human, supplies, equipment, infrastructure, etc.)
	JobPair_Random1=1	JobPair_Random1=2

Sample Job Preference Survey Question for Pharmacist Assistants

Which of these two job postings do you prefer? Select one by marking the circle under the job you prefer.

	District Hospital	National Tertiary Hospital
Housing	No housing allowance	Housing allowance (extra to basic salary)
Living Conditions	Availability and access to basic amenities (running water, electricity)	Always good availability and access to amenities (running water, electricity, supermarkets, internet)
Monthly Salary (basic salary excl. benefits)	No additional basic salary	20% additional basic salary
Opportunities for continued education	Opportunities for further study and scholarship within field after 5 years	Opportunities for further study and scholarship within field after 3 years
Overtime	No overtime payable	Fixed overtime payable (set amount irrespective of overtime hours worked)
Scope of Practice With Available Resources	Narrow scope of practice with limited opportunity to apply skills due to lack of resources (human, supplies, equipment, infrastructure, etc.)	Wide scope of practice and opportunity to apply skills due to availability of resources (human, supplies, equipment, infrastructure, etc.)

Ranked Job Attributes and Levels for Pharmacists

Job Attribute	Job Incentives/Conditions *(ranked from most to least preferred)*	Coefficient
Monthly salary *(basic salary excluding benefits)*	1. 30% additional basic salary	9.53*
	2. 20% additional basic salary	8.80*
	3. 10% additional basic salary	8.06*
Children's education	4. Good schools close by ǂ	1.83*
Housing	5. Well-maintained government housing provided	1.34*
Scope of practice *(range of responsibility with available resources)*	6. Wide scope of practice and opportunity to apply skills due to availability of resources (human, supplies, equipment, infrastructure, etc.)*	1.09*
Housing	7. Housing allowance (extra to basic salary) ǂ	1.04*
Location	8. National tertiary hospital (Windhoek)ǂ	0.32
Career advancement/ promotion possibilities	9. Eligible for promotion after 1 year	0.18
Living conditions	10. Always good availability and access to amenities (running water, electricity, supermarkets, Internet)	-0.04

** Significant at the p ≤ 0.1 level. Job attributes and levels that were not significant at the p ≤ 0.1 values were not included in potential job packages.*

ǂ Included as part of the current job package or standard job posting.

Ranked Job Attributes and Levels for Pharmacist Assistants

Job Attribute	Job Incentives/Conditions *(ranked from most to least preferred)*	Coefficient
Monthly salary *(basic salary excluding benefits)*	1. 30% additional basic salary	5.74*
	2. 20% additional basic salary	5.30*
	3. 10% additional basic salary	4.85*
Opportunities for continued education	4. Opportunities for further study and scholarship within field after 3 years ǂ	2.77*
	5. Opportunities for further study and scholarship within field after 5 years	2.09*
Overtime	6. Fixed overtime payable (set amount irrespective of overtime hours worked)	1.20*
Housing	7. Well-maintained government housing provided	0.78*
	8. Housing allowance (extra to basic salary) ǂ	0.70*
Location	9. National tertiary hospital (Windhoek)ǂ	0.33*
Living conditions	10. Always good availability and access to amenities (running water, electricity, supermarkets, Internet)	0.11
Scope of practice (*range of responsibility with available resources*)	11. Wide scope of practice and opportunity to apply skills due to availability of resources (human, supplies, equipment, infrastructure, etc.)	0.09

** Significant at the p ≤ 0.1 level. Job attributes and levels that were not significant at the p ≤ 0.1 value were not included in potential job packages.*

ǂ Included as part of the current job package or standard job posting.

