

Systems ^{for} Improved Access to Pharmaceuticals ^{and} Services

Improved Access. Improved Services.
Better Health Outcomes.



Annual Report: Program Year 3

October 2013–September 2014



USAID
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SIAPS 
Systems for Improved Access
to Pharmaceuticals and Services

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This report is made possible by the generous support of the American people through the US Agency for International Development (USAID), under the terms of cooperative agreement number AID-OAA-A-11-00021. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government.

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.

Recommended Citation

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Systems for Improved Access to Pharmaceuticals and Services. 2014. *Systems for Improved Access to Pharmaceutical Services Annual Report: Project Year 3, October 2013–September 2014*. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.

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ACRONYMS AND ABBREVIATIONS

ACPE	Accreditation Council for Pharmacy Education
ACT	artemisinin-based combination therapy
ADE	adverse drug event
AMR	antimicrobial resistance
APTS	Auditable Pharmacy Transactions and Services
ART	antiretroviral treatment
ARV	antiretroviral
CCM	community case management
CHW	community health worker
CPD	country project director
DGFP	Directorate General Family Planning
DGHS	Directorate General Health Services
DOT	directly observed treatment
DTC	Drug and Therapeutic Committee
EML	Essential Medicine List
ECSA	East, Central, and Southern Africa [region]
EUV	end use verification
EWS	early warning system
FDA	US Food and Drug Administration
FMHACA	Food, Medicine and Health Care Administration and Control Authority
FP	family planning
GDF	Global Drug Facility
Global Fund	Global Fund for AIDS, Tuberculosis and Malaria
GHI	Global Health Initiative
HMIS	Health Management Information System
IPTp	Intermittent Prevention Treatment during Pregnancy
LCP	Lung Center of the Philippines
LFA	local fund agent
LLITN	long-lasting insecticide treated net
LMIS	Logistics Management Information System
M&E	monitoring and evaluation
MCH	maternal and child health

MCNH	maternal, child, and neonatal health
MDR-TB	multidrug-resistant tuberculosis
MOF	Ministry of Finance
MoH	Ministry of Health
MOHFW	Ministry of Health and Family Welfare
MOHSS	Ministry of Health and Social Service
MRA	Medicines Regulatory Authority
NDP	National Drug Policy
NDRA	National Drug Regulatory Authority
NHTC	National Health Training Center
NMCP	National Malaria Control Program
NMRC	Namibia Medicines Regulatory Council
NTDs	Neglected Tropical Diseases
NTP	National Tuberculosis Program
PEPFAR	President's Emergency Plan for AIDS Relief
PMDT	programmatic management of drug-resistant TB
PMI	President's Malaria Initiative
PMTCT	prevention of mother to child transmission
PR	primary recipient
PTC	Pharmaceutical and Therapeutics Committee
RDT	rapid diagnostic test
RH	reproductive health
RMU	rational medicine use
SACU	South African Customs Union
SADC	South African Development Community
SANU	Southern Africa Nazarene University
SCM	supply chain management
SCMP	Supply Chain Management Portal
SIAPS	Systems for Improving Access to Pharmaceuticals and Services [Program]
SOP	standard operating procedure
SPS	Strengthening Pharmaceutical Systems [Program]
TB	tuberculosis
TDF	Tropical Disease Foundation
TOR	terms of reference
TOT	training of trainers
UNITAID	global health organization for increased funding for HIV and AIDS, TB, and malaria drugs
VPP	Voluntary Pooled Procurement
WHO	World Health Organization
XDR	Extensively drug-resistant tuberculosis

INTRODUCTION

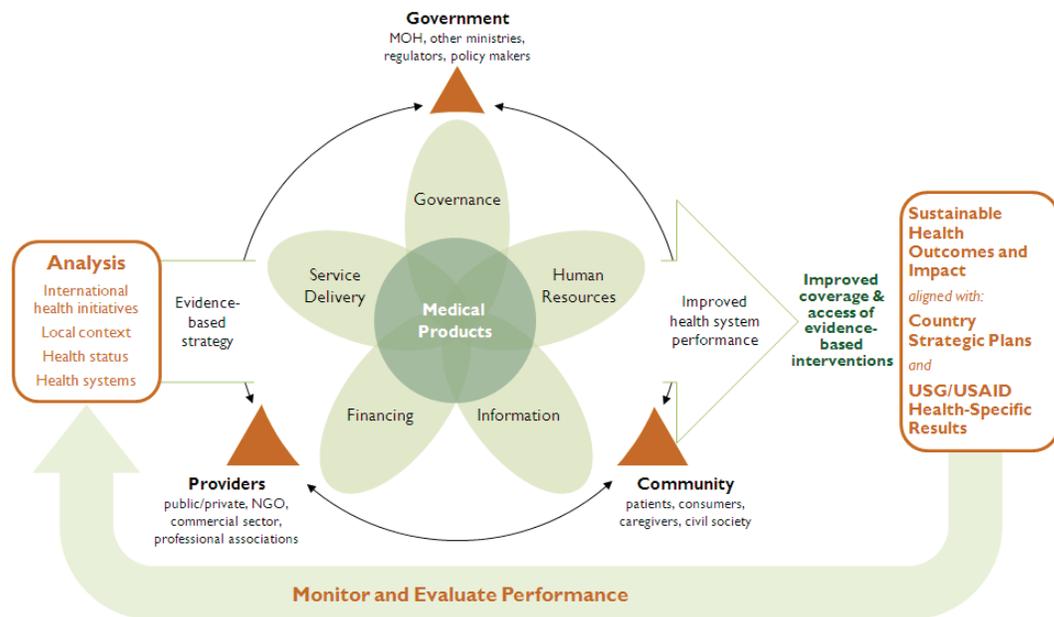


The availability of pharmaceuticals at reduced prices does not automatically lead to access to medicines. Even when medicines are available, they are not always prescribed, dispensed or used appropriately. To ensure good health worldwide, governments must create sound, efficient health systems that can provide effective disease prevention and treatment to all. The USAID-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program focuses on achieving positive health outcomes by assuring the availability of quality pharmaceutical products and effective pharmaceutical services. SIAPS takes a holistic approach that looks beyond product availability and price to include other essential access components such as the availability of quality pharmaceutical services and the ability of the patient to access both products and services.

SIAPS provides next generation technical leadership and assistance to developing countries in pharmaceutical system strengthening with a deliberate focus on patient-centered services and health outcomes for health areas including family planning, HIV and AIDS, malaria, maternal and child health, and tuberculosis. The SIAPS technical approach emphasizes Global Health Initiative (GHI) principles, especially increasing country ownership, health system strengthening, capacitating local governments and organizations, sustainability, and improving metrics and monitoring and evaluation. Toward this end, the SIAPS framework and result areas reflect the dynamic relationships among five health systems

building blocks: governance, human resources, information, financing and service delivery, with a pharmaceutical product overlay that guides technical content.

SIAPS Pharmaceutical System Strengthening Framework



SIAPS generates measurable results that demonstrate improved cost-efficiencies and contributions to sustainable health systems strengthening that are clearly linked to health outcomes. This is attained through the following IRs:

- Intermediate Result 1: Pharmaceutical Sector Governance Strengthened
- Intermediate Result 2: Capacity for Pharmaceutical Management and Services Increased and Enhanced
- Intermediate Result 3: Information for Decision-Making Challenges in the Pharmaceutical Sector Addressed
- Intermediate Result 4: Financing Mechanisms Strengthened to Improve Access to Medicines
- Intermediate Result 5: Pharmaceutical Products and Services Improved to Achieve Health Outcomes

SIAPS is also committed to President’s Malaria Initiative (PMI) and the President’s Emergency Plan for AIDS Relief (PEPFAR) goals and is a strategic partner supporting additional USG Health initiatives— A Promise Renewed: Committing to Child Survival, Ending Preventable Child and Maternal Deaths, an AIDS-Free Generation, and Universal Health Coverage. SIAPS uses platforms presented by PMI, PEPFAR, and other USAID funding streams to accelerate advancement of these goals.

In support of PMI objectives, SIAPS improves pharmaceutical governance and builds national capacity to manage malaria products, improve the quality of information systems, strengthen financing strategies, and improve the quality of pharmaceutical services provided to malaria patients. At the country level, SIAPS collaborates with national malaria control programs and central medicine stores to develop and implement strategies to strengthen pharmaceutical management to prevent malaria and improve case management.

SIAPS contributes to the success of USAID's focus on high-impact evidence-based interventions that address the leading causes of maternal and child mortality. SIAPS's support to ensuring the availability of key commodities for family planning, safe and clean delivery, and the prevention and treatment of obstetric and newborn complications improves health outcomes for mothers and newborns in focus countries. SIAPS's work in community case management for malaria and Intermittent Preventive Treatment of Malaria for Pregnant Women (IPTp) helps avert maternal morbidity and disability and contribute to ending preventable child and maternal deaths. Through our governance approach, SIAPS works with countries to advance policies to support maternal and child survival programs, strengthen governance and management to support quality pharmaceutical and health service delivery, and ensure broad stakeholder engagement and ownership. SIAPS implements various capacity building programs, including pre-service and in-service training and curriculum reform and development support to help countries provide health personnel and community-based workers with the necessary knowledge and skills to manage malaria, family planning, maternity care, TB, and HIV and AIDS. SIAPS also implements pharmacovigilance activities and drug use reviews that inform policies and treatment decision making and help reduce the advancement of antimicrobial resistance.

SIAPS programs also contribute to reductions in new HIV infections, and decreases in TB and AIDS-related mortality while simultaneously increasing the capacity of countries to sustain and support these efforts over time. SIAPS helps countries expand access to TB and HIV diagnosis, care, and treatment by helping develop efficient procurement, quantification, distribution, and prescribing and dispensing practices for ARVs and HIV test kits and other TB, HIV and AIDS-related essential medicines and supplies. Support to prevention of mother-to-child transmission programs help governments advance the goal of eliminating new HIV infections among children by 2015 and keeping their mothers alive. Pharmacovigilance activities contribute to improvements in patient safety and reductions in HIV/TB co-morbidity and mortality. Nationally, SIAPS helps countries update policies and supports regulatory authorities to ensure that ARVs and diagnostics are properly registered and meet efficacy, quality, and safety standards. In some cases, SIAPS has partnered with people living with HIV to review policies and make recommendations that are responsive to, and respectful of, their needs. SIAPS designs interventions to specifically help scale up ART programs with the underlying implementation strategy of strengthening the pharmaceutical management system for a wider range of medicines and supplies and supporting integration of supply and patient services where appropriate. SIAPS's systems strengthening approach aims to increase country ownership and result in improved and sustainable health impact.

SIAPS work underscores the importance of equitable access to medicines and pharmaceutical services which supports the goal of attaining universal health coverage. SIAPS serves as an advocate and technical resource for countries that are striving to achieve universal health coverage (UHC) as well as countries seeking information about pharmacy benefits management and creative financing mechanisms. Many SIAPS country programs continue to participate in local and cross-country dialogues about gaps in pharmacy benefits management and the role medicine benefits would have as part of universal health coverage. As SIAPS moves forward in the upcoming program years, it will remain firmly committed to doing its part towards the goal of universal and equitable health care for all.

SIAPS achieves all its work through its global network of staff in the United States and country offices and also with its core and resource partners. Its country teams work directly with USAID Missions and local partners to deliver results that are locally appropriate and sustainable. They continue to be supported by a country program team at the Arlington, VA, headquarters that ensure that quality work plans and reports are delivered on time, mobilize technical and other resources, and liaise with USAID/Washington, other MSH technical units, and other partners to ensure that country programs have the required resources to achieve their goals. SIAPS's core technical team provides cross-cutting and specialized technical support to all country and health element portfolios that assure the program-wide application of best practices and lessons learned. They also focus on operational research and comparative analysis that contribute to our body of knowledge and enhance technical leadership. Our health element focal persons and their staff liaise directly with the health element leads for malaria, TB, maternal, neonatal and child health (MNCH), HIV and AIDS, and neglected tropical diseases (NTDs) in USAID/Washington to ensure that the SIAPS Program focuses on interventions that will help achieve US government targets, while ensuring uniformity and consistency of technical approaches at global, regional, and country levels.

Our core and resource partners bring a mix of skills and expertise in pharmacy education and training, pharmaceutical health insurance, cost-effectiveness evaluations and research, logistics management, pharmacovigilance, pharmacoconomics and epidemiology, laboratory strengthening, mission sector coordination, research and evaluation, operations research, and management information systems. Core partners include the Accreditation Council for Pharmacy Education (ACPE), Harvard University, The Logistics Management Institute (LMI), and the University of Washington. Specialized resource partners include the African Medical Research Foundation (AMREF), Ecumenical Pharmaceutical Network (EPN), Results for Development (R4D), Imperial Health Sciences (IHS), VillageReach, and the William Davidson Institute.

In fiscal year (FY) 2014, SIAPS continued to advance its goal of assuring the availability of quality pharmaceutical products and effective pharmaceutical services to achieve desired health outcomes. The program worked with local counterparts and partners in 44 countries, with field support in 21 countries, and offices in 17 countries. In addition to the regional program for the Latin American States, SIAPS supported 3 new regional programs in East Africa, West Africa, and Asia (RDMA). There was no close-out activity during this program year.

This report presents highlights of SIAPS's accomplishments in its Program Year 3: October 2013 to September 2014. Results are presented by health program areas, and showcase SIAPS's contributions to the key health outcome goals of the USG. The report also presents results by SIAPS intermediate result areas, representing multiple countries where we work, as well as by regional and country portfolios.

HEALTH AREAS

HIV AND AIDS



Countries Supported by the HIV and AIDS Core Portfolio in Year 3

Angola
Cameroon
Democratic Republic of the Congo
Dominican Republic
Ethiopia
Lesotho
Namibia
South Africa
Swaziland
Ukraine
West Africa Regional Project [Benin, Burkina Faso, Cameroon, Niger, Togo]

THE CHALLENGE

At the end of 2013, 11.7 million people were receiving antiretroviral (ARV) therapy (ART) in low- and middle-income countries.¹ Globally, 3.2 million children (< 15 years) were living with HIV, with 91% of this population living in sub-Saharan Africa. Despite this region's focus on increasing access to ART and achieving an AIDS Free Generation, only 24% of children and 37% of adults in need of ART were receiving ART.² According to the 2013 WHO guidelines for managing patients with HIV-related illness, it is recommended that all children under the age of five, HIV positive patients with active TB infection, HIV positive pregnant women, and all people living with HIV and AIDS with a CD4 count of 500 cells/mm³ should receive treatment.³ In line with the WHO recommendations, the US Global AIDS Coordinator has implored all implementing partners to intensify focus on increasing access to ART for children to contribute to ending preventable maternal and child death. Successful increase in the coverage of ART requires adequate medicines, information, tools, and financial and human

1 World Health Organization. (2014). Access to Antiretroviral Drugs in Low- and Middle-Income countries.

2 PEPFAR 2014, UNAIDS 2014

3 WHO 2013

resources to manage HIV programs. SIAPS is at the center of supporting national programs and USAID implementing partners to enhance access to quality ARVs and ensure uninterrupted access to ART.

The current challenges of ART programs include:

- Poor data quality negatively affecting accuracy and timelines of quantification, forecasting, and ultimately procurement of ARVs. The result is unpredictable availability of ARVs, with swings between wastage and stock-outs of medicines.
- Shortage of trained personnel to deliver pharmaceutical services and poor integration at service delivery points resulting in duplication of efforts, high workload, demoralization of staff, and staff attrition.
- Weak inventory and supply chain management, resulting in poor access to essential medicines.
- Weak coordination among host country stakeholders, donors, and implementing partners.
- Lack of use of evidence in strategic and program implementation decision making.
- Limited prioritization of populations at risk and populations that that significantly reduce the number of new infections.

SIAPS Strategy for Improving HIV and AIDS Health Outcomes

SIAPS, under PEPFAR, supports national treatment programs and builds country capacity for sustaining access to ART. SIAPS helps expand access to HIV diagnosis, care, and treatment by helping develop efficient and evidenced based procurement, quantification, distribution, and prescribing practices for ARVs, HIV test kits, and other HIV and AIDS related essential medicines and supplies. SIAPS supports HIV programs decentralize ART services to enhance access to ARVs by identifying opportunities for increasing efficiencies, mobilizing resources, enhancing transparency, and sustaining systems.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

SIAPS HIV and AIDS Core Portfolio is supporting the key objective of achieving an “AIDS Free Generation” through strategies that ensure country ownership and sustainability, and the Millennium Development Goals initiative to increase coverage of HIV treatment to reduce AIDS-related mortality and enhance HIV prevention. At the end of this project year, 1588 ART sites in 11 countries were receiving direct or indirect pharmaceutical system strengthening support through SIAPS to enhance the delivery of ART services. In some of these settings, apart from the funding from partner governments, SIAPS is the only donor-funded project supporting pharmaceutical system strengthening. SIAPS has partnered with other agencies including WHO, GFATM, CHAI, and nongovernmental organizations to enhance the use of evidence to improve coordination and sustainability of ART services.

At SIAPS supported ART sites* in 11 countries, 912,196 patients are accessing ART with an estimated 10 million patient visits for ART services per annum (1 visit per month per patient).

* A SIAPS supported site is defined as any point of direct service delivery to patients that receives technical or material support from SIAPS to improve the delivery of ART services.

In South Africa, SIAPS is supporting HIV treatment in Eastern, Kwazulu Natal, and Gauteng provinces covering an estimated 30% of the population of patients on ART by providing and supporting electronic tools used in the pharmacy, developing SOPs, providing leadership development, and updating treatment guidelines.

Number of ART sites and ART patients at SIAPS supported sites	ART Sites	ART Patients
Cameroon	34	65,553
Dominican Republic	72	25,600
Ethiopia	660	323,122
Lesotho	104	53,104
Namibia	52	106,106
Swaziland	133	103,744
West Africa	533	234,967
Total	1,588	912,196

Addressing Availability of Quality ARVs

The cornerstone of any public health HIV program is the uninterrupted availability of quality assured ARVs and related products like rapid test kits (RTKs). SIAPS approaches this challenge of ensuring availability by strengthening information systems, building individual and institutional capacity, and enhancing the use of evidence and tools to strengthen regulatory systems. In Cameroon and Swaziland, SIAPS supported the National AIDS Control Programs to accomplish a national quantification of HIV and AIDS commodities and built the capacity of the National AIDS Committee, Central Medical Stores, and other partners - supporting the national ART program. Quantification committees have been formed consisting of members from all major stakeholders. Forecasts, supply, and procurement plans were developed for ARVs and opportunistic infection medicines for the period January 2014 to December 2017.

Strengthening Rational Use of ARVs and Improving the Efficiency of Service Delivery

SIAPS provides technical support in analyzing the data generated at ART sites to identify patterns and trends in the use of ARVs and identifying and mitigating the risks of HIV drug resistance development, which threatens the sustainability of HIV programs. SIAPS is supporting Namibia, Swaziland, and Ethiopia to use pharmaceutical information to enhance prevention of antimicrobial resistance, monitoring early warning indicators of HIV drug resistance, and monitoring adherence to ART. In the Dominican Republic, SIAPS has supported ART sites by optimizing medicine regimes which enhance efficiency and effectiveness of

The MoHSS in Namibia, using SIAPS-supported tools, is able to regularly monitor retention rates of pediatrics and adults on treatment, by facility, and produce annual and quarterly reports. These reports have been used in guiding decision making and strengthening service delivery.

Data have shown that 95% of patients are continuing their ART treatment with a reduction in lost-to-follow-up rates (LTFU) from 19% to 6%. High retention rates and low LTFU rates are key indicators of improved performance of the ART program and point to reduced risk of HIV drug resistance and attainment of reduced morbidity and mortality of PLWHA, thus contributing to an "AIDS-Free Generation."

ART programs, reducing treatment regimens from 78 to 54 regimens for adults, and from 190 to 98 regimens for pediatrics. This has had a significant impact on the supply chain management of HIV and AIDS commodities. The availability of ARVs in health facilities increased from 64% in 2012 to 95% in 2014, while the cost per patient treated was reduced by 56% from 371 US dollars (USD) per year per patient (2011) to USD 164 per year per patient treated (2014). These gains are partly attributed to the change of provider in 2012 and technical support provided by SIAPS.

Institutional and Human Resource Capacity Building

SIAPS provides technical support to health facilities' therapeutic committees to enhance compliance to ART guidelines and builds human resource capacity through pre- and in-service training to enhance management capacity in HIV programs and ART service delivery. SIAPS has supported updates of treatment guidelines, and standard operating procedures in Democratic Republic of Congo (DRC), Namibia, and Angola.

Improved Governance and Leadership of HIV Programs for Standardized and Reliable Service Delivery

Strengthening rational medicines use and standardizing service delivery will enhance accountability and transparency in delivery of HIV and AIDS services. In Ethiopia, through the Auditable Pharmaceutical Transactions and Services activity, and in South Africa, through the Pharmaceutical Leadership Program, SIAPS is strengthening the governance of ART programs. SIAPS supports public health evaluations, assessments, option analyses, and technical strategies that enhance advocacy and evidence-based decision making. It is envisaged that with increased accountability and transparency, programs will have quality service delivery and sustainable availability of financial and human resources to deliver HIV and AIDS programs.

Support for Automation and Innovations in HIV and AIDS Pharmaceutical Information Systems at All Levels

SIAPS has been developing and implementing electronic tools to enhance the efficiency of dispensing medicines. SIAPS has continued to administer the Electronic Dispensing Tool (EDT) in Ethiopia, Namibia, and DRC. During this project year, SIAPS has supported the start-up of EDT use in Togo to enhance availability and accuracy of ART data. SIAPS has also continued to support the use of RxSolution in Swaziland and South Africa.

SIAPS promotes supportive supervision that enables program managers to monitor and provide mentoring to health workers at health facilities in inventory management, rational medicines use, compliance to guidelines, and the management of patient workload. Supportive supervision provides adequate support to ART sites to ensure standardization of practices in the delivery of ART services.

SIAPS is addressing the problems of recurrent stock-outs of medicines for ART in West Africa. The HIV commodities Early Warning System dashboard (opsida.org) contributes to the generation of and increased access to accurate patient and

Through SIAPS support, the stock-out rate in the Dominican Republic was reduced and the availability of ARVs in health facilities increased from 64% in 2012 to 95% in 2014.

Percentage of ART sites that received supportive supervision visits during the project year—

Swaziland (75%)

Namibia (88%)

Cameroon (100%)

commodity data (including ARVs) for planning and managing an efficient supply chain. The supply chain uses the data for estimation of ARV needs (forecasting and supply planning). With accurate data for the supply chain, adequate resources can be mobilized to manage HIV programs. By enhancing availability of HIV and AIDS commodity information and fostering coordination, SIAPS strengthens pharmaceutical supply management, which will in turn reduce the risk of ARV stock-outs.

The deployment of the regional HIV and AIDS dashboard (OSPSIDA) has been completed in Benin, Burkina Faso, Cameroon, Niger, and Togo. The dashboard presents data on several components of the ART program including patient numbers, consumptions patterns by ART product, pipeline analysis, and stock on hand data at the national and facility levels. In all the five countries, data entry is complete for the January–March 2014 period. The early results of the deployment of OPSIDA have revealed overstocks of ARVs and data quality issues. This has prompted the Central Logistics Management Units to pay more attention to the paper-based forms submitted by ART sites and correcting any gross errors. While challenges remain with the current paucity and poor quality of data, SIAPS will continue supporting country teams to complete data entry and keep the dashboard updated on a monthly basis.

Mobilization of Resources for ARVs and the Timely and Adequate Contribution from Stakeholders

Through the SIAPS West Africa project, the Global Fund Country Coordinating Mechanism in Niger received technical support to perform long-term forecasting and supply planning for HIV and AIDS commodities and identified key activities to be undertaken to strengthen the pharmaceutical system for the period 2015–2017.

In the Dominican Republic, SIAPS supported an estimation of needs and an analysis of the financial gap for national procurement. The analysis and associated advocacy resulted in the DR government increasing its commitment of funds for ART.

There was a 90% increase in the number of ARV units procured by the Dominican Republic from in 2012 to 2014. This was due to an increase of government funding for ARV procurement: USD 2.5 million for 2013 (executed); USD 6 million for 2014 (in progress); and USD 8.7 million for 2015 (budgeted).

MALARIA



THE CHALLENGE

Many countries supported by the President’s Malaria Initiative (PMI) continue to face challenges in ensuring an uninterrupted supply of high-quality malaria medicines and commodities as well as using them appropriately. Factors contributing to these challenges include poor planning and coordination among country partners, lack of strategic information for decision making (leading to frequent stock-outs of key health commodities at all levels), and weak human resources capacity to perform key pharmaceutical management functions, resulting in irrational medicine prescribing, dispensing, and use.

SIAPS Strategy for Improving Malaria Commodities Management

USAID PMI-funded SIAPS Program endeavors to improve pharmaceutical governance and build national capacity to manage malaria products, improve the quality of information systems, strengthen financing strategies, and improve the quality of pharmaceutical services provided to malaria patients. At the country level, SIAPS collaborates with national malaria control programs and central medicine stores to develop and implement strategies to strengthen pharmaceutical management to prevent malaria and improve case management.

Countries Supported by the Malaria Core Portfolio in Year 3

- Angola
- Benin
- Burundi
- Democratic Republic of the Congo
- Ethiopia
- Guinea
- Kenya
- Latin America Regional
- Mali
- South Sudan

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

Policies, Guidelines, Regulations, and Partners Coordination

The SIAPS Malaria Core Portfolio contributed significantly to the global malaria policy dialogue by taking a lead role in a variety of Roll Back Malaria (RBM) working and technical advisory groups.

In close collaboration with the WHO, SIAPS updated the National Essential Medicines Lists in Angola, Democratic Republic of the Congo (DRC), Ethiopia, Guinea, and Mali, to include the newly recommended treatments for severe malaria. In collaboration with the Burundi MoH, SIAPS developed the policy document and played a key role in the adoption and implementation of the prevention of malaria in pregnancy (IPTp). In Ethiopia, SIAPS developed a drug reference handbook for health extension workers and a guideline to support the transfer and exchange of antimalarials between health facilities. These documents will provide users with skills to appropriately manage malaria commodities to avoid stock-outs and expiries.

SIAPS continued its efforts to support good governance and coordination in pharmaceutical supply chain by facilitating pharmaceutical supply management working group meetings in Angola, DRC, Mali, Guinea, Burundi, and South Sudan. In addition, to strengthen country level coordination, SIAPS collaborated with in country malaria partners to hold regular malaria coordination meetings, and develop joint work, operational, and strategic plans.

Supply Chain Management

SIAPS provides support to strengthen the capacity of the MOHs and NMCPs to appropriately manage malaria and the malaria commodity supply chain by training health care workers in quantification, pharmaceutical management and malaria case management, as well as advocating for and supporting country led supportive supervision accompanied by coaching and on the job training.

SIAPS has supported quantification activities, including revitalizing National Quantification Committees and conducting quantification of artemisinin-based combination therapies (ACTs), rapid diagnostic tests (RDTs), and severe malaria medicines in Guinea, South Sudan, Burundi, Mali, and Ethiopia.

To improve the management of antimalarials, including storage and distribution, SIAPS has developed SOPs, tools, and job aids for the central and facility levels. In addition, SIAPS has developed costing tools to estimate the cost of distribution of malaria commodities including ACTs, RDTs from Central Medical Stores to facilities.¹

The redesign of the Logistic Management Information System (LMIS) in Mali improved inventory management and the recording and transmitting of data, thus improving ordering and order fulfilment and reducing stock-outs of health commodities.

¹ Estimating the In-Country Distribution Cost of Malaria Commodities in Benin and Kenya: Kenya. USAID/SIAPS, April 2014

SIAPS implements PMI tools, such as end use verification (EUV) and procurement planning and monitoring report for malaria (PPMRm), to avert stock-outs of lifesaving commodities, monitor their appropriate use, and facilitate procurement decisions. The EUV process has given MoH partners the opportunity to assess and take steps to correct and improve the availability and use of malaria commodities.

In Mali, MoH decided to make RDTs free for the entire population with no cost recovery. It is expected that all patients presenting with fever will be tested for malaria before receiving treatment.

In Angola and DRC, ACTs from facilities with excess stock were redistributed to facilities to avoid stock-outs and expiries.

In DRC, as a result of continuous review of PPMRm results and implementing recommendations, the number of facilities receiving ACTs from warehouses on time has increased from 59 (43%) to 121 (88%).

Community Case Management

SIAPS provides support to strengthen case management at the facility and community levels through implementing community case management activities in Burundi. SIAPS worked with the National Malaria Control Program (PNILP) and the Gashoho and Gahombo Districts to improve the quality of the care offered by community health workers (CHWs) through supportive supervision and training sessions during CHW monthly meetings at 25 health centers implementing malaria community case management.

Private Sector Partnership

SIAPS provides support to increase access to malaria diagnosis and treatment to hard-to-reach places through the private sector. To better understand how the private sector operates and how SIAPS can best provide support within its system, a feasibility study was conducted in Mali. Similarly in Ethiopia, a cross-sectional survey on availability, price, and affordability of antimalarial drugs at public, private, and NGO medicine outlets in six zones of Oromia Region was conducted. A survey on knowledge, attitudes, and practices influencing access to antimalarials was conducted in gold mining areas in Suriname. The findings of these studies will inform the design of appropriate interventions to improve access to malaria diagnosis and treatment through the private sector.

MATERNAL, NEWBORN, AND CHILD HEALTH



Countries Supported by the MNCH Core Portfolio in Year 3

Angola
Bangladesh
Burundi
DRC
Guinea
Mali

THE CHALLENGE

Despite progress made in reducing both maternal and child mortality rates over the past decades, both rates still remain high and very few countries are on track to meet the MDG 2015 targets of reducing MMR by three-quarters and the under-five child mortality by two-thirds. Alarmingly, a large proportion of these deaths could be avoided if women and children had access to adequate health services, where the necessary quality medicines and supplies were available and skilled health providers were present. The preventative and curative measures for the major causes of maternal and child deaths are well-known, but access to them remains elusive for many.

Many essential MNCH medicines and supplies are generic products that are currently widely available in both the public and private sectors. However, ensuring access and availability of these medicines and supplies in-country requires improving pharmaceutical policy; enforcing compliance with policies and procedures especially in procurement; and addressing regulatory components of the health system. Likewise, several key MNCH products are often only authorized for administration by highly skilled providers, despite evidence that administration by less skilled providers is both feasible and effective. The availability of quality MNCH medicines and supplies is often subject to the weaknesses present in public sector systems.

SIAPS Strategy for Improving MNCH Health Outcomes

The SIAPS MNCH Core Portfolio works with global and in-country partners to improve access to and use of life-saving medicines for women and children. Promoting a systems-strengthening approach, SIAPS program activities go beyond addressing supply chain challenges alone, and instead incorporates interventions to positively affect the system as a whole, from strengthening pharmaceutical legislation, regulations, and policies, to supporting appropriate community case management and patient-centered care.

Inaccurate quantification of requirements, inappropriate pharmaceutical procurement mechanisms, procurement of products that do not meet the necessary technical specifications, weak distribution systems, inadequate storage facilities, and limited inventory tracking systems are all factors that currently affect the availability and quality of these products in the public sector. In the private sector, the quality of available MNCH medicines is often questionable as weak regulatory authorities are unable to implement quality assurance measures consistently.

Scarce information for decision making at all levels is also a barrier to access to MNCH commodities. The lack of reliable morbidity data and the lack of personnel skilled in analyzing and using the data make it difficult to estimate demand accurately for procurement purposes and to identify gaps in coverage. Financial obstacles can also impede access. Public sector procurements for MNCH are mostly funded through public sector health budgets and are subsequently reliant on perceived national priorities and limitations in funding mechanisms. The money allocated for the purchase of pharmaceutical products is often insufficient to meet the current demands. Finally, several key medicines and supplies are used for multiple indications and are not necessarily limited to MNCH conditions. Changing provider and client behavior to prioritize their use for MNCH conditions may be required to ensure that they are available when needed and making it easier to identify the gaps in demand specific to MNCH requirements.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

In recognition of the need for heightened attention to MNCH, in 2014, USAID and the global MNCH community renewed their commitment to ending preventable child and maternal deaths by 2035. The global targets of an average of fewer than 50 maternal deaths per 100,000 live births and fewer than 20 child deaths per 1,000 live births were set. Five strategic shifts were proposed to achieve these targets: (1) increase efforts in the countries that account for the largest share of under-five deaths, (2) reach the most underserved populations, (3) target priority causes of mortality with innovation efforts and interventions poised to go to scale, (4) invest beyond health programs to include empowering women and supporting an enabling environment, and (5) create transparency and mutual accountability at all levels, with strengthened commitment to common metrics for tracking progress.¹ In other words, the achievement of these targets requires a focused, systems-strengthening approach.

¹ USAID. Acting on the Call: Ending Preventable Child and Maternal Deaths Report, June 2014, Available from: <http://www.usaid.gov/what-we-do/global-health/acting-call-ending-preventable-child-and-maternal-deaths-report>

A key component of this systems approach is the implementation of strategies to increase access to essential maternal, newborn, and child health medicines and supplies. These strategies will need to include improving governance of pharmaceutical systems, strengthening supply chain management capacity, increasing the availability of pharmaceutical information for decision making, developing appropriate pharmaceutical financing strategies, and promoting rational use of medicines and supplies. All strategies will need to be addressed at both the Global and Country levels.

Global Level Contributions

This year at the global level SIAPS continued to contribute to efforts to implement the recommendations of the UN Commission on Life-Saving Commodities for Women and Children (UNCoLSC) through its participation in many of the Commission's Technical Resource Teams (TRT). Under the Maternal Health Technical Reference Team, SIAPS has been participating in the sub-group dedicated to improving storage conditions of oxytocin and began a case study examining how Mali was able to incorporate oxytocin in the vaccine cold chain. Under the Supply Chain (Recommendation 6) TRT, SIAPS lead the development of guidance on quantification of the 13 priority commodities and plans are underway to validate this guidance in a national quantification exercise in the Democratic Republic of Congo. Also under this TRT, SIAPS, through its partner Village Reach, created a compendium of briefs describing promising practices in supply chain management.² This compendium was finalized and widely disseminated in 2014. An abstract regarding the compendium was accepted for presentation at the Global Health Supply Chain Summit, in November 2014. In the Chlorhexidine Working Group, SIAPS has taken the lead on the introduction of chlorhexidine in the DRC and participated in an initial visit to Pakistan to discuss introduction. The framework SIAPS developed to plan for introduction of chlorhexidine in both countries has now been adopted by the working group for use in other countries. SIAPS also participated in the Pneumonia and Diarrhea Working Group where it has been a major contributor to key advocacy documents for amoxicillin dispersible tablets, and assisted in the development of dispensing tools for amoxicillin. Finally, SIAPS has contributed to the injectable antibiotics working group and is leading an assessment, or landscape analysis, of current injectable antibiotic availability and use in DRC.

SIAPS also actively participates in standing technical communities of practice such as the Reproductive Health Supplies Coalition (RHSC) and the Community Case Management (CCM) Task Force. In 2014, the SIAPS Principal Technical Advisor was named co-chair of the Maternal Health Supplies Caucus of the RHSC. In the CCM Task Force, SIAPS contributed to the revitalization of the Supply Chain Management Sub-group, serving as co-chair; the sub-group has organized a series of webinars in coordination with the Core Group on supply chain for CCM.

Over the past year, SIAPS has finalized a number of tools to assist countries in ramping up efforts to decrease maternal and child mortality. For example, the approach for estimating unmet need for maternal health medicines, designed to

2 *Promising Practices in Supply Chain Management Series*. 2014. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program Arlington, VA: Management Sciences for Health.

assist countries to plan for better quantification and procurement, was finalized and disseminated.³ The approach was presented recently in a webinar organized by UNICEF’s South Asia regional office for its country offices, and plans are underway to implement the approach through the members of the Ecumenical Pharmaceutical Network. This year SIAPS also developed tools to assess sub-national procurement of MNCH medicines. Finally, in Zambia SIAPS began validation of a guide to assist district managers in developing interventions to improve availability and use of medicines for childhood illness.

Country Level Contributions

At the country level, SIAPS continues to assist national stakeholders in developing innovative approaches to addressing barriers to access in their countries. Specifically, in child health, SIAPS assisted the Ministries of Health in Guinea and Burundi to improve access to treatment for diarrhea and pneumonia through CCM. In both these countries, SIAPS has brought supply chain management for CCM prominently into the planning cycle. In Guinea, SIAPS collaborated with Maternal and Child Health Integrated Program to complement efforts to scale up CCM, but providing technical support to the Ministry of Health (MoH) for quantification and supply chain management. In Burundi, SIAPS has focused on maintaining the supply chain for community health workers (CHWs) but also on the quality of care provided, contributing to protocols, job aids, and other tools as well as conducting an evaluation of CCM of malaria with a costing study component. The recommendations will orient the MoH in the expansion of CCM for malaria into integrated community case management.

These and other examples of country support are summarized in the table below:

Country	Key Accomplishments
Angola	<ul style="list-style-type: none"> Supported national commodity security working group Conducted national quantification exercise
Bangladesh	<ul style="list-style-type: none"> Disseminated findings of assessment on sub-national procurement Began assessment of pharmaceutical management practices at the district level Developed five-year forecast for essential RMNCH commodities Created technical working group to support development of an LMIS for the Directorate General of Health Services
Burundi	<ul style="list-style-type: none"> Conducted evaluation of CCM of malaria with costing study Developed tools and job aides for CHWs
DRC	<ul style="list-style-type: none"> Revision of Essential Medicines List to include key MNCH medicines, such as chlorhexidine and misoprostol National MNCH guidelines revised in alignment with revised EML National plan for introduction of chlorhexidine developed Support to all UNCoLSC efforts in-country
Guinea	<ul style="list-style-type: none"> Supported MoH in planning scale up of CCM Conducted quantification exercise for CCM medicines and supplies
Mali	<ul style="list-style-type: none"> Developed new logistics management information system that now includes community level Developed training materials, tools and job aides for the new LMIS

3 Maheen Malik, Beth Yeager. 2013. *Estimation of Unmet Medical Need for Essential Maternal Health Medicines*. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.

NEGLECTED TROPICAL DISEASES



THE CHALLENGE

SIAPS predecessor program, SPS, conducted an assessment in 2011/12 in four countries: Cameroon, Mali, Tanzania, and Uganda, which showed marked weaknesses in the capture, transmission, aggregation, and analysis of data related to neglected tropical disease (NTD) products, especially during mass drug administrations carried out by community health workers. Even when available, aggregate reports do not reach program managers at the national level in a timely fashion to allow them to develop accurate forecasts or prepare timely and comprehensive donation applications. In addition, there is no system at the global level that collates supply pipelines and tracks the stock status of commodities in priority countries. Improvements are required to address identified weaknesses, including weak in-country coordination between the various NTD programs, forecasting, quantification and ordering, customs clearance, logistics and inventory management, management of adverse events, and waste disposal.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

In the first year of implementation for the USAID-funded SIAPS NTD Core Portfolio, the project has already identified a number of issues in pharmaceutical management for NTD commodities. To address these issues, SIAPS has been working with global NTD initiatives, implementing partners, and national NTD programs to help them reach their goals in treating NTDs. SIAPS has been supporting the strengthening of the pharmaceutical management

SIAPS Strategy for Improving NTD Health Outcomes

The SIAPS NTD Core Portfolio aims to provide global technical leadership for NTD supply chain management activities through participating in technical working group meetings and scientific conferences. Specifically, SIAPS provides technical input to USAID, WHO, the Task Force for Global Health, Global NTD networks, national NTD programs, and other relevant bodies to address technical leadership issues related to NTD medicines in terms of medicine policy including donations, medicine regulation, supply chain management, serious adverse event reporting, and patient safety.

component of mass drug administrations, the scale-up of programmatic management of monitoring and evaluation, and the increase in adverse drug reaction reporting.

Tools and Training Materials

SIAPS developed and disseminated a comprehensive product management training and operational manual, along with tools and procedures, to manage NTD products and related data at different levels of the supply chain system. SIAPS integrated data collection, processing, and reporting across programs to reduce staff burden for these functions. The tools were developed in a consultative manner with host country programs, drug donation programs at the Task Force for Global Health, WHO, and other stakeholders and provide information to cover receipt, issue, return of unused products, tracking expiries, consumption, stock levels and shipment status, and reporting adverse drug effects.

SIAPS NTD Pharmaceutical Management Materials

- Workshop on NTD pharmaceutical management for national NTD program officers (3 days)
- Condensed workshop for NTD pharmaceutical management for national NTD program officers (1 day)
- Manual of SCM for NTD pharmaceutical management for national NTD program officers

Technical Leadership and Advocacy

SIAPS focused efforts on technical leadership and advocacy for NTD pharmaceutical management within the greater NTD control and elimination community. To this end, significant time has been spent attending working group meetings and scientific sessions to highlight the need for increased efficacy in supply chain management and pharmacovigilance. After attending six international and numerous key stakeholder meetings, SIAPS now has an accepted presence within the NTD community. As a result of SIAPS' efforts at these meetings, pharmaceutical management issues have gained more attention within the NTD community and working groups.

Meetings Attended by SIAPS NTD Core Portfolio

- M&E Working Group
- Drug Efficacy Working Group
- NTD NGDO
- WHO Western Pacific Region Program Managers
- American Society for Tropical Medicine and Hygiene Scientific Sessions
- World Bank Meeting for Celebration of the African Program on Onchocerciasis Control
- Task Force for Global Health, RTI NTD Team, and FHI360 NTD (to discuss improvements to the NTD SCM workshop)

TUBERCULOSIS



Countries Supported by the TB Core Portfolio in Year 3

Bangladesh
DRC
Ethiopia
Kenya
Malawi
Nigeria
Pakistan
Philippines
South Africa
Swaziland
Tajikistan
Tanzania
Turkmenistan
Ukraine
Uganda
Uzbekistan
Zambia
Zimbabwe
ECSA

THE CHALLENGE

In 2013, the World Health Organization (WHO) estimated that every year approximately 3 million people with tuberculosis (TB) are missed by the health system.¹ There is gap between good pharmaceutical management practices and their application at the level of global initiatives. Inadequate human resource capacity coupled with weak management information systems has resulted in limited capacity for pharmaceutical supply management in TB programs in many countries; this includes challenges with forecasting, quantification, inventory management, and supply planning. Additionally, insufficient resources have been devoted to medicines safety with regards to global TB management. This challenge results from a combination of limited monitoring and review of adverse events, combined with inadequate training and guidance on treating co-morbidities, such as TB and HIV. Finally, the private sector has not been afforded sufficient attention given its significant role in community health and the potential gaps it could fill in TB case detection and treatment. The SIAPS TB Core portfolio is improving health systems performance by strengthening pharmaceutical systems in high TB burden countries, thus contributing not only TB program goals, but also to the goals of ending preventable maternal and child deaths and raising an AIDS-free generation.

SIAPS Strategy for Improving TB Health Outcomes

The SIAPS TB Core portfolio is tackling the challenges in TB management through four key pillars: TB Core activities target improved pharmaceutical governance at both global and country levels. SIAPS is increasing human capacity for TB pharmaceutical supply management and services, which is closely linked to TB Core's third strategy of improved use of information for TB management decision making. SIAPS addresses both the quality and accessibility of services for TB diagnosis and treatment.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

Improved Pharmaceutical Governance and Capacity for TB Pharmaceutical Management

SIAPS has helped build the technical capacity and leadership of global TB initiatives by fully seconding an interim manager to the WHO Global Drug Facility (GDF), participating in the GDF Advisory Group, supporting two members of the GDF Technical Review Committee, and regularly serving as a pharmaceutical specialist in GDF monitoring missions and WHO TB program reviews. With SIAPS technical leadership and input, the GDF has developed and is successfully implementing a strategy aimed at increasing procurement efficiency and market safety. It is also expediting the supply of TB commodities to countries by securing additional suppliers of quality-assured TB medicines, establishing rotating stockpile of medicines and flexible procurement fund, and shortening lead times. Currently, SIAPS is actively assisting the GDF in formulating its strategy and operational plan to establish itself as a prime supplier of TB medicines to the countries procuring via the GF New Funding Mechanism.

SIAPS has provided pharmaceutical management expertise to USAID's, UNITAID's, and the Global Fund's market-shaping initiatives, leading the discussions on increasing and forecasting the demand in TB medicines. SIAPS also contributed to the Policy Implementation Package for National TB Programs (NTPs) in support of the introduction and implementation of new TB medicines and regimens, which was spearheaded by the WHO Task Force for the Development of New Policies for the Treatment of TB. This policy document was officially presented at the 45th UNION World Conference on Lung Health in Barcelona, Spain, in October 2014.

To improve global and country capacity for TB pharmaceutical management, SIAPS developed a five-day course curriculum for pharmaceutical management for TB and programmatic management of drug resistant TB. SIAPS has used this training for the following workshops in project year three.

Through its support to the GDF, SIAPS contributed to the decrease in GDF lead times from an average of 85 days to 57 days over a one-year period. In addition, the GDF prices for second-line medicines for MDR and XDR-TB have dropped approximately 14%–26%.

Training type	Location	Date	# trained
Quantification Training	Uganda, regional	November 2013	9
TB Quantification Technical Meeting	Tanzania, regional	February 2014	18
Pharmaceutical Management for TB	Italy, WHO consultants	April/May 2014	23
Early Warning Systems for TB	Switzerland	April 2014	22
Quantification Workshop	Ethiopia, regional	May 2014	23
Pharmaceutical Management for TB (funded through HEAL TB project)	Ethiopia, country	September 2014	21
Total Number of People Trained			116

Improved Information for Decision Making through Innovative MIS Tools

e-TB Manager is currently operating in 2,519 sites in 10 countries.

Globally, 3,011 active users are managing 250,783 TB cases, DR-TB cases, and presumptive TB individuals.

SIAPS has supported improving information for making decisions through the use of two innovative tools for management information systems (MIS): e-TB Manager and QuanTB. e-TB Manager is a web-based tool for managing key information needed by national tuberculosis programs (NTPs). It integrates data across all aspects of TB control, including information on suspects, patients, medicines, laboratory testing, diagnosis, treatment, and outcome. QuanTB is an electronic forecasting, quantification, and early warning tool designed to improve procurement processes, ordering, and planning for TB treatment. QuanTB has been adopted by the GDF as its standard tool for quantifying orders and monitoring medicines availability in client countries; the tool has been interfaced with the GDF Global Forecasting and Early Warning system (EWS). SIAPS collaborated on the United Way worldwide grant, on behalf of Eli Lilly and Company Foundation (managed by KNCV), on a project on electronic-health (eHealth) and mobile health (mHealth) interoperability. Specifically, the grant was to develop a data dictionary for forecasting and quantification standardization and interoperability, based on QuanTB, which allows users of different electronic systems to exchange and share TB data easily.

SIAPS has continuously refined and updated e-TB Manager and QuanTB, providing improvements to generic and country-specific versions. In addition, a generic version of e-TB Manager Desktop, which is a stand-alone edition of e-TB Manager for case management only, has been tested and finalized; plans are underway for piloting in Bangladesh. An updated version of e-TB Manager Data Analysis and Reporting Tool has been tested and finalized; this version contains new features and significant enhancements, including an adaptable dashboard to fit country needs. All countries using e-TB Manager will benefit from this updated generic version.

As of September 30, 2014, there were approximately 600 downloads of QuanTB from the SIAPS website. A comprehensive new version of QuanTB has been tested and finalized; this version, 2.0.0, includes new features and significant enhancements. The official launch of QuanTB 2.0.0, along with corresponding promotional materials, took place during the 45th Union World Conference on Lung Health in October-November 2014.

Improved Access to TB Medicines in the Public and Private Sectors

SIAPS's efforts to improve access to TB diagnosis and treatment include three primary efforts. The first is to provide technical assistance to the USAID priority high-burden countries to strengthen access to TB medicines by implementing early warning systems for stock-outs/waste of TB medicines. SIAPS has done this through a regional technical assistance mechanism combined with QuanTB; together, these allow staff sufficient time to address supply problems by providing alerts when the risk is high for medicines expiries and stock-outs, and flagging the need for emergency medicine orders. It also allows the rapid identification of gaps in pharmaceutical systems and the ability to monitor improvement interventions.

SIAPS has trained NTP drug management staff and partners from 12 countries (Bangladesh, Ethiopia, Kenya, Malawi, Mozambique, Nigeria, Philippines, Tajikistan,

Tanzania, Uganda, Zambia, and Zimbabwe) to use QuanTB for quantification and tracking of TB medicines. Of these countries, eight have adopted QuanTB as the national tool for quantification and monitoring of TB medicines. SIAPS also worked with the WHO Global Drug Facility to integrate QuanTB with the early stock-out warning system as a part of global forecasting for anti-TB medicines.

Within the first six months of implementing QuanTB, six countries reported to SIAPS on their use of QuanTB for medicines tracking and decisions made based on QuanTB data.

	Baseline	at 6 months
The percentage of countries that reported a stock-out of at least one first-line anti-TB medicine	80% (4/5)	0%
The percentage of countries that reported a stock-out of at least one second-line anti-TB medicine	50% (3/6)	17% (1/6)
Postponement and reallocation of second-line anti-TB medicines shipments minimized overstocking. As a result, one country saved over 899,000 USD of country and donor funding from potential wastage.		

Key highlights from priority countries receiving SIAPS TA for early warning systems include the following:

- **Bangladesh:** SIAPS reviewed the quantification figures for country submission to the Global Fund New Funding Model and, based on SIAPS recommendations and support, the NTP revised and published the TB pharmaceutical guidelines and reporting forms.
- **Democratic Republic of the Congo:** SIAPS has coordinated technical assistance plans with the NTP and USAID Mission, and is in the final stage of hiring a full-time local technical advisor.
- **Ethiopia:** SIAPS brought together key stakeholders in TB to improve communication and coordination for medicine quantification and procurement. Ethiopia has agreed to update QuanTB quarterly and to share data with the GDF for global EWS.
- **Kenya:** SIAPS supported the NTP to determine gap funding for TB medicines as a result of decentralization to counties. In addition, SIAPS helped determine the total quantity and cost of TB medicines that could be purchased with recent savings from the Global Fund to overcome potential stock-outs, if the Global Fund agrees to reprogram funds. Lastly, SIAPS supported the NTP’s development of a new procurement and supply management section of its new strategic plan.
- **Malawi:** SIAPS conducted a technical visit to the country and trained the NTP in quantification and how to use QuanTB as an early warning system.
- **Nigeria:** The NTP has committed to developing an EWS with SIAPS’s assistance. Discussions are ongoing with the NTP and USAID Mission; the terms of reference have been endorsed by the Mission and NTP.
- **Tanzania:** Based on SIAPS recommendation, a TB supply chain technical working group was established and the NTP revised the reporting form for MDR-TB cases to capture the number of patients on each medicine. In addition, SIAPS supported the concept note writing and bridge fund application for the Global Fund New Funding Model with a focus on procurement and supply management.

- **Uganda:** Uganda updates QuanTB bimonthly to track TB medicines stock. They also plan shipments and agree on actions to avoid stock-outs and wastages based on the EWS results from QuanTB.
- **Zambia:** SIAPS supported the NTP to quantify TB medicines needs for their annual procurement and reviewed the quantification figures that the country submitted for the Global Fund new funding model.
- **Zimbabwe:** SIAPS supported the NTP to quantify TB medicines needs for their annual procurement and reviewed the quantification figures that the country submitted for the Global Fund new funding model.

The second arm of SIAPS's efforts to improve the quality and accessibility of TB diagnosis and treatment is by strengthening linkages between the public and private sectors. SIAPS has worked with the NTPs in Kenya, Pakistan, and Tanzania to improve oversight of the private sector and increase its potential to contribute to national TB management efforts. The focus is on developing the capacity of the private sector to identify and refer clients with presumptive TB to NTPs, and the development of legal and operational basis for collaboration between private medicines sellers and TB programs.

In the private sector, SIAPS developed training materials, conducted training of trainers, and trained pharmacists and dispensers in TB recognition and referral in Tanzania and Pakistan; in Tanzania, 81 TB patients were identified in shops and diagnosed by NTP treatment and diagnostic centers. In Pakistan, pharmacists have been trained and discussions with the NTP and the provincial TB program are ongoing to finalize memorandums of understanding with a pharmacy school and private pharmacy to expand the linkages between the public sector and private pharmaceutical sector.

SIAPS is supporting improved patient outcomes by promoting the monitoring of medicines use, employing risk management algorithms, and undertaking active surveillance. Monitoring the use of medicines can be done through a drug use review, a systematic process designed to promote the safe and effective use of TB treatment. Risk management algorithms have been designed to help health care workers identify and promptly address known side effects of TB treatment, while active surveillance activities allow health systems to proactively identify and manage side effects that result from the combination of medicines for TB and HIV.

To improve patient safety, SIAPS created guidelines, tools, and SOPs for active surveillance of TB/HIV co-medication. In six sentinel sites in Swaziland, health care workers were trained in data collection, while data clerks and physicians were trained to promote data quality. From July to September 2013, 521 patients were enrolled for adverse event monitoring; 5% reported the occurrence of 30 different adverse events. It is expected that active surveillance will become a routine practice in Swaziland's health program and will greatly improve safety of TB/HIV co-medication and health outcomes. SIAPS finalized and published *Drug Use Reviews: A Practical Strategy to Ensure the Rational Use of Anti-Tuberculosis Medicines* and provided training to the NTP staff in Kenya to pilot the program. The medical records of 103 drug-resistant TB patients were reviewed, with SIAPS providing technical assistance to the Kenya Division of Leprosy, TB and Lung Disease for data analysis and interpretation of results. The publication will be presented at the 45th UNION World Conference.

Preventing and Minimizing Risks Associated with Anti-Tuberculosis Medicines to Improve Patient Safety has been disseminated through e-drug, the WHO Portal, MSH Newsletter, and SIAPS social media outlets.

INTERMEDIATE RESULTS

IR1 PHARMACEUTICAL SECTOR GOVERNANCE STRENGTHENED



THE CHALLENGE

Good governance is essential to protecting pharmaceutical systems from corrupt practices and mismanagement, which can be costly for governments, institutions, and individuals; and lead to diminished access to medicines or the consumption of adulterated, ineffective, or incorrect products that are harmful to patients. Transparency International estimates that corruption siphons off 10 to 25 percent of global public procurement spending.¹ Public sector pharmaceutical procurement is likely to be affected by similar problems, which deplete valuable health sector resources. In addition, the costs for patients and their families can be substantial and, in some cases catastrophic, when they must pay inflated prices for medicines they need, or use scarce resources to purchase unnecessary or ineffective products.

National medicine regulatory authorities in developing countries are often confronted with systematic challenges to fulfilling their regulatory functions. The lack of transparent and accountable procedures and insufficient capacity to perform regulatory functions effectively have resulted in backlogs of applications waiting to be reviewed and allowed poor quality or spurious products to enter the

¹ Transparency International. 2006. *Handbook for Curbing Corruption in Public Procurement*. Berlin: Transparency International. Accessed June 2014

SIAPS Approach for Strengthening Governance in Pharmaceutical Systems

SIAPS focuses on establishing policies and legislation supported by rule of law; organizational structures that are able to exercise appropriate decision making, authority, and oversight; transparent, ethical, accountable systems and processes that are based on best practice norms and guidelines; and human resource management systems that promote effective performance and ethical practices

supply chain. SIAPS provides support to national medicine regulatory authorities to build regulatory capacity, reform regulatory processes to make them more efficient and transparent, and upgrade information management systems for improved transparency, oversight, and accountability to enable timely access to medicines and other health supplies. To improve adoption of, and adherence to, good governance principles, including transparency, accountability, participation, and responsiveness, SIAPS focuses on establishing policies and legislation supported by rule of law; organizational structures that are able to exercise appropriate decision making, authority, and oversight; transparent, ethical, accountable systems and processes that are based on best practice norms and guidelines; and human resource management systems that promote effective performance and ethical practices.

Because governance issues can affect all pharmaceutical management activities as well as the supporting human resources, information, and financial management systems, SIAPS activities to strengthen governance are intrinsically linked with the interventions that contribute to achievements in the other SIAPS IRs.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

SIAPS country programs have continued to make advancements in strengthening pharmaceutical governance in their countries as illustrated by selected SIAPS indicators which describe progress made towards this intermediate result in this program year. Some notable activities and achievements are highlighted below.

Policies, Legislation, and Contractual Agreements

Pharmaceuticals must be carefully regulated to protect the public from products that are unsafe, of poor quality, or used incorrectly. Effective medicines registration, licensing of pharmaceutical establishments, and control of promotion, availability, prescribing, and dispensing of products rely on appropriate and enforceable legislation and policies. Successful management of contractual agreements for delivery of pharmaceutical services depends on the development of robust contracts and the establishment of systems and indicators to monitor their implementation. SIAPS helps countries to use participatory and transparent processes to develop or revise, adopt, and monitor adherence to pharmaceutical legislation, policies, and contractual agreements that support health sector priorities and promote good governance in pharmaceutical systems.

- » In Guinea, SIAPS collaborated with the MoH, the national regulatory authority, and the WHO to revise the national pharmaceutical policy and develop the five-year plan (2014–2018) for its implementation. To promote

- Six SIAPS countries improved pharmaceutical policies and/or legislation
- Eleven SIAPS Countries developed or updated pharmaceutical guidelines, EMLs, device and equipment lists, or SOPs.
- Two SIAPS Countries implemented activities to strengthen and improve transparency, efficiency and accountability in regulatory systems and processes contributing to reducing the average number of days taken to evaluate and approve regulatory applications.
- Two SIAPS Countries updated and made publicly available regulatory medicines registers that provide a minimum-standard level of information.

participation and transparency. SIAPS assisted the MoH to organize and facilitate a stakeholder workshop to review and validate the proposed policy and its implementation plan. In June 2014, the MoH used the validated policy and plan as the primary reference documents for Guinea's pharmaceutical sector in the national health review meeting.

- » SIAPS assisted the Ministry of Health and Social Services (MoHSS) in Namibia to update and align the 2003 national medical equipment policy with recent technological advances and develop essential medical equipment lists for each level of the health care system. The updated policy and lists will help the ministry to better plan for and avail equipment to support the provision of quality healthcare for HIV and AIDS as well as other diseases.
- » In Burundi, SIAPS helped the National Malaria Control Program (NMCP) to draft and submit for Cabinet approval, a decree that improves the control of commodities provided to health facilities or to the community free of charge to deter their resale and misuse.
- » Technical assistance provided to South Africa's National Department of Health (NDoH) to improve governance in the licensing process and increase community access to pharmaceutical services culminated in the publication of revised criteria for awarding licenses for pharmacies. SIAPS also researched how other countries regulate electronic prescribing to help the NDoH to determine needed changes to legislation to allow for and regulate this practice.
- » To improve access to ARVs and medicines for chronic diseases, the SIAPS program in South Africa is supporting the implementation of the Central Chronic Medicine Dispensing and Distribution program in eight provinces. SIAPS contributed to the crafting of the contractual agreements between the provinces and service providers responsible for preparing the prescriptions, which have now been signed in all eight provinces. SIAPS also helped the NDoH identify a set of indicators for monitoring service delivery at provincial, district, and facility levels, as well as by service providers.
- » As part of efforts to achieve greater transparency and accountability in the procurement and distribution of pharmaceuticals, SIAPS assisted two provinces in South Africa to develop service level agreements between the provincial depot and their clients and to set up systems for monitoring their implementation. These agreements which outline roles and responsibilities of all parties were approved bringing to three the number of such agreements signed with SIAPS support.

SIAPS Support in the DRC

- The time required to evaluate and register a product has been reduced from an average of 84 days in 2012 to 62 days.
- A registered product is now available for over 74% of the medicines on the essential medicines list (up from 44% in 2011).
- The number of registered medicines has increased from 200 in 2010 to over 3,000 currently.
- The list of registered medicines has been updated and is used by customs officers to check for unregistered medicines at border posts as well as by provincial pharmacists whilst conducting inspections to track and confiscate unregistered products.

Pharmaceutical Registration and Medicines Quality

When a country's regulatory system lacks transparency and accountability or if processes are not based on best practices, its intended functions such as medicines registration may not be executed effectively and citizens may be put at risk of using unsafe and low-quality medicines or deprived of the essential medicines that they need. The following are examples of how SIAPS is providing support to national medicines regulatory authorities to improve and promote good governance in pharmaceutical registration and medicines quality.

- » A year ago in DRC, SIAPS fully transitioned ownership and funding of the quarterly national registration committee meetings to the MoH Directorate of Pharmacy and Medicines (DPM). SIAPS full-time attendance at meetings is no longer needed and the team attends only on request. SIAPS technical assistance is now focused on helping the DPM expand membership of the national registration committee to promote participation and transparency in decision making and train new members, coaching staff on monitoring the registration process using performance indicators, and helping them to identify strategies to further reduce the registration time.
- » As part of its ongoing support to strengthen Bangladesh's regulatory system, SIAPS assisted the Directorate General of Drug Administration (DGDA) to introduce Common Technical Document guidelines to promote standardization of medicines registration application and review processes and their alignment with international best practices. The guidelines were also used to customize Pharmadex, SIAPS's web-based, integrated regulatory information management system, for use in Bangladesh (<http://siapsprogram.org/tools-and-guidance/pharmadex/>). SIAPS also helped the DGDA to revise Good Manufacturing Practice guidelines, inspection tools, and procedures in accordance with WHO standards and train DGDA staff in the application of these new standards and procedures.

Standards, Guidelines, and Procedures

Many low- and middle-income countries confront the challenge of a lack of robust guidelines and standard operating procedures that define norms and standards for performing pharmaceutical functions, based on international guidance and best practices. In this program year, SIAPS supported many countries to develop, revise, and implement a wide variety of documents that provide the foundation for

good governance in pharmaceutical systems and promote better service delivery using approaches that facilitate skills transfer to counterparts.

- » SIAPS assisted a working group established by the Ukrainian MoH State Expert Center to finalize 6 of 16 planned modules of the national pharmacovigilance guidelines based on documents issued by the European Union which set out best practices for member countries.
- » In Lesotho, technical assistance provided by SIAPS culminated in the handover of the finalized standard treatment guidelines and essential medicines list to the MoH for stakeholder validation and publication.
- » Similarly, SIAPS collaborated with the Dominican Republic's MoH and the Pan American Health Organization (PAHO) to revise the national list of essential medicines, which is now ready for validation. Once published, it is proposed that a ministerial decree will be issued to make use of the list compulsory for medicines procurement.
- » As part of continued efforts to strengthen the organizational structure of Burundi's NMCP, SIAPS helped to develop standard operating procedure manuals for financial, administrative, and human resource management and to draft job descriptions for all positions.

Transparency and Accountability

Good governance requires effective organizational structures and transparent procedures that support appropriate decision making, authority, and oversight, and hold entities and individuals accountable for their performance. The following are examples of how SIAPS is strengthening structures and systems across program countries to improve efficiency, effectiveness, and responsiveness in the performance of pharmaceutical functions and reduce vulnerability to corruption.

- » SIAPS is assisting the Ethiopian Government to develop and institutionalize systems and tools to achieve greater transparency and accountability in the management of pharmaceuticals and related finances. An important milestone in institutionalizing the innovative Auditable Pharmaceuticals Transactions and Services (APTS) package of interventions in the country was achieved when the Federal MoH and the Ministry of Finance and Economic Development approved the federal APTS regulations, which SIAPS helped to develop. In addition, five regional health bureaus have all drafted regulations for APTS, most of which have been approved and endorsed by the regional governments and are being enacted by the regional cabinets. To date, 30 hospitals are implementing APTS in four regions and two city administrations.
- » In Ukraine, SIAPS responded to a request from civil society organizations to review and provide comments on draft regulations on price referencing and to participate in discussions on approaches for developing a price monitoring mechanism to increase transparency around medicine pricing. As a result of these discussions, the civil society organizations issued a public statement on the price referencing policy and its potential impact on access to critical essential pharmaceuticals in Ukraine and requested further assistance from SIAPS in building their capacity and expertise in this area.

- » As a result of SIAPS technical assistance, South Africa's NDoH now has a web dashboard and metrics to monitor the provision of pharmaceutical services across the provinces in a way that promotes transparency and accountability. The dashboard tracks compliance to core standards relating to patient care, medicines access and availability, and financial and human resources management. The results are presented quarterly to the National Health Council's Sub-committee for Pharmaceutical Services and used to identify priority gaps to target.

Coordination, Partnership, and Advocacy

Instituting coordination and partnership mechanisms enhances government stewardship and stakeholder engagement, as well as the achievement of results set out in pharmaceutical strategic plans. Many SIAPS countries are supporting the implementation of coordination efforts that promote more informed decision making, foster transparency and accountability, streamline regulatory processes, supply chain management and service delivery, and improve the efficiency of planning, allocation, and mobilization of government and donor resources. SIAPS also partners with Ministries of Health, civil society, and other stakeholders to advocate with key decision makers for the approval and adoption of improved legislation, policies, and reforms and helps expedite otherwise slow or lengthy legislative or administrative procedures.

- » SIAPS is supporting the Supply Chain Technical Working Group in Swaziland and working with implementing partners to plan scale up activities to ensure commodity security as well as advocating for allocation of sufficient resources.
- » Also in Swaziland, SIAPS helped to establish the National Essential Medicines Committee, which has the mandate to improve transparency and accountability in the coordination, supply, and rational use of essential medicines and supported the committee's first meeting.
- » In Angola, SIAPS is supporting meetings of the interagency coordination committee for logistics, procurement, and operations. At these meetings, SIAPS shared findings of the SIAPS-supported assessment of Angola's public supply chain and review of the national pharmaceutical strategic plan, and also solicited inputs from committee members on the revised national essential medicines list.
- » SIAPS helped to establish and continues to support the national committee for coordination and monitoring of malaria, MCH, HIV, TB, and family planning health commodities in Mali and to assist the committee's technical working groups to conduct quantification exercises.
- » In Lesotho, SIAPS is working with the MoH to develop terms of reference and agree on the composition and structure of the proposed unit to coordinate all supply chain management activities for health commodities.
- » To strengthen coordination and enhance the exchange of information between the Philippines National TB Program, National TB Reference Laboratory, and other partners to improve quantification of laboratory supplies, SIAPS is

supporting monthly meetings of the Drug Supply Management sub-technical working group on laboratory supply management.

- » SIAPS is collaborating with Swaziland's MoH to advocate and prepare for the enactment of two bills that provide for the establishment of the first-ever medicines regulatory authority and a Pharmacy Council to regulate the pharmaceutical sector. As a result of two workshops that informed 31 parliamentarians of the content and importance of the draft bills that replace existing legislation dating back to 1929, the draft legislation has now advanced to the public comment stage.

Strategic Planning

Long-term strategies enable priorities and goals set out in policies, best practices that promote good governance, and evidence-based decision making to be integrated into pharmaceutical systems. Working in partnership with country governments, SIAPS supported a variety of strategic planning exercises in the last year, helping countries and organizations to use evidence-driven approaches to develop strategic plans, engage stakeholders to build consensus, and develop results-based monitoring systems to track implementation.

- » In Angola, SIAPS assisted the MoH National Directorate of Medicines and Equipment (DNPE) to conduct a comprehensive review of the national pharmaceutical strategic plan (2010-2015). SIAPS provided technical assistance to map progress in implementing planned activities and achieving targets, ascertain constraints to progress, and outline priorities to be addressed in the remaining years of the plan. This assessment helped define and realign DNPE work plans and fiscal priorities with the national health development plan.
- » SIAPS helped the Central Medical Store in Mali develop a five-year strategic plan that will guide the organization towards achieving a stronger and better central medical store that meets minimum international standards for public procurement and supply chain management. The strategic plan includes interventions, direction, responsible parties, required resources, and metrics for monitoring progress in implementation.
- » SIAPS facilitated a consultation workshop and helped the MoH and other partners in Lesotho finalize the Supply Chain Management strategic plan, which is required as part of the new Global Fund funding model.
- » In Swaziland, SIAPS helped to develop a plan for establishing the first-ever medicines regulatory authority upon approval and promulgation of the supporting draft legislation. The MoH is using the plan to establish new positions for the regulatory authority and inform its staffing budget.

CASE STUDY

Building Health Worker Capacity in South Africa through the Pharmaceutical Leadership Development Program

Ensuring Leadership and Accountability in a Growing Pharmaceutical System

Effective leadership is the catalyst that drives improvements and overall successes in any health system. But cultivating leaders throughout the health system is challenging. In South Africa, a country currently implementing the largest antiretroviral therapy program in the world, effective, accountable, and transparent leadership in the pharmaceutical system is central to ensuring that high quality medicines are available when and where they are needed. While overseeing the provision of pharmaceutical services, pharmacy managers often face multiple leadership and management challenges which they may not be equipped or adequately trained to handle. Left unaddressed, these issues can impede efficient pharmaceutical service delivery and affect patient care.

Empowering Leaders to Address Local Challenges

Realizing the unmet capacity building challenges in South Africa's pharmaceutical system, SIAPS leveraged MSH's proven Leadership Development Program (LDP), which has been implemented in over 40 countries to improve leadership, management, and governance practices in the health system. The LDP program was adapted for South Africa's pharmaceutical system, creating the Pharmaceutical Leadership Development Program (PLDP).

The PLDP aims to strengthen leadership, management, and governance skills of pharmacists and pharmacy managers.



PLDP helps pharmacy managers:

- **Manage processes** including the budget, human resources, and pharmaceutical supplies to ensure optimal pharmaceutical service delivery
- **Implement good governance principles** to ensure accountability and transparency
- **Apply ethics and ethical principles** to challenges in the work environment
- **Lead teams** to deliver high quality health services
- **Analyze and control pharmaceutical expenditure** within the workplace

Through a series of five workshops, the PLDP combines technical pharmaceutical knowledge with sound leadership practices to better equip pharmacy managers to effectively and strategically respond to challenges in their work environment.

Using a team-based approach, participants prioritize and tackle current challenges related to pharmaceutical services. Through a shared vision and roadmap for achieving measurable results, the teams assess the current situation, define their challenge, select priority actions, and develop an action plan. Teams then implement the plan, monitor and evaluate progress, and present their results to senior managers and other key stakeholders after implementation.

Table 1. Examples of quality improvement activities implemented

Priority Areas	Province	Facility	Results Achieved
Waiting time	Western Cape	Kraaifontein Health Centre	Reduced average patient wait time at the pharmacy from 41 to 19 minutes over a 6-month period
Access to medicines	KwaZulu-Natal	Umzinto Primary Healthcare Clinic	Reduced number of chronic disease medicines which patients were unable to collect by 16% through more flexible distribution mechanisms
	Eastern Cape	Midlands Hospital and nearby clinics	Developed referral system to facilitate delivery of chronic diseases medicines from Midlands Hospital to feeder clinics
Supply management	KwaZulu-Natal	Multiple clinics	Reduced the value of expired stock from 3.4% to less than 0.5% of stock
Compliance with standards	KwaZulu-Natal	Stanger and Montebello Hospitals and Sundumbili CHC	Improved compliance with standard treatment guidelines for prescribing non-steroidal anti-inflammatory agents from 57% to 94%, 60% to 68%, and 37% to 67% at each of the facilities listed, respectively
	North West	10 primary health care facilities	Increased compliance with national core standards from 33% to 77% by developing standard operating procedures, distributing reference manuals, and building capacity in good pharmacy practice and medicine supply management
Rational medicines use	North West	Joe Morolong Memorial Hospital	Increased the average number of patients initiated on isoniazid preventive therapy from three to eight per month
	North West	Four facilities in Bojanala District	Increased reporting of adverse drug events from 26% to 45%
	KwaZulu-Natal	Imbalenhle Health Centre	Reduced inappropriate prescriptions by 53%

Through the PLDP, managers and their teams learn to reinforce leadership values and apply leadership practices that promote sustainable organizational performance. Practicing both leading and managing empowers managers to achieve results and maintain high-quality services despite the obstacles they face. They learn to lead quality improvement projects that address service delivery challenges while increasing their skills in mobilizing local resources, monitoring results, and improving the climate in their work groups and workplaces. The PLDP approach empowers teams to identify process innovations and develop feasible tools to strengthen the health system.

Strengthening Pharmaceutical Systems

Since the PLDP's inception, 120 pharmacists and 12 facility managers across South Africa have completed the program. They then implemented quality improvement initiatives in over 170 health facilities as of June 2014. Table 1 presents selected achievements from priority areas identified as challenges by PLDP participants. Of the 42 teams

that have implemented change initiatives through the LDP or PLDP, 58% were able to reach their desired results within six months. Several teams have continued to scale up their initial interventions including one team that built upon their project to increase access to chronic medicines by helping to open two community-based collection sites. In one sub-district in the Western Cape, key outcomes from the LDP projects were included in the performance agreements of both the facility managers and pharmacy managers; these are now being expanded across the sub-district. Mentoring of the teams is being transitioned from SIAPS to the management of the sub-district.

Engaging Stakeholders for Leadership in the Long Term

Working toward long-term sustainability for this approach, SIAPS works in close collaboration with South Africa's provincial departments of health and local technical experts who co-facilitate the program. This process ensures that local stakeholders buy-in to this program and institutionalize the approach in their systems.

IR2

CAPACITY FOR PHARMACEUTICAL SUPPLY MANAGEMENT AND SERVICES INCREASED AND ENHANCED



THE CHALLENGE

There are pervasive capacity gaps in the delivery of pharmaceutical services in resource constrained countries. The lack of qualified pharmaceutical professionals and associates stems from institutions not being able to produce adequate numbers of personnel. Outdated curriculums do not keep pace with rapid change in the public health system and disease burden, and results in pharmaceutical personnel with limited technical competencies. In some countries, this situation is exacerbated by lack of institutions for pharmaceutical training. In addition, there is a critical lack of tools to streamline procedures and enhance efficiency in the delivery of pharmaceutical services. Finally, there is a lack of policies and structures that enable flexibility in the acquiring, rewarding, and penalizing poor performance in the public sector. Outdated and restrictive public service structures are not able to meet the current challenges of service delivery.

SIAPS Approach for Increasing and Enhancing Capacity

SIAPS works with stakeholders to assess the country's capacity to manage pharmaceuticals at all levels. Then, with consensus, SIAPS identifies areas for improvement and develops interventions to strengthen the system and build capacity.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

Sustainable access to medicines and other health technologies relies on the availability of skilled workers to provide and manage pharmaceutical services and systems. Over the past year, SIAPS has helped countries engage in comprehensive workforce planning to address challenges such as increasing demands, resource constraints, and health workforce policy reforms. This involved collecting and reporting data to help determine workforce needs, matching workforce and educational outcomes, and building a compelling case for funding posts in the public sector.

To increase pharmaceutical sector efficiency, SIAPS worked with stakeholders to assess countries' or programs' capacity to manage pharmaceuticals from the facility to the national level. Then, using a stakeholder consensus approach, we identified areas for improvement and developed long-term interventions to strengthen consumption. SIAPS also provided short-term assistance when countries had immediate problems that threatened commodity security.

Leadership and Management

Strong leadership, effective management, and transparent governance are the keys to country ownership and sustainability of the health and pharmaceutical systems. SIAPS works with stakeholders at every level to help them articulate a compelling vision for better pharmaceutical services and identify and remove any impediments to that vision by applying the practices of good leadership and management. These practices include scanning the internal and external stakeholder and institutional environment, selecting and focusing on priorities, aligning and mobilizing key stakeholders, and inspiring themselves and others to work to improve the health status of the population.

- » SIAPS designed and delivered the Supply Chain Management Leadership and Development Program (SCMLDP) training to 81 health care workers in Lesotho, with the overall aim of improving availability of health care commodities. This training has contributed to improvement in the reporting rate from 95% in Q3 to 100% in Q4.
- » SIAPS has supported 570 public sector facilities in South Africa to improve management and leadership performance through the Pharmaceutical Leadership Development Program (PLDP). Since the inception of the PLDP in South Africa, 58% of the 40 measurable results addressed using the challenge model have been achieved. Among these achievements is that the Provincial Pharmaceutical Supplies Depot in Kwa-Zulu Natal has reduced the average order processing time from 27 to 13 days; and the pharmaceutical depot in Limpopo reported an increase of medicine availability from 50% to 79%.

Pre-Service and In-Service Training

Pre-service curriculum reform and development and in-service training are cost-effective and sustainable interventions that lead to broader health system strengthening. They provide students and professionals with a critical foundation of knowledge and skills and allow them to continue to develop their competency

to practice in the real world. Effective pre-service training reduces the need for future large-scale and expensive in-service trainings. SIAPS works with a number of university and government training programs to build the capacity of the pharmaceutical training institutions to enhance the pharmaceutical education capacity and produce pharmaceutical professionals locally as a key mechanism to sustain the system.

- » In Namibia, SIAPS supported the National Health Training Centre (NHTC), which trains pharmacy assistants to develop a quality management system and enhance the teaching, assessment and moderation skills of tutors. Over 90 tutors from private and public institutions were trained. The trainings equipped participants with the skills, knowledge, and competencies to design and deliver quality health care education. SIAPS also supported the University Of Namibia School Of Pharmacy in the finalization of four modules for pre-service training curricula covering rational medicines use and pharmacoconomics to meet the current demands for shortage of knowledge and skills in these areas.
- » In collaboration with Jimma and Mekele Universities in Ethiopia, SIAPS organized clinical pharmacy trainings for 200 pharmacists from ART sites. The intensive practical clinical pharmacy training, which combines a one-week lecture and three weeks ward attachments, has contributed to the provision of clinical pharmacy services in 40 hospitals. Patient education sessions were organized at 11 health facilities in 4 regions. These sessions create awareness for patients on the appropriate use of medicines, thereby contributing to the safe use of medicines and containment of antimicrobial resistance. In addition, 161 pharmacy accountants, pharmacy personnel, auditors, CEOs, and cashiers in Addis Ababa and Oromia regions were trained on Auditable Pharmaceutical Transactions and Services.
- » SIAPS worked with the National Malaria Program (PNILP) in Burundi to train 422 health center providers on the new malaria standard treatment guidelines. SIAPS assisted the PNILP in the development of two job aids: good dispensing practices for dispensers and ACT adherence for patients.
- » In collaboration with ESTHER Aid in Cameroon, SIAPS trained 51 pharmacy attendants and data clerks on HIV and AIDS commodities, patients, stock management, and SOPs. SIAPS also trained 13 persons in using the HIV and AIDS Commodities Tracking Tool (www.ospsida.org) to capture and aggregate medicines stock and patients' data, and to make that data available at all levels for decision making. This has resulted in an increase (from 15% to 58%) of the number of SIAPS-supported ART health facilities using country appropriate tools to report logistic and patient data. Additionally, the LMIS reporting rate also increased from 15% to 62%.
- » In the Philippines, SIAPS trained 28 health staff using the Practical Guide for the Management of Pharmaceuticals and Health Related Commodities in the provinces affected by Typhoon Haiyan. This has contributed to the improvement of inventory management in six rural health units and one provincial warehouse: an enhanced system for tracking medicines expiration and better practices for storage, stock management, and drug requisition.

- » In Swaziland, SIAPS trained 71 health care workers in pharmaceutical supply chain management, and 22 health care workers on laboratory supply chain management including the Logistics Management Information System (LMIS). SIAPS also facilitated an LMIS workshop for 20 Elizabeth Glaser Pediatric AID Foundation (EGPAF) mentors to equip them with inventory management skills in support of the PMTCT and pediatric HIV programs.

Supportive Supervision

Supportive supervision is a process that promotes effective and equitable health care through a practical system of measures that foster improvement in the procedures, personal interactions, and management of primary health care facilities and pharmacies. Supportive supervision focuses on meeting staff needs for management support, logistics, training, and continuing education. The USAID/SIAPS countries encourage and assist government counterparts with supportive supervision of peripheral staff. Select examples of SIAPS activities are as follows:

- In Namibia, SIAPS conducted support visits to 18 primary health care and 2 main ART sites where SIAPS trained 23 health care workers on the use of the EDT mobile to capture ARV and patient data. The training and supervision on the use of EDT mobile contributed to enabling 98% (49/50) ART main sites to continue using EDT to document and report logistic and patient data.
- In Lesotho, SIAPS mentored 24 health care workers in the management of laboratory commodities, and conducted supportive supervision visits to health facilities for LMIS and nutrition assessment counseling (NACS) in three implementing districