Capacity Building for Healthcare Personnel to Manage Pharmaceutical Services at ART and NIMART Sites, October 2015 to September 2016

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About SIAPS

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

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Key Words

Namibia, MoHSS, HIV/AIDS, ART, NIMART, EDT, facility electronic stock card (FESC), pharmaceutical human resources, training/capacity building, site-level, support/technical assistance, patients

CONTENTS

ACRONYMS AND ABBREVIATIONS

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral treatment
ARV	antiretroviral
CBART	community-based antiretroviral treatment
CMS	Central Medical Store
DH	district hospital
Div: PhSs	Division of Pharmaceutical Services
DR	drug resistance
DR-TB	drug resistant tuberculosis
EDT	Electronic Dispensing Tool
eLMIS	electronic Logistics Management and Information System
FESC	facility electronic stock card
FY	fiscal year
HC	health center
HIV	human immunodeficiency virus
HR	human resource
LMIS	Logistics Management and Information System
MDR	multi-drug resistant
mEDT	mobile Electronic Dispensing Tool
MoHSS	Ministry of Health and Social Services
MRMD	Multi Regional Medical Depot
MTC	Make the Connection
NHTC	National Health Training Center
NIMART	nurse initiated and managed antiretroviral treatment
NMRC	Namibia Medicines Regulatory Council
PA	pharmacist assistant
PEPFAR	US President's Emergency Plan for AIDS Relief
PMIS	Pharmaceutical Management Information System
SCM	supply chain management
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SMS	Short Message Service
SOP	standard operating procedure
SSV	support supervisory visit
STA	Senior Technical Advisor
TA	technical assistance
TB	tuberculosis
TC	Therapeutics Committee
TL	treatment literacy
UNAM	University of Namibia
UNAM-SoP	University of Namibia's School of Pharmacy
USAID	US Agency for International Development

EXECUTIVE SUMMARY

Namibia's Ministry of Health and Social Services (MoHSS) manages approximately 428 public health facilities in 14 regions and operates a Central Medical Store (CMS) distribution system, with a CMS at Windhoek and two Multi Regional Medical Depots (MRMDs) located in Oshakati and Rundu. Fifty-one of the 428 public health facilities serve as main sites for delivery of antiretroviral treatment (ART) for the over 150,000 people on ART as of June 2016. There are standing/regular outreach sites and the MoHSS has also implemented Nurse Initiated and Managed Antiretroviral Treatment (NIMART) at primary healthcare facilities since 2013. These NIMART sites provide services including testing and initiation of ART.

Despite remarkable initiative by the University of Namibia's School of Pharmacy (UNAM-SoP) and the National Health Training Center (NHTC) in increasing intake and graduation of pharmacy and pharmacist assistant (PA) students, the MoHSS still has shortage of skilled pharmaceutical human resource (HR), limited monitoring of HIV drug resistance (HIV-DR), and a high burden of multi-drug resistant (MDR) tuberculosis (TB). The public sector supply chain system—responsible for delivering antiretroviral (ARV) medicines and other essential pharmaceuticals—still encounters challenges in ensuring the uninterrupted availability of HIV and AIDS commodities. These challenges, in turn, negatively affect the delivery of HIV and AIDS and TB treatment services.

The US Agency for International Development (USAID)-supported Systems for Improved Access to Pharmaceuticals and Services (SIAPS) project in fiscal year 2016 (FY16) continued supporting MoHSS to enhance capacity of pharmaceutical HR to manage pharmaceutical services in public health facilities in Namibia. The major objectives of the activities were to build HR capacity in pharmaceutical management and service delivery for improved HIV and AIDS treatment outcomes and improve availability and use of pharmaceutical service data for improved quality of ART services. Activities comprised onsite staff mentoring through supportive supervision visits and training sessions adapted to the needs of the target healthcare workers.

To accomplish activities under these objectives, SIAPS supported MoHSS in prioritizing technical assistance (TA) to ART sites to mentor pharmacy staff and nurses on improving the quality of ART services, including implementing pharmaceutical care concepts during and after dispensing of medicines. SIAPS technical advisors installed and updated software for SIAPS-supported electronic tools such as the Electronic Dispensing Tool (EDT) and the facility electronic stock card (FESC), assembled computers and printers, established networks, trained facility staff, and provided continuous remote support through telephone discussions.

In 2016, SIAPS supported MoHSS to conduct annual national pharmaceutical support supervisory visits (SSVs) in the period February–March 2016 that covered all 14 regions of Namibia. SIAPS technical advisors participated in 9 of the 14 regions and supported 24 hospitals. A total of 14 pharmacists and 19 PAs received on-the-job trainings on inventory management, use of EDT, rational medicine use, good dispensing practices, quality assurance of medicines and services, and activities of the Therapeutics Information and Pharmacovigilance Center. SIAPS, in collaboration with the USAID-funded Supply Chain Management System projects, supported MoHSS to compile and disseminate the national SSV report for action on findings and recommendations by the regions and health facilities.

SIAPS supported the continued rollout and use of mobile EDT (mEDT) at NIMART sites to minimize the gap in ART data at district, regional, and national levels due to MoHSS's ongoing decentralization of ART services. The mEDT devices that were procured by MoHSS were distributed to NIMART sites and mEDT already in use at facilities were upgraded. Twenty-one nurses, PAs, and pharmacists were trained in six high HIV-burdened and US President's Emergency Plan for AIDS Relief (PEPFAR) priority regions. A total of 29 health facilities received on-the-job training for staff; 11 of the 29 health facilities were supported twice within the year.

Short Message Service (SMS)-based reminders for ARV pick-up were provided in 10 facilities across six regions (Kavango East, Khomas, Ohangwena, Oshana, Erongo, and Kunene). These facilities were selected for the initial implementation and include Rundu district hospital (DH), Andara DH, Okuryangava health center (HC), Khomasdal HC, Ongha HC, Eenhana DH, Ongwediva HC, Walvis Bay hospital, Omaruru hospital, and Outjo DH. Patients at these sites had poor ART adherence and retention rates (<75%) and poor on-time pill pick-up rates (<80%). By September 2016, approximately 40% (8,147/20,377) of patients from seven EDT sites had enrolled for the SMS reminder service.

The objective for FESC and inventory training at health facilities was facilitating and increasing the efficiency of routine inventory control operations, which includes collecting key logistics data and generating instant reports. Toward this end, SIAPS assisted the facilities in producing and sending orders electronically to their suppliers—namely CMS and MRMDs—by implementing the FESC inventory management tool and a Dashboard for aggregating, analyzing, and presenting the national data.

SIAPS supported MoHSS to implement FESC in 37 facilities located in the 14 regions. Some facilities have migrated from paper-based stock cards to the electronic stock card. A total of 116 health professionals were trained during installation and commissioning and were provided access to online technical support for using the tools. Standard operating procedures (SOPs) for troubleshooting, an FESC manual, and an FESC quick user guide were developed and disseminated to the 37 facilities. SIAPS focal persons were assigned to each FESC-implementing health facility to provide routine follow-up and technical support, as well as to respond to queries raised by FESC users. Reports from the FESC are processed at the national level and coordinated by MoHSS's Division of Pharmaceutical Services (Div: PhSs) to load onto the Dashboard. SIAPS, in liaison with MoHSS, issued Dashboard access to regional pharmacists, program managers, and hospital pharmacists who are loading, analyzing, and using the data for decision-making.

The EDT was updated to include Community-Based ART (CBART) groups for implementing the CBART initiative at program implementation areas. Two nurses were trained on how to collect dispensing information using the mEDT, which is available at Nyangana ART clinic; flag patients into CBART groups in the EDT; and produce appointment lists, to be used as data collection tools for CBART groups. They were also provided with a training package for using the mEDT, including a one-page document on dispensing with mEDT and troubleshooting hardware errors on the devices. The ART pharmacy in Nyangana received an adaptor to connect the mEDT charger and MTC (Make the Connection) data transmission device for uploading data to the national ART database.

Other data collection tools such as the EDT recruitment forms and daily dispensing registers were also provided to facilities that did not have the mEDT.

BACKGROUND

MoHSS manages approximately 428 public health facilities in 14 regions and operates a CMS distribution system, with a CMS at Windhoek and two MRMDs located in Oshakati and Rundu. Fifty-one of the 428 public health facilities serve as main sites for delivery of ART for the over 150,000 people on ART as of June 2016. MoHSS has been implementing NIMART in primary health facilities since 2015. MoHSS is challenged by a lack of skilled pharmaceutical HR, limited monitoring of HIV-DR, and a high burden of MDR-TB. The public sector supply chain system—responsible for delivering antiretroviral (ARV) medicines and other essential pharmaceuticals—still encounters challenges in ensuring the uninterrupted availability of HIV and AIDS commodities. These challenges, in turn, negatively affect the delivery of HIV and AIDS and TB treatment services. t

In line with the PEPFAR Namibia intervention strategies, SIAPS identified the following as important challenges regarding pharmaceutical management and pharmaceutical patient care for people living with HIV:

- Uncertain quality of HIV and AIDS medicines at treatment sites
- Inappropriate medicine inventory control practices and inability of MoHSS managers to see quantities of medicines stocked at health facilities
- Low geographic access to ART services
- Poor patient adherence to ART and anti-TB treatment
- Loss to follow-up of patients on ART, which is contributing to a high risk of developing HIV-DR and MDR-TB
- A large group of children not receiving needed treatment

SIAPS's approach to supporting HR capacity building was rooted in three aspects (figure 1). Firstly, SIAPS assessed the competence of the health work force at the services level; secondly, it measured the level of service coverage and considered the scope of services to identify the mix of skills; and, thirdly, SIAPS recognized the working environment and technical support needed.
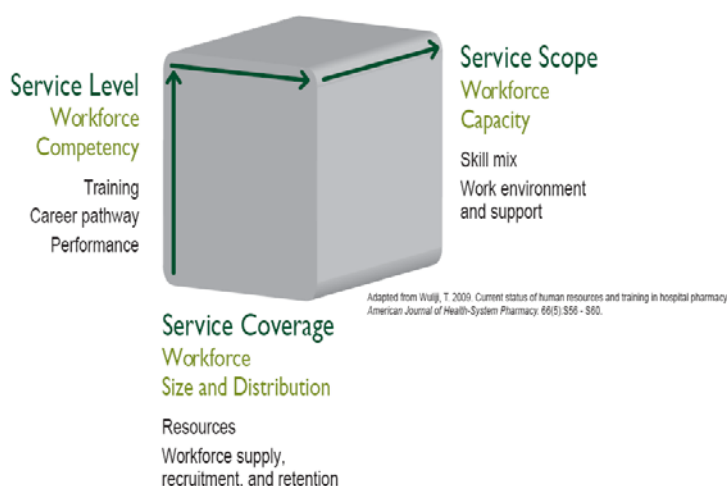

Figure 1. SIAPS approach to human resource capacity building (adapted from Wuliji, T. 2009. Current status of human resources and training in hospital pharmacy. American Journal of Health Systems Pharmacy. 66(5)S56-S60)

SIAPS's support of HR capacity building is divided into two strategies. First, SIAPS supports pre-service pharmacy personnel training programs by assisting UNAM-SoP and NHTC in developing and modifying curricula to incorporate/enhance pharmaceutical management content. Secondly, SIAPS supports the capacity building of healthcare personnel through on-the-job training and both face-to face and online mentoring.

SIAPS plays a pivotal role in supporting MoHSS in the fight against HIV and AIDS, TB, and malaria. This report covers activities that were implemented in line with the SIAPS-approved work plan for FY16, which focused on capacity building of health workers to offer quality pharmaceutical services at ART and NIMART sites:

- Activity 2.1.1: HR capacity in pharmaceutical management and service delivery strengthened for improved HIV and AIDS treatment outcomes
- Activity 3.1.1: Availability and use of pharmaceutical service data for improved quality of ART services

This report is a consolidated summary of the various trip and SSV reports submitted after field visits. This report covers five major areas where SIAPS provided facility-based (in-service) capacity building support in FY16. These areas are:

1) Capacity building through SSVs

2) Support to MoHSS to implement and maintain pharmaceutical management tools (EDT and FESC) nationally and at ART and NIMART facilities

3) Using SMS to remind ART patients about pharmacy appointments for ARV pill pick-up

4) FESC installation and training

5) Support to CBART initiative in Nyangana and Engela districts

INTERVENTIONS

In Namibia, the USAID-funded SIAPS Program supports MoHSS/Div: PhSs in a number of interventions based on jointly-designed strategies: strengthening the pharmaceutical management information system (PMIS); developing and implementing pharmacy SOPs; strengthening the functioning of therapeutics committees (TCs); strengthening stock, patient, and data management for ART services through the EDT; and strengthening therapeutics information, pharmacovigilance activities, and inventory control. Using these strategies, SIAPS supports Div: PhSs in implementing, monitoring, supervising, and reporting on programs at the regional and national level.

The SIAPS technical approach emphasizes health systems strengthening with a special focus on improving metrics, monitoring and evaluation, developing the capacity of local governments and organizations, and increasing country ownership. Through this approach, SIAPS promotes the availability and use of skilled HR at the facility level as well as tools to manage ART services and pharmaceuticals. SIAPS collaborates with MoHSS and other US Government partners to implement strategies toward strengthening pharmaceutical management to improve ART services down to the community level. Areas supported by SIAPS include: ensuring availability of quality-assured ARV, HIV test kits, and other related health commodities at the service delivery point by strengthening supply chain systems, including logistics management information; supporting decentralization of ART services to the community; ensuring rational use of medicines; and increasing medication safety and adherence to treatment.

In FY16, interventions were based on gaps identified during ART site visits in the previous year. SIAPS helped MoHSS prioritize support to ART sites to mentor pharmacy staff on improving the quality of ART services, including implementing pharmaceutical care concepts during and after medicines dispensing. This support was an integral component of site-improvement monitoring system activities.

This report focuses on PMIS strengthening and direct support for the decentralization of ART services to NIMART sites. SIAPS technical advisors traveled to the regions and health facilities, installed software, assembled computers and printers, advocated for establishment of networks, trained facility staff, and provided online support. In general, the following approaches were followed:

- Gaps were analyzed with MoHSS to strategize interventions

- Cost-effective and coordinated field trips were taken to implement interventions in target facilities

- Data were gathered and reports compiled from each field trip

- Recommendations from field reports were discussed and used for the development/refinement of the FESC and EDT to improve data capturing and subsequent interventions

- Report of field-based capacity building for SIAPS Namibia intermediate result 2 and intermediate result 3 are consolidated in this report

Pre-Service Training Interventions Supported by SIAPS in FY16

SIAPS worked with UNAM-SoP to finalize the pharmaceutical regulatory affairs module for the pre-service B.Pharm course. The addition of the medicines regulation module will ensure that pharmacists graduating from UNAM-SoP are equipped with the essential knowledge and skills to assure the quality, safety, and efficacy of medicines, including ARVs and related medicines. To facilitate this process, SIAPS collaborated with UNAM-SoP to convene a stakeholder meeting to receive input on draft materials for the module. The key stakeholders were the Pharmaceutical Society of Namibia, Namibia Medicines Regulatory Council (NMRC), Health Professions Council of Namibia, pharmaceutical manufacturers, and medicines importers and distributors in Namibia.

In terms of strengthening health workers' skills in pharmaceutical governance and regulation, SIAPS provided TA to members of select TCs. TCs provide oversight (i.e., clinical governance) on medicines use at health facilities. Moreover, SIAPS provided TA to NMRC staff to enhance the system for post-market quality surveillance of medicines in Namibia. During facility support visits conducted in FY16, the team comprising SIAPS and NMRC staff sensitized pharmacy personnel working in the regions on routine medicine quality surveillance and pharmaceutical product quality reporting to NMRC. Further details of this TA can be found in a SIAPS Namibia technical report entitled, "Quality and Safety of HIV/AIDS Medicines in Namibia October 2015-September 2016," which can be accessed online at http://siapsprogram.org/publication/quality-and-safety-of-hiv-aids-medicines-in-namibia-october-2015-september-2016/.

SIAPS finalized a technical report of the FY15 PA graduate tracer study and shared it with NHTC. The information obtained from the assessment guided the PA curriculum revision to enhance the quality of training at NHTC. The results showed that PAs trained at NHTC were actively delivering pharmaceutical services, with a majority in the public sector and ART clinics where they are greatly needed; 52 of the 57 PAs who responded had worked in ART clinics in Namibia's public health sector. Forty-three of 57 PAs were satisfied with their training at NHTC, and there was also high employer satisfaction (96%) with PA graduates from NHTC. Key recommendations from feedback received included curriculum review to address selected gaps in knowledge and skills, such as the compilation of monthly pharmaceutical reports, participating in TC meetings, and reporting on side effects of medicines.

SIAPS provided TA to UNAM-SoP to monitor, document, and share lessons on SIAPS-supported pre-service training on pharmaceutical management through two posters: "*A pre-service curriculum for capacity development in medicines regulation at the University of Namibia: process and outcomes,*" presented at the second Medicine Utilization Research in Africa Training Workshop and Symposium in July 2016, and "*Strengthening pre-service pharmacy training on rational medicine use, antimicrobial resistance, and pharmacovigilance,*" presented at the 76th International Pharmaceutical Federation World Congress of Pharmacy and Pharmaceutical Sciences.

The findings/outputs from SIAPS support in specific intervention areas are presented in the next section.

OBSERVATIONS/RESULTS

SIAPS conducted regular support visits to monitor pharmaceutical storage, inventory management practices, and ART data quality, as well as conduct on-the-job training on stock card recording and use of logistics information at the facility level. In addition, SIAPS oriented and trained clinical mentors and regional pharmacists on the deployment of appropriate pharmaceutical information tools to collect, collate, analyze, and use medicines data to improve the delivery of pharmaceutical services, especially at the primary healthcare facility level.

Capacity Building Through Support Supervisory Visits

MoHSS monitors pharmaceutical sector performance by scrutinizing the number of reports generated at the facility level and collated at the national level as PMIS feedback reports. The Ministry produces two PMIS feedback reports: one focused on ART services and the other on pharmaceutical management information. In addition to this monitoring mechanism, regional pharmacists should conduct quarterly visits to health facilities to monitor stock status and other pharmaceutical management indicators. MoHSS monitoring and supervision focuses on the basic services supported by different tools. For example, the Ministry issues SOPs; develops and implements the Namibia Essential Medicines List and Standard Treatment Guidelines; strengthens the functioning of TCs; and strengthens stock, patient, and data management for ART services through the EDT and National Data Base. SSVs in FY16 covered the following areas:

- Previous national/regional support visits
- HR for pharmaceutical services
- Storage and inventory management
- TCs
- ART services
- PMIS data validation and improvement
- Quality assurance in dispensing

MoHSS, supported by SIAPS and Supply Chain Management System programs, conducted annual pharmaceutical SSVs to all 14 regions to collect data related to pharmaceutical management and related issues and to mentor staff on these same topics.

Key Outputs

- SIAPS supported MoHSS to update three SSV checklists (i.e., hospital, health center, and medical stores). The checklists are used as structured tools for assessing selected pharmaceutical service components.

- In FY16, two rounds of SSVs were conducted in February and covered all 14 regions of Namibia. SIAPS technical advisors participated in 9 of the 14 regions and provided support to 24 hospitals.

- During the visit, technical advisors conducted on-the-job training to facility staff.

- In total, 14 pharmacists and 19 PAs received on-the-job training on inventory control, use of the EDT, rational medicine use, and Therapeutics Information and Pharmacovigilance Center issues (table 1).

- The national SSV report was compiled and disseminated to the regions for action.

- A summary presentation of the SSV report was discussed in the annual pharmacists' forum that was held in Swakopmund in Namibia in September 2016.

Table 1: Number of staff who received on-the-job training during SSVs to health facilities in nine regions in 2016

Region	Pharmacist(s)	PA(s)	Number of health facilities visited
Hardap	2	4	3
Karas	2	5	3
Kavango East	3	4	4
Kavango West	0	1	1
Kunene	1	0	3
Ohangwena	1	4	3
Omusati	1	0	4
Oshana	1	0	2
Zambezi	3	1	1
Total	14	19	24

Source: SIAPS reports of SSV field trips in Namibia, 2016

Supported MoHSS to Implement and Maintain Pharmaceutical Management Tools Nationally and at ART and NIMART sites

Adherence to ARVs and retention in ART care are critical aspects of care and support programs in ART services. The USAID-funded SIAPS Program is supporting MoHSS to decentralize ART services to improve patient access to ARVs and ART care without compromising adherence to treatment. Namibia's decentralization strategy is one of various interventions to improve adherence to ARV medicines and retention of patients in ART care. SIAPS supports ART decentralization through work regarding stock management and dispensing tools, including the EDT and mEDT. The mEDT is used at primary healthcare facilities and NIMART sites to collect patient and ARV dispensing data. The SMS reminder service is one of the adherence strategies.

In FY16, SIAPS supported MoHSS to implement and maintain electronic tools (EDT, mEDT, e-TB Manager, electronic Logistics Management and Information System [eLMIS]/Dashboard, FESC) and ensured sustainability and continued availability of data for evidence-based decision-making in HIV and MDR-TB treatment.

Key Outputs

- mEDT was rolled out and used at NIMART sites to minimize the gap in available data at district, regional, and national levels due to MoHSS's ongoing decentralization of ART services.

- mEDT devices were distributed to NIMART sites and mEDTs were upgraded.

- Twenty-one health professionals (e.g., nurses, PAs, pharmacists) were trained in six high-HIV burdened regions, as well as PEPFAR focus regions.

- A total of 29 health facilities received on-the-job training; 11 of the 29 health facilities were supported twice in the year (table 2).

Table 2. Roll-out of mEDT to NIMART sites

Region	# of facilities visited in first round	# of facilities visited in second round	Total # of health facilities visited
Kavango East	5	4	9
Omusati	4	1	6
Oshikoto	1	2	3
Oshana	3	3	3
Ohangwena	3	3	7
Khomas	1	1	1
Total	17	14	29

Using SMS to Remind ART Patients of Pharmacy Appointments

SIAPS supported MoHSS in implementing targeted adherence and retention improvement initiatives that aim to remind ART patients of their appointments for ARV refills. These interventions included:

- Automated SMS appointment reminders a few days before a scheduled appointment and after a missed appointment for ARV refill at the pharmacy

- Sending automated notification to encourage adherence to ART

Ten health facilities in six regions (Kavango East, Khomas, Ohangwena, Oshana, Erongo, and Kunene) were selected for the initial implementation of the SMS-based reminder service. The sites included Rundu, Andara, Okuryangava, Khomasdal, Ongha, Eenhana, Ongwediva, Walvis Bay, Omaruru, and Outjo DH. These facilities demonstrated poor adherence and retention rates (<75%) as well as poor on-time pill pick-up rates (<80%). By September 2016, approximately 40% (8,147/20,377) of patients from seven EDT sites (table 3) had enrolled for the SMS reminder service. Between October and December 2016, approximately 8,452 reminders were sent to ART patients on or before their pharmacy appointment dates. During the same period, 659 reminders were sent to patients who had missed their pharmacy appointment dates (by one to nine days). The fewer the number of reminders after the appointment date, compared with before or on the appointment date, is an indication that most notified patients were on time (i.e., on average, 92% [7,793/8,452] were on time for their ARV refill).

Table 3. Number of ART clients enrolled and receiving SMS reminders, Oct–Dec 2016

Number of clients				Appointment reminders sent			
Facility	Total active Sep' 16	# Enrolled	% Enrolled	Before and on appoint-ment date	After appoint-ment date	On-time pill pick-up[1]	Connection type to SMS server
Ongha Health Center	2,272	1,726	76.0%	2,097	261	87.6%	Internet
Outjo District Hospital	1,108	394	35.6%	60	54	10.0%	Internet
Ongwediva Health Center	2,380	1,426	59.9%	1,209	239	80.2%	3G
Omaruru District Hospital	588	90	15.3%	83	19	77.1%	2G
Walvis Bay District Hospital	5,540	3,570	64.4%	3,587	16	99.6%	3G
Eenhana District Hospital	4,597	517	11.2%	222	3	98.6%	2G
Okuryangava Clinic	3,892	424	10.9%	1,194	67	94.4%	3G
Total	**20,377**	**8,147**	**40.0%**	**8,452**	**659**	**92.2%**	

Although the enrollment process was highly successful, the connection between EDT at the facility level and the SMS server at the national level was a challenge. Three facilities (Khomasdal Clinic, Rundu Intermediate Hospital, and Andara DH) did not have data and were excluded from analysis for the given period. Outjo DH and Omaruru DH had the lowest subscription rates. Outjo DH had 516 (47%) patients who did not enroll for the reminder service, whereas Omaruru DH had 453 (77%) patients not enroll. Reasons provided included "I cannot read" (5%), "I do not have a phone" (29%), "I do not need reminders" (15%), "Messages are annoying and distracting" (1%), "Someone might read the SMS and find out my status" (2%), and "Other reason" (48%).

SIAPS technical advisors provided continuous online support for the EDT, mEDT, and FESC electronic tools for ARV dispensing and inventory control at the facility level. Most of the queries from healthcare workers using the tools were related to EDT use, the FESC inventory control tool, mEDT, e-TB Manager, and the Dashboard for pharmaceutical information.

Key Outputs

- Ten selected health facilities used SMS to remind ART patients about pharmacy appointments for ARV refills. By the end of September 2016, at least **20,377 ART** patients in six regions had benefited from SMS reminder services.

- Partnerships/collaborations were established with MoHSS partners implementing ART adherence interventions.

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[1]On-time pill pick-up rate can be inflated by poor network connectivity, and can therefore be best measured from the corresponding EDT reports by filtering to patients to whom reminders were sent in a given period. This requires the latest EDT backups of all sites involved in order to determine the accurate measure. The latest EDT backups were not available at the time of creating this report.

- The SMS reminder helped reduce the number of those lost to follow-up and increased adherence to ART treatment for patients enrolled in the service.

- SIAPS technical advisors provided continuous online support for the EDT, mEDT, and FESC electronic tools for ARV dispensing and inventory control at the facility level. A total of 660 (average 3 per day x 220 working days) queries were attended to in FY16.

FESC Installation and Training

MoHSS strongly believes that the appropriate use of stock cards at the facility level is a cure for a majority of inventory control challenges. Toward this end, MoHSS issued directives such as Circular 25 of 2001 and Circular 61 of 2009, which stressed use of stock cards by health facilities as mandatory. MoHSS also issued a number of SOPs emphasizing and guiding the use of stock cards. Despite this commitment from the Ministry, inventory control of essential medicines and medical supplies in public health has been a major challenge noted on every year's annual SSVs. In the last four years, stock card use has improved, but only slightly, from 50% in 2012 to 55% in 2015 (MoHSS SSV report, 2015). The major contributing factors to poor inventory control were identified as shortage of trained and skilled staff in the pharmacy field confounded by the nature of routine activities, which requires time spent recording, compiling, and reporting information on the manual stock cards. The major objectives of the intervention were to manage the routine operation of inventory control, which includes collecting key logistics data and generating instant reports, and to help the facilities produce and send orders electronically to their suppliers, namely CMS and regional medical stores.

Figure 2. Welcome interface of the FESC inventory control tool installed at the facility level

The main objective of generating the Logistics Management and Information System (LMIS) from FESC data captured at the facility was to use it at the facility level for management decision-making and ordering and to load the information to the national level pharmaceutical management Dashboard by the end of each month. FESC offered several advantages to facilities in their day-to-day activity of supplying medicines to patients. SIAPS provided on-the-job training to a total of 116 health professionals all over the country (table 4) during installation and commissioning of the FESC and provided online support for continued and efficient use of FESC.

FESC reduced the time that pharmacists and/or PAs spend on pharmaceutical data compiling and report generation, providing an instant solution to any queries regarding consumption, stock on hand, and stock-out status, as well as product expiry dates. Proper implementation of FESC will minimize costs of operation in different ways: it reduces order submission time as orders can be sent to CMS electronically (email); it calculates and suggests order quantity and minimizes order processing time at CMS, as facility orders can be imported easily into the CMS system, thus reducing data capturing time; and it facilitates follow-up of expiry date, thus reducing potential waste due to expiry. LMIS reports generated at the end of each month will be used for decision-making at all levels and will enable product visibility within the system.

Table 4. Distribution of health workers (by cadre) trained by SIAPS during installation and commissioning of FESC inventory control tool

Region	Pharmacist(s)	PA(s)	Store keeper(s)	Workhand(s)	Other(s)
Erongo	2	8	1	1	1
Hardap	2	3	0	0	0
Karas	2	7	0	1	0
Kavango East	3	3	0	3	0
Kavango West	0	2	0	0	0
Khomas	3	6	0	0	0
Kunene	0	2	0	1	0
Ohangwena	3	8	0	3	0
Omaheke	1	4	1	0	0
Omusati	2	12	0	0	0
Oshana	4	3	0	0	0
Oshikoto	2	7	0	0	0
Otjozondjupa	4	6	0	1	0
Zambezi	2	2	0	0	0
Total	**30**	**73**	**2**	**10**	**1**

Note: Aranos and Walvis Bay data not included.
Data source: SIAPS Namibia reports, 2016

SIAPS supported the development, testing, implementation, training, launch, documentation (e.g., SOPs, manuals), and use of the integrated MoHSS Pharmaceutical Information Dashboard (eLMIS). In the process of implementing FESC, customized software was developed with a team of professionals and programmers. FESC is specifically developed to feature Namibia's Supply Chain Management System. Thirty-seven facilities were migrated from paper-based stock card to the electronic stock card system.

Key Outputs

- With SIAPS TA, the MoHSS Pharmaceutical Information Dashboard and FESC were launched and implemented in all 35 district and referral hospitals and 2 health centers—*a key innovation for pharmaceutical inventory management.*

- A total of 116 health professionals (30 pharmacists, 73 PAs, 2 store keepers, 10 workhands, and 1 other staff) were trained and supported to efficiently use FESC for pharmaceutical inventory management and reporting stock status.

- Troubleshooting SOPs were developed and disseminated to the 37 FESC-implementing facilities.

- Focal persons were assigned to each FESC-implementing health facility and queries were addressed.

- A user manual and quick user guide were disseminated for quick and accessible user reference.

- Reports from FESC are processed at the national level (Div: PhSs) to load into the Dashboard.

- The FESC user guide was disseminated to guide implementation.

- The FESC tool enabled supply chain managers to get visibility of stock throughput the supply chain and empowered health facilities to take advantage of electronically generating and sending pharmaceutical re-orders to CMS and regional medical stores. FESC eliminated the routine and time-consuming manual review of stock status by automating this activity in the FESC system. This process also eliminated the labor-intensive work of order calculation, as the tool suggests order quantity as soon as the stock take result is fed into the system. Additionally, it generates reports in different forms, which had not been as feasible during the use of paper-based stock cards.

✓Facility-level stock status data is now visible for improved decision-making on pharmaceutical supply chain management

Figure 3. (left) The US Ambassador to Namibia, Thomas Daughton, and (right) the Minister for Health and Social Services, Dr. Bernard Haufiku, launch the new Pharmaceutical Information Dashboard. *Photo credit: SIAPS staff in Namibia, June 23, 2016*

Community-Based Antiretroviral Therapy

The CBART model for stable ART patients is considered to bring ART delivery closer to the community and encourage long-term retention of patients in care. With decentralization, the model reduces the load on health facilities, enhances efficiency, and increases access to treatment, especially in places where healthcare staff shortage is critical.

SIAPS's involvement in the CBART program includes ensuring access to ARV medicines, test kits, and other health care commodities, as well as patient adherence and monitoring and managing of ARV adverse reactions in the community. Working with MoHSS and PEPFAR implementing partner, Project Hope, SIAPS designed the distribution mechanism for the Community Adherence Support Group.

Key Outputs

- The EDT data was updated to include CBART groups for piloting the CBART initiative at the program implementation areas.

- Two nurses were provided with a training package for using mEDT, including a one-page document on how to dispense with mEDT and how to troubleshoot hardware errors on the device. They were also trained on:

  o How to collect dispensing information using the mEDT, which is available at Nyangana and Engela ART clinics
  o How to flag patients into CBART groups and produce appointment lists to be used as data collection and monitoring tools for CBART groups

- The ART pharmacy in Nyangana received an adaptor to connect the mEDT charger and MTC data transmission device for uploading data to the national ART database.

Other data collection tools were also provided, including ART recruitment forms and daily dispensing registers for facilities without the mEDT.

Outputs from Pre-Service Training of Pharmacy Personnel for ART Service Delivery

With SIAPS TA, 9 pharmacists and 36 PAs graduated from UNAM-SoP and NHTC, respectively, in April and June 2016. This is the highest number of pharmacy personnel to graduate in Namibia in a single year. SIAPS support toward incorporating pharmaceutical management content in the pharmacy training curriculum at UNAM-SoP and for the PA training at NHTC has ensured that graduating pharmacists and PAs are competent in pharmaceutical management and in the delivery of essential pharmaceutical services to clients and patients, especially those living with HIV and AIDS.

In 2016, 100% of Namibia's 35 district and referral hospitals had at least a qualified PA to manage pharmaceutical services, with most of the PAs trained at NHTC (MoHSS SSV report, 2016).

DISCUSSION OF FINDINGS

In FY16, there were a number of changes introduced to the provision of ART services. The number of patients on ART increased and the government aggressively decentralized ART services by increasing the number of ART outreach sites. There were changes in the ART guidelines and new formulations were added while some medicines were removed. People living with HIV and AIDS have more aggressively demanded increased quality and quantity of service provision, spurring MoHSS to introduce a number of initiatives in the service delivery system and necessitating support to CBART implementation.

In FY16, SIAPS senior technical advisors participated in SSVs in nine regions covering 24 ART-providing hospitals and health centers. During the SSVs, technical advisors provided on-the-job training pertaining to selected aspects of pharmaceutical management. The 2016 national report of SSVs was compiled and disseminated to regions for action on recommendations. The report also served as validation of the PMIS reports compiled and submitted to the national level by regional pharmacists. SSVs remain a critical activity for annual national pharmaceutical service quality assessment and enhancement of the capacity of health workers through on-the-job training. Improvements in pharmaceutical services have been observed and are partly attributed to the enhanced capacity of health workers.

The second major objective of SSV activities was to create awareness of program implementation and to measure and educate staff on the processes and standards of ART and general pharmaceutical service delivery. During SSVs, national-level supervisors checked the implementation of the SOPs and use of electronic tools in ART pharmaceutical services. At each facility visited, Senior Technical Advisors (STAs) discussed challenges encountered and provided on-the-job training related to these challenges. During SSVs in FY16, 14 pharmacists and 17 PAs at different ART sites were trained on issues that arose from their day-to-day activity and observations made by supervisees. The on-the-job training was more relevant compared with the classroom (i.e., workshop) training, in large part because of the practical nature of the training within the workplace. Furthermore, it was observed that the relationship between the actual implementers and the national level and supporting partners improved, so that the implementation became more robust. The major concern expressed during the SSVs was the time allotted to SSV technical staff to collect data using the detailed structured checklist and to conduct the on-the-job support. The SSVs are also taken into account for ranking and measuring regional performances. This performance measurement is beneficial in terms of creating positive competition.

Decentralization of ART services to the community required MoHSS and all implementing partners to ensure that services being rendered to the patient and patient adherence to treatment are not compromised. Adherence to ART and retention in ART care is a critical part of the care and support program in ART services. SIAPS supported ART decentralization through work regarding stock management and dispensing tools, including the EDT and mEDT. By continuously tracking the tools' functionality, updating versions for use, and training 21 health professional staff, SIAPS enabled ART service provision to continuously receive reliable data for preparation of quarterly ART reports, which is the main source of data for decision-making on clinical and supply management of the ART program. The mEDT devices distributed during roll-out and consistent monitoring of the tool's use at NIMART sites by STAs minimized the gap in data availability at district, regional, and national levels. Compared with the number of mEDTs distributed to facilities, the utilization

for the purpose of data capturing at the facility level is low. Reasons cited by the facilities include staff turnover and lack of training, but the real challenge inhibiting mEDT use is unknown. Continuous follow-up and use of the EDT and mEDT by facilities helped to capture those lost to follow-up. The system has also been used to generate the important early warning indicators of HIV-DR for action. Limited resources for SIAPS facility-based support limited the facility-based training/refresher training for health workers, especially newly recruited staff following staff turnover.

SIAPS worked with MoHSS on strengthening the system to ensure adherence to ART and retention of patients in care. For this, the SMS system was implemented in 10 selected health facilities. These facilities are routinely using SMS to remind patients about pharmacy appointments. By the end of September 2016, more than 200 patients had been included in the SMS reminder service in six regions. Although the system has been accepted by many users, it was reported that compliance in using the SMS message and patient education appears limited. Forty percent of the total patients enrolled in the SMS system appeared to the facility before or on the appointment date. There remains a need for MoHSS to follow up on SMS reminder implementation at the facility level and further assess successes and challenges for continued implementation. Turnover of health workers at facilities necessitates continuous training to ensure efficient use of the SMS system.

SIAPS support to facilities also included online support on use of all the tools provided to the facilities. A total of 660 (average 3 per day x 220 working days) queries were attended to in FY16. The queries ranged from maintenance of complicated computer bugs, system updates, and online training for health workers using the electronic tools. This is critical support that SIAPS provides in the fight against HIV and AIDS, working with MoHSS toward an AIDS-free generation. All the tools require technical support and it is impractical to frequently send STAs to the facilities. Therefore, STAs provided technical support using modern technology such as telephone, Skype, and direct connection to the client hardware/computer through team viewer. However, SIAPS's continued provision of such support is not sustainable; there is need for SIAPS to hasten the already ongoing discussions regarding the transition of such support to MoHSS.

Major challenges include the problem of IT staff at the central and regional directorate and high turnover of pharmacy staff at the facility level. There is a need for day-to-day follow-up as well as regular and available workers in the MoHSS structure who are organized to provide technical support. Since the vacant post of IT personnel at the Ministry level has not been filled for the last two and half years, and most of the regions do not have IT staff, continued support on EDT, mEDT, SMS reminders, and FESC remain a key responsibility of SIAPS or the follow-on project.

FESC is specifically developed to feature Namibia's Supply Chain Management System. Thirty-seven facilities started using more of the electronic stock card system than paper-based stock cards; the transition process gradually continues. This move has significantly engaged SIAPS staff in development, installation, and training of staff at the facility level. Advocacy and MoHSS management buy-in contributed to successful implementation of the tool as well as health worker capacity enhancement to use the tool.

The FESC system provides all three essential logistics data for the management of pharmaceuticals at the facility level: stock on hand, consumption at the facility level, and losses and adjustments made to stock. It provides the LMIS with information including the

monetary value, which assists the health facility in being aware of the value of the stock at the facility at a given time. Reports and invoices for issued items are generated with the monetary value and used to educate or sensitize staff on the value of the products used. Major requirements for effective implementation of FESC include consistent data entry for all products issued from the store and received from suppliers and other health facilities, as well as losses due to expiry and damage. This will confirm the appropriate use of the system. If data are not consistently captured, this will lead to inaccuracies in data at the national level. This kind of erroneous reporting could mislead national-level decision-making, which could negatively affect the whole supply chain management of the country. Therefore, National Medicine Policy Coordination, with the help of development partners, needs to monitor, train, and plan for consistent evaluation and data quality assurance.

FESC is useful for CMS and at the national level for forecasting and checking national stock levels only if it includes CMS and regional medical store stock levels. SIAPS is supporting MoHSS to continually improve the FESC system based on feedback from users.

An FESC user manual and quick user guide were disseminated to users for quick reference based on the initial version of the FESC. These manuals need to be updated as FESC versions are updated. Troubleshooting SOPs were developed and distributed to the sites. Focal persons were assigned to each FESC-implementing health facility and provided online support to FESC users. Reports from the FESC are processed at Div: PhSs to upload to the Dashboard and demonstrate that there is a need for further staff training. For the time being, this activity is dependent on SIAPS staff; SIAPS is working closely with MoHSS to transition this support. During the annual MoHSS pharmacists' forum that was held in September 2016, SIAPS supported regional and district pharmacists and pharmacy managers to develop action plans for continued and efficient implementation of FESC. Div: PhSs is following up on the implementation of planned actions.

SIAPS support to the CBART site was limited to Nyangana and Engela hospitals. The support included updating EDT data to include CBART groups for piloting the CBART initiative at the program implementation areas, as well as training nurses on how to collect dispensing information using the mEDT, how to flag patients into the CBART groups, and how to produce appointment lists. In FY16, SIAPS activity was not wide enough. Although visits were conducted, subsequent supports were not done. SIAPS is collaborating with partners such as USAID-funded Project HOPE to explore how to expand services in the years to come.

CONCLUSIONS AND RECOMMENDATIONS

With SIAPS support, in-service training by NHTC and UNAM-SoP continued for both the local training institutions and individuals. Increasing the number of graduating pharmacy professionals who have been locally trained in and for Namibia remains essential to quality ART and pharmaceutical services. MoHSS and development partners should continue supporting NHTC and UNAM-SoP in continued and quality training of PAs, pharmacy technicians, and pharmacists.

On-the-job training and discussions held directly in the natural environment where trainees (i.e., health workers) were working was found to be more fruitful that traditional workshop training. Site-level support and follow-up technical support enhanced the relationship between the actual implementers/users of FESC, EDT, and mEDT, the national level (Div: PhSs), and MoHSS's supporting partners, making the implementation more robust. SSVs were based on structured checklists and accomplished with regional pharmacists' participation. Such participation builds the capacity of regional pharmacists in the monitoring and evaluation of their programs. Therefore, it is advisable to increase the participation of regional pharmacists. The purpose of the SSV shall be advocated clearly as more of an educative approach, with more time allotted and structured on-the-job training to be planned ahead of SSV travel to the regions.

Continuous follow-up and use of EDT and mEDT by sites helped to capture loss to follow-up and serve as an alarm for the system. The system has been also used to generate important early warning indicators for HIV-DR and advocate for action on patients' adherence to ART and retention in care. Utilization of mEDT by health facilities is low compared with its distribution. It is advisable to assess the use of mEDT and the cause for lower utilization despite wide distribution of the tool.

The SMS reminder is being used, but it appears to be missing information, as patients are responding negatively as if they were not informed. Therefore, it is recommended to revitalize re-training of pharmacy personnel and counselors at the facility level. The data collected using SMS is rich and can be used for monitoring adherence to treatment.

The FESC tool is well accepted by facilities. MoHSS has started collecting all three essential logistics data: stock on hand, consumption at the facility level, and losses and adjustments made to stock. This enabled MoHSS to make evidence-based decisions such as facilities re-distributing stock based on the system-generated stock on hand versus months of stock (for items in excess of the maximum four months of stock). However, some facilities still require support to upload the LMIS data. Therefore, further training of staff at the facility level is critical. It is also recommended that tools be regularly upgraded and updated for the frequently appearing bugs in the system.

Use of FESC software is ultimately linked to the capacity of the facility to generate reports and upload them to the Dashboard system. Dashboard use by facilities is low as some facilities have only had FESC for 4 months or less. SIAPS has planned for additional capacity building activities, such as training sessions on how to generate and upload the LMIS and orders.

CMS and regional medical stores submit reports to be uploaded to the Dashboard. If there are errors in the uploaded reports, this may lead to an incorrect national report. The errors are correctable in the SYSPRO system. The CMS system, SYSPRO, and FESC need to be interoperable for health facilities to import orders to submit to the CMS.

SIAPS activity in NIMART sites has been limited to Nyangana and Engela hospitals and not to other NIMART sites. This needs to be expanded in the next year's program.

LESSONS LEARNED, KEY SUCCESS FACTORS, CHALLENGES

Collaboration and buy-in by MoHSS senior management facilitated acceptance and contributed positively to fast roll-out and implementation of FESC at the site level. MoHSS provided computers while SIAPS facilitated onsite system installation, hands-on training for users, and advocacy with facility management backed by the MoHSS Minister's remarks and call for public facilities using the system. The high profile FESC launch ceremony in June 2016 that was officiated by the Minister of Health and the US Ambassador to Namibia softened the implementation such that FESC was well received at all 37 sites.

FESC-implementing sites require IT support, which remains limited as MoHSS does not currently have a dedicated IT staff at Div: PhSs. SIAPS continued advocating MoHSS for IT staff that SIAPS can train as part of transitioning the TA to MoHSS.

There are a number of errors in regional SYSPRO-generated LMIS reports in which it does not help to use national stock levels. The CMS system, SYSPRO, and FESC are not interoperable, and, as such, orders cannot be imported at the central level. Therefore, it is important to synchronize SYSPRO reports and the system to import the FESC orders.

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