iHRIS Retain Costing Methodology

General	Costing element, approach, and/or assumption
Financial information	• GRN/MOHSS health expenditures budget and the personnel expenditures budget for pharmacy and pharmacy assistant cadres,[1] assumed flat over 5 years (but accounting for inflation) • Namibian dollars, assuming an inflation rate of 5.4%[2]
Health worker cadres	• Projected number of posts to be established and filled is based on the WISN calculated requirements, which are disaggregated by region and site: - *Pharmacists*: 143 (1.2% of total approved staff) - *Pharmacist assistants*: 223 (1.9% of total approved staff) • Tertiary hospitals, RMDs, and CMS considered "urban", including Windhoek, Rundu, and Oshakati
Salary scales and benefits structure	• Baseline 0% salary increase **(A)** the average of MOHSS global benefits and the Personnel Administration Measures (PAMs) of the Office of the Prime Minister[3,4] • Potential salary increases at 10% **(B)**, 20% **(C)** and 30% **(D)** of basic salary, excluding benefits
Housing Allowance	• Grades 14+15: N$600 • Grades 13-9: N$800 • Grades 8-5: N$1,000[3]
Well-maintained government housing	• Average monthly rental cost by region[5] - Group I (*Otjozondjupa*): N$ 1,875 - Group II (*Kunene, Ohangwena, Omaheke, Omusati, Oshana, Oshikoto*): N$3,125 - Group III (*Kavango/Caprivi*): N$ 5,826 - Group IV (*Hardap, Karas, Khomas*): N$ 6,521 - Group V (*Erongo*): N$ 7,908 • Construction of a standard two-bedroom house: N$ 400,000 (building cost only)[5] • House repair is included in the Capital/Development budget of the MOHSS • Inventory of existing government houses by region/site unknown
Wide scope of practice	• Determining priority gaps in supplies, equipment, and infrastructure - Site assessment visit (Y1) & budget allocation for new equipment (Y2)
Proximity to good schools for children *(Pharmacist job packages only)*	• Average tuition for private schools is N$ 3,000/month • Tuition is paid for 9 months/year for an average of two children per health worker (based on average of 3.9 births per woman)[6] • There is at least one private school in each region
Eligibility for promotion after one year *(Pharmacist job packages only)*	• iHRIS data to determine current pharmacist grades • PAMs for salary scales by grade[4] • *Assumption: Top 10%* of eligible PAs who actually get promoted; requires improved performance management system
Opportunities for	• 3-year Pharmaceutical Technician Diploma course

General	Costing element, approach, and/or assumption
continued education *(Pharmacist assistants job packages only)*	- Total fees per year; N$ 21,620 (Namibians); N$ 41,050 (Non-Namibians)[7] - *Assumption:* 90% of PAs are Namibians, and 10% are non-Namibians, for a weighted average cost of $70,689 - *Assumption*: 10% of eligible pharmacy assistants to be supported for their diploma & complete the 3-year diploma within 3 years - Administrative costs to identify eligible candidates and provide scholarship will be included • Other possible on-site CPD for remaining 90% • *N.B. As years of actual health workers' service known, eligibility (either 3 or 5 years) remains standard.*
Fixed overtime *(Pharmacist assistants job packages only)*	• Average based on percentage of salary: N$10,928.65 per month[4,8]

Sources:

(1) Republic of Namibia. 2013. Medium term expenditure framework, 2013/14 to 2015/16. http://www.mof.gov.na/documents/57508/107404/Medium+Term+Expenditure+Framework+2013-14+to+2015-16+-With+Covers-.pdf (accessed July 8, 2015).

(2) Bank of Namibia. 2014. Bank of Namibia quarterly bulletin, December 2014. Vol. 23, no. 3. **Error! Hyperlink reference not valid.**https://www.bon.com.na/CMSTemplates/Bon/Files/bon.com.na/0e/0e84cc54-0307-46de-90ef-d2c766d9fb71.pdf (accessed July 8, 2015).

(3) OPM 2014a, 2014b. (A) Office of the Prime Minister (OPM), Republic of Namibia. 2014a. Personnel administration measures (PAM). Job category: Pharmacist. Windhoek, Namibia. (B) Office of the Prime Minister (OPM), Republic of Namibia. 2014b. Personnel administration measures (PAM). Job category: Pharmacist assistant. Windhoek, Namibia.

(4) OPM 2014a, 2014b.

(5) Namibia Water Corporation, 2015. Comparison of market related rentals. Windhoek, Namibia

(6) Namibia Statistics Agency. 2014. Namibia Population Projections 2011–2041. Windhoek, Namibia. http://cms.my.na/assets/documents/p19dn4fhgp14t5ns24g4p6r1c401.pdf (accessed July 8, 2015). This does not take into account the average family size for expatriate pharmacists; 66% of all pharmacists surveyed in the RRS reported having children.

(7) University of Namibia. 2015. Faculty of Health Sciences, School of Pharmacy Prospectus 2015. http://www.unam.edu.na/wp-content/uploads/prospects-2015/pharmacy-prospectus-2015.pdf (accessed July 8, 2015).

(8) Anna Isaacs, MOHSS, personal communication. May 2015.

More information is available about iHRIS Retain here. In the costing exercise, efforts were made to achieve at least a 65% preference rate for the minimum package with no salary increase, a 75% preference rate for the moderate package, and at least a 90% preference rate for the most-preferred package.

APPENDIX 6: SCPI SELF-INSPECTION CHECKLIST

Checklist for Internal Audit of Self Inspection of the Depot							
Area inspected							
No.	**Organization and management**	**Yes**	**No**	**Not Sure**	**Problem**	**Comment**
1	Is the Depot appropriately licensed with the regulatory authority to perform the intended functions in terms of the applicable legislation?					
2	Is the name of the responsible pharmacist displayed over the main entrance?					
3	Is the name of the pharmacist on duty displayed in the Depot?					
4	Is the distributor operations conducted under the constant personal supervision of a pharmacist?					
5	Is a Site Master file available for the Depot?					
6	Is an appropriate organogram provided at every level of the distribution chain?					
7	Are letters of appointment available for the key supervisory personnel?					
	Personnel					
8	Is there an induction/orientation-training program available for new employees? (personnel handbook, policy and procedure manuals)					
9	Are personnel subjected to formal in-service quality-awareness training programs/refresher courses at planned intervals? – Are training manuals available?					
10 11 12 13 14 15 16 17 18 19 20	Do the training program at least cover: • SOP training • Legal requirements within the workplace? • Critical tasks? • Good housekeeping practices? • Health and hygiene? • Replenishment, picking, checking and packing? • Safety management and personal protective equipment? • Emergency procedures? • Contamination and cross-contamination? • Good vaccine storage and transport techniques? • Security?					
21	Is there a written training program including subjects to cover, frequency and assessment?					
22	Are training records filed on each employee's file?					
23	Are current and authorized job descriptions available for key personnel?					

24	Are there sufficient suitable qualified and trained personnel at all levels?					
25	Are personnel issued with Personal Protective Equipment (e.g. protective clothing, hand gloves, respiratory masks, eye goggles or hard hats) for the safe handling of pharmaceutical goods where applicable?					
	Procurement of medicines					
26	Are goods purchased only from legitimate manufacturers or other authorized sources to ensure traceability and confidence in the quality of pharmaceutical products?					
	Quality Management					
27	Is a Quality Manual available?					
28	Does the organogram include key supervisory/control personnel? Are the responsibility, authority and interrelationships of all personnel clearly defined?					
	Premises, warehousing and storage					
29	Is access to the Receiving Department secure and restricted to authorized persons only?					
30	Does receiving bays protect deliveries from bad weather during unloading?					
31	Are these areas effectively separated and clearly defined?					
32	Is the receiving area designed and equipped to allow the cleaning of containers of incoming goods, if necessary, before storage?					
33	Is there a receiving team available during receiving? (Supervisor/pharmacist, receiving clerks, of loaders/loaders, forklift operators, cleaners, security)?					
34	Is all staff of the receiving team trained in the correct receiving procedures?					
35	Is material handling equipment available at receiving? (Forklifts, pallet trucks)					
36	Is safety equipment available at receiving? (loaders, protective clothing, safety shoes, hard hats, gloves, eye protection, fire extinguishers)					
37	Is first-aid procedures and equipment for dealing with emergencies involving personnel at receiving available?					
38	Are special handling instructions followed in respect of narcotic/psychotropic/hazardous, flammable, fragile and thermolabile products?					
39	Are goods and delivery vehicles examined for signs of possible external contamination?					
40	Are incoming goods checked for quantity, quality, damaged containers, type, conditions and expiry dates?					
41	Are the delivery note and invoices compared to a valid purchase order?					
42 43 44 45 46 47 48 49	Does the receiving clerk check the consignment against the delivery note for the following: • The identity of the stock? • The batch numbers of the stock? • The expiry dates of the stock? • The pack size? • The gross condition of the stock? • The quantity of the stock received? • The supplier's details? • The signature of the person who received the stock?					

50	Is a “discrepancy report” filled in for all defective products received? (integrity, short-dated, expired, broken, leaking, damaged, short/over supply)					
51	Are special handling instructions followed in respect of narcotic, psychotropic and thermolabile products?					
	General storage area					
52	Are the storage areas of sufficient capacity to allow orderly storage of the various categories of products namely products in quarantine, released, rejected, returned or recalled products?					
53	Are there any open drain channels in the floor?					
54	Are the premises clean ad floors durable and easily cleanable?					
55	Are walls all solid and sealed?					
56	Is the premises constructed in such a way to prevent infestation by vermin and pests?					
57	Is waste material collected in suitable containers (with closable lids) for removal to dedicated collection points at regular intervals?					
58	Are goods adequately protected from light, heat and humidity?					
59	Are the floor areas sufficient and organized to facilitate adequate security, efficient flow of work and people, effective communication/supervision and optimum service delivery to clients?					
60	Is there a Fire Safety Procedure available?					
61	Is there sufficient fire-fighting equipment available, both inside and outside the building?					
62	Are emergency exits clearly marked?					
63	Are emergency exits regularly checked to ensure that they are not blocked or inaccessible?					
64	Are sufficient smoke detectors available?					
65	Are the fire extinguishers serviced every 12 months?					
66	Are fire drills executed at least once per month?					
67	Is the fire alarm linked to the local fire brigade?					
68	Do the premises have a First Aid Box complying with the specifications?					
69	Are storage areas provided with adequate lighting to enable all operations to be carried out accurately and safely?					
70	Are Material Safety Data Sheets (MSDS) available for each type of product stored in the warehouse?					
71	Is a Chemical Spillage Kit available? (Is a SOP available on the cleanup of any spillage to ensure complete removal of any risk of contamination)					
72	Are all pharmaceutical products handled and stored in such a manner to prevent contamination, mix-ups and cross-contamination?					
73	Are forklifts, hand trucks, cranes, hoists only operated by trained operators?					
74 75 76 77 78	Are the storage areas of sufficient capacity to allow orderly storage of the various categories of products, namely products in dedicated, demarcated areas • Goods receiving? • Goods in quarantine? • Goods released?					

79 80 81 82	• Goods rejected? • Goods returned? • Goods recalled? • Thermolabile storage? • Narcotic/psychotropic/high risk medicines? • Dispatch?					
83	Is storage conditions for pharmaceuticals in compliance with the labeling/package insert, which is based on the results of stability testing?					
84	Are medicines stored according to a system (e.g. computerized or bin card system)? Also in various stores or sections.					
85	Are all goods stored off the floor, on pallets, shelves in cupboards or pick flow racks, suitably spaced to permit cleaning and inspection?					
86	Are pallets kept in a good state of cleanliness and repair?					
87	Is enough space provided between storage and outside walls to allow access for rodent/insect control, cleaning and firefighting equipment and materials?					
88	Is the warehouse dedicated to "approve" saleable stock only? Is physical or other validated segregation (e.g. electronic) provided for the storage of rejected, expired, recalled or returned products?					
89	Is broken or damaged items withdrawn from usable stock and separated?					
90	Is the temperature in the warehouse according to specifications?					
91	Are calibrated temperature recorders/maximum-minimum thermometers used to record the temperature?					
92	Are the temperatures of the warehouse monitored with calibrated temperature monitors and recorded twice a day?					
93	Are flammable substances (e.g. Ether) stored in separate outdoor flammable store located away from the main building and pathways?					
94	Are any expired/short dated (3 months) medicines on the shelves?					
	Thermolabile store					
95	Are thermolabile medicines stored in a fridge/cold room?					
96	Only medicines are stored in the fridge/cold room?					
97	Are thermolabile medicines stored according to a document driven system and SOP?					
98	Is the consignment of vaccines checked on receipt and transferred to the fridge/cold room immediately?					
99	Does the Warehouse Designate check the temperature monitor indicator within the cooler box to ascertain whether the delivery was Maintained and received within the prescribed requirements of 2°C - 8°C?					
100	Does the Warehouse Designate record all these details on the Cold Chain Maintenance log?					
101	Is the fridge/cold room in working order and maintained regularly as per contract? Is maintenance recorded?					
102	Are vaccines stored in the middle shelves of the fridge? (avoid placing stock on door, top and bottom shelves)					
103	Are temperatures monitored in the fridge/cold room with calibrated temperature recorders/maximum-minimum thermometers and recorded twice daily? Temperature logs?					
104	Is an adequate warning system in place to indicate power, fridge or cold					

	room failure?					
105	Is a back-up generator in place for the fridge/cold room?					
106	Is the back-up generator tested at least once per week?					
107	Are procedures in place for maintaining the cold chain in the event of fridge failure?					
108	Are vaccines quarantined after a "cold chain failure" and is the "cold chain variance form" completed?					
109	Are the temperature recorders/ maximum-minimum thermometers in the fridges/cold room and cool boxes calibrated at defined intervals?					
	Inventory management					
110	Is there an effective stock control system in pace to prevent wastage through expiry, theft and fraud?					
111	Is inventory rotated on a FEFO/FIFO basis?					
112	Are cyclical stock counts done on a regular basis, according to written procedures? Is the actual and recorded stocks compared					
113	Are all significant stock discrepancies investigated as a check against inadvertent mix-ups and or incorrect issue?					
114	Are all real-time computerized inventory records kept?					
115	Are inventory records batch-specific (to enable tracing chain of supplies)					
116	Are the batch numbers of goods dispatched by the company recorded on invoices (for traceability)?					
117	Are medicines supplied into the retail sector to authorized clients?					
118	Are there up-to-date lists of registered Hospitals, pharmacies, veterinarians and licensed dispensing practitioners (client validity)?					
	Returned goods					
119	Is there a written SOP or document-driven system for the handling of returned goods?					
120	Are all the examination, assessment and decisions regarding the integrity of the returned goods channeled through a pharmacist?					
121	Are returned goods separated from saleable/useable stock until their final disposal?					
122	Are batch-specific records kept on all goods returned?					
123	Does a designated pharmacist formally release goods for return to stock?					
	Damaged or rejected goods					
124	Is there a written procedure in place for the handling of damaged and/or broken containers? Is particular attention paid to potentially toxic and hazardous products?					
125	Is there an SOP and recording system for control or rejected goods under a quarantine system to prevent their use until a final decision is taken on their fate?					
	Quarantine area					
126	Is there a written SOP for the isolation and control of goods in quarantine?					
127	Is a dedicated quarantine area of sufficient capacity available?					
128	Are quarantined goods clearly identified as such?					
129	Are adequate security measures in place to control the movement of stock in the quarantine area?					
130	Is a designated person in charge of this area?					

131	Are records kept of goods in quarantine?					
	Vehicles and equipment					
132	Are the vehicles that are used for the delivery of pharmaceutical products dedicated and appropriately protective of the products to prevent exposure to conditions that could affect their stability and packaging integrity, and prevent contamination of any kind?					
133	Does the design and use of the vehicles and equipment aim to minimize the risk of errors and permit effective cleaning in order to avoid contamination, build-up of dust or dirt and/or any adverse effect on the quality of pharmaceutical products being distributed?					
134	Are there procedures in place for the operation and the maintenance of all vehicles and equipment involved in the distribution process, including cleaning and safety precautions?					
135	Where special storage conditions (e.g. temperature and/or relative humidity) are required during the transit of medicines are these storage conditions provided, checked, monitored and recorded?					
136	Are equipment used for monitoring conditions within vehicles and containers e.g. temperature and humidity, calibrated?					
137	Are vehicles and containers of sufficient capacity to allow orderly storage of various categories of pharmaceutical products during transportation?					
	Shipment containers					
138	Are thermolabile products dispatched in cold chain containers?					
139	Are special care used when using freezer packs to ensure that the pharmaceutical product does not come into contact with the freezer pack, as it may have an adverse effect on the quality of the product?					
140	Are all pharmaceutical products stored and distributed in containers which do not have an adverse effect on the quality of the products, and which offer adequate protection from external influences, including microbial contamination?					
141	Are labels applied to the container clear, permanently fixed to the container and indelible? Does the information on the label comply with applicable national legislation with regard to the labeling of containers?					
142	Are special transport and/or storage conditions stated on the label?					
	Dispatch control					
143	Is there a written SOP relating to the control of goods dispatched to the clients?					
144	Does the SOP require that client validity/authority to acquire such products be verified?					
145	Do dispatch bays protect deliveries from bad weather during loading?					
146	Is there a current list of approved, valid customers?					
147	Are records for the dispatch prepared and does it include the following information: • Date of dispatch? • Name and address of suppliers? • Name and address of addressee? • A description of the products? • Assigned batch number and expiry date?					

	• Applicable transport and storage conditions? • Unique number to allow identification of the delivery order?					
148	Are the vehicles and containers loaded carefully and systematically on a first out/last-in basis in order to save time when unloading and to prevent physical damage?					
149	Does the packaging material used adequately protect goods whilst in transit?					
150	Are suitable procedures in place to clean up spillages in the transport vehicle as soon as possible to prevent possible contamination and cross contamination?					
151	Has the designated personnel of the Depot courier service been trained in "cold chain management" of the transport of thermolabile products?					
152	Are suitable procedures used to maintain the cold chain? (suitable coolants, insulation material)					
153	Are thermolabile products adequately protected from being compromised? (products/temperature probes are wrapped in bubble packs and isolated from freezer blocks)					
154	Are written procedures in place to investigate and deal with any "cold chain failure" and is a "cold chain variance form" completed?					
	Transportation and products in transit					
155	Are suitable procedures (e.g. suitable coolants) used to maintain the cold chain during the transportation process of cold chain products?					
156	Has the transport process for cold chain products been validated to maintain the thermolabile products at 2°C-8°C for the duration of the trip?					
157	Does the manufacturer communicate all relevant conditions for storage and transportation to the entities responsible for the transportation of pharmaceutical products? (Labeling & package insert)?					
158	Are cold chain products being transported being preserved? The specific storage conditions of the product are not grossly exceeded or exceeded for an unacceptable length of time?					
159 160 161 162	Are products transported in such a way that: • The identification of the product is not lost? • The product does not contaminate, and is not contaminated by, other products or materials? • Adequate precautions are taken against spillage or breakage? • The specific storage conditions of the product are not interfered?					
	Documentation					
163	Are documents, and in particular instructions and procedures relating to any activity that could have an impact on the quality of pharmaceutical products, designed, completed, reviewed and distributed with care?					
164	Are the title, nature and purpose of each document clearly stated? Are the contents of the documents clear and unambiguous? Are documents laid out in an orderly fashion and easy to check?					
165	Are all documents completed, approved, signed (as required) and dated by an appropriate authorized person(s) and should not be changed without the necessary authorization?					
	Do the nature, content and retention of documentation relating to the					

166	distribution of pharmaceutical products comply with national legislative requirements? Where such requirements are not in place, are these documents retained for a period equal to the shelf-life of the products where applicable, plus one year?					
167	Does the distributor establish and maintain procedures for the identification, collection, indexing, retrieval, storage, maintenance, disposal of and access to all applicable documentation?					
168	Are all records easily retrievable, and stored and retained using facilities that are safeguarded against unauthorized modification, damage, deterioration and/or loss of documentation?					
169	Are documents reviewed regularly and kept up to date?					
170	Are records relating to storage of pharmaceutical products kept and readily available upon request in accordance with the WHO Guidelines on Good Storage Practice?					
171	Are procedures in place for temperature mapping, security services to prevent theft or tampering with goods at the storage facilities, destruction?					
172	In case of temperature-sensitive pharmaceutical products, are records of investigations and actions retained for at least one year after the expiry date of the product?					
173	Where the records are generated and kept in an electronic form, are backups maintained to prevent any accidental data loss?					
174	Do holder of a distribution license keep records for any transaction in medical products received or dispatched containing at least the following information: • Date? • Name of the medical product? • Batch number and expiry date? • Copies of order forms, delivery notes, stores receipt and issue vouchers? • Quantity received? • Quantity supplied? • Name and address of the approved supplier or consignee?					
	Standard Operating Procedures					
175	Does a SOP exist for the creation and updating of SOP's					
176	Are all SOPs uniformly structured in a format including the: • Title? • Date of issue? • Policy and objective? • Scope? • References? • Delegation of responsibilities? • Abbreviations and definitions? • Action? • Revision history? • Addendum? • ISO format?					

177	Are all SOPs formalized? (signed, dated & initialed on each page by the Responsible Pharmacist and at least one of the other key personnel)					
178	Are the SOPs structured to allow the responsible pharmacist to exercise his legal responsibilities?					
179	Are the SOPs indexed for easy retrieval?					
180	Are all superseded "Master Copies" archived and "Controlled Copies" shredded?					
181	Are all SOPs available at their point of use?					
182	Are SOPs revised at least once every 2 years?					
183	Are SOPs practical and suitable?					
184	Is the SOPs distribution list appropriate?					
185	Are there at least SOPs to cover: • How to create and update an SOP?					
186	• Self-inspection (audits)?					
187	• Recall / Withdrawal of medicines from the market?					
188	• Handling of technical complaints?					
189	• Handling of returned goods?					
190	• Purchasing procedures					
191	• Receiving / Incoming goods control?					
192	• Disposal of rejected materials?					
193	• Rodent / Pest control?					
194	• Handling of counterfeit medicines?					
195	• Handling of goods in quarantine?					
196	• Personal health and hygiene?					
197	• Good housekeeping? Is there an SOP for cleaning of the receiving, storage, packing and dispatch areas in the warehouse as often as needed?					
198	• Security of stocks on site / consignments in transit?					
199	• Training of personnel?					
200	• Return of defective/non-defective products?					
201	• Handling of rejected goods?					
202	• Dispatch?					
203	• Cold chain maintenance?					
204	• Distribution control of SOPs?					
205	• Stock rotation / stock control?					
206	• Handling of scheduled medicines?					
207	• Temperature control of products?					
208	• Recording of storage conditions?					
209	• Checking validity of clients?					
210	• Planned preventative maintenance?					
211	• Counterfeit medicines?					
	Technical Complaints					
212	Is there a written SOP for handling technical complaints?					
213	Has the company recently reported a product complaint?					
	Are technical complaints recorded, followed up and a final report issued?					

214						
	Recalls					
215	Does the SOP for the recall of medicine include emergency and after hour contact persons and telephone numbers?					
216	Does it include a dummy letter that includes name of product, including INN and trade name, strength and pack size, batch number, main therapeutic class, nature of the defect, reason for the recall, date of recall, action to be taken and urgency?					
217	Is there a separate area for recalled goods awaiting further discussion?					
218	Is the progress of the recall recorded and a final report issued, including reconciliation between the delivered and recovered quantities of the products?					
219	Are the Regulatory Authorities of all countries to which products have been distributed, informed?					
	Good house keeping					
220	Is there an SOP for cleaning of the receiving, storage, packing and dispatch areas in the warehouse as often as needed?					
221	Is storage areas kept clean and free from accumulated waste and vermin?					
222	Is a written sanitation program (cleaning schedule) for the warehouse available and recorded? Are the cleaning logs available?					
223	Are there suitable equipment (Brooms, mops, bins, scoops, etc.) available to carry out effective cleaning routines?					
	Personal health and hygiene					
224	Are pre-employment health checks carried out prior and during employment at regular intervals?					
225	Are records kept of all health checks of each employee?					
226	Are all personnel training in the practices of personal hygiene?					
227	Is the prescribed level of personal hygiene maintained by all persons who come into direct contact with the medicines in the distribution process, whether they are temporary or full-time employees or non-employees e.g. contractors or visitors?					
228	Are changing rooms and toilets available?					
229	Are changing rooms and toilets separate from the warehouse areas?					
230	Is smoking, eating, drinking, chewing and keeping plants, food, drink, smoking material and personal medication in the warehouse prohibited?					
	Pest control					
231	Is there an SOP for pest control and elimination? (rodents, bats, birds, insects and termites)					
232	Is the pest-control agents used safe and registered with the Department of Agriculture for that purpose?					
233	Is there a floor plan available, indicating the position of the rodent bait stations?					
234	Is there a pest control contract in place with a register service provider?					
235	Is the current contract managed?					
	Internationally controlled substances					
236	Are internationally controlled medicines kept?					

237	Are narcotic medicines stored in compliance with International Conventions and National Legislation, Regulations on Narcotic Drugs?					
238	Is there an up-to-date register of all International Controlled medicines purchases and sales, which records: • The name and business address of the supplier? • The name and business address of the purchaser? • The date of each such transaction? • The quantities recorded or sold? • The balance held in stock at the end of each year?					
239	Are those records kept for at least 5 years after the last date of sale?					
240	Are psychotropic medicines stored in a restricted area and narcotic medicines locked away and keys under control of the pharmacist?					
	Contract activities					
241	Are there signed and valid service level agreements available for: • Pest control					
242	• Collection of damaged/rejected pharmaceuticals for destruction?					
243	• For temperature mapping of the warehouse and fridge/cold room?					
244	• Security services to prevent theft or tampering with goods?					
245	• To provide and service fire-fighting equipment?					
246	• To service delivery trucks, forklifts, hand trucks, cranes, hoists at regular intervals?					
247	• To service all air conditioners in the warehouse at regular intervals?					
248	• To calibrate the temperature recorders/maximum-minimum thermometers in the warehouse, fridges/cool rooms as defined intervals?					
	Self-inspection					
249	Is there a written SOP or document driven system for performing regular self-inspection audits?					
250	Is a self-inspection questionnaire/check list available?					
251	Are these results recorded in an audit report, followed up and the corrective measures implemented?					

APPENDIX 7: SCPI TRAINING MODULE OBJECTIVES

Topic	Modules	SOPs covered	Objectives
SOPs	How to write and train a SOP	All SOPs	• Know what an SOP is and the purpose thereof • Understand the function of SOPs • Understand benefits of implementation of SOPs • Understand the SOP process • SOP review and approval • Know when to renew SOPs • Create SOP checklist • Be able to structure a SOP • Be able to write a SOP • Update SOPs • Train and implement SOPs
Operations	Process flows	All SOPs	• How to put a flow chart together for universal understanding • The components of a flow chart • The use of flow charts
Operations	Receiving	• Reception of stock • Control of stock in quarantine • Control of non-conforming of products • Put-away of stock	• Comprehend what receiving stock entails • Understand documents used when receiving stock • Understand the process of receiving stock • Understand the importance of planning the receiving stock • Plan the receiving of stock • Understand special requirements for thermo-labile, Schedule 6, and hazardous products
Operations	Cold chain	• Cold chain	• What cold chain products are • How cold chain products are transported • The distribution chain's role in safeguarding product quality • Storage conditions required for cold chain • The correct packaging, handling and timely delivery of cold chain products • Why proper training and awareness must be created among all role players in cold chain • What can be done to ensure that products are handled and transported correctly • Designated courier / freight forward partners' role in cold chain distribution
Operations	Picking, packing, and checking	• Picking of orders • Checking and packing of orders	• The essential elements for picking • The picking process • Picking documentation

Topic	Modules	SOPs covered	Objectives
			• Packing and checking
Operations	Dispatch and distribution	• Dispatch of orders • Transportation of orders	• Identify the outcomes of a well-designed distribution system • Review the distribution cycle • Discuss the elements of a distribution system and good distribution practice codes • Discuss the importance of quality assurance in distribution • Discuss planning and budgeting in distribution • Discuss the importance of data and an information system in distribution management
Health and Safety	Physical controls, safety and security in the warehouse Good warehousing and distribution practices	• Health and safety inspection sheet • Health & safety policy • Warehouse access & egress control • Daily cleaning of the warehouse • Incident and accident reporting • Control of eating, smoking, and drinking in the warehouse • Rodent and pest control	• Outline the effect of adverse (bad) storage conditions on medicines • Identify physical factors that cause damage to medicines • Discuss the physical control of factors that can cause damage to medicines • Discover a service level agreement with a service provider • Identify the role of cleaning and inspection in the warehouse • Discuss the importance of personal hygiene • Describe the rationale for safety management in the warehouse • Discuss various types of hazards found in workplaces including the warehouse • Discuss the principles of risk assessment and control • Discuss health and safety in the warehouse • Outline the composition and functions of a health and safety committee • Explain the rationale for security considerations in a warehouse • Discuss the importance of fire precautions in a warehouse • Ensure that facility adheres to the standards and principles of Good Warehouse Practice (GWP) • Do an audit to see where the shortcomings are • Suggest improvements based on audit to ensure that facility adheres to GWP
Quality managemen	Quality management	• Recall & withdrawal	• Demonstrate awareness of regulatory

Topic	Modules	SOPs covered	Objectives
t		of products • Procedure for handling goods reaching expiry dates • Effective stock rotation • Control of counterfeit, stolen, and damaged product • Roles and responsibilities • Induction training • Storage and distribution of products • Audits and self-inspection • Corrective action • Control of documents • Control of records • Quality management system & management reviews	requirements for quality control • Understand the purpose of quality assurance • Understand the need for a site master file and a quality manual • How to write and train SOPs • Be able to explain quality management in a warehouse • Understand the principles of quality management • Management of the quality management program • How to do a quality audit • Risk management • How to put the site master file together as well as the need/importance of the site master file • Understand drug recall and destruction • How to identify counterfeits • How to conduct a recall of products

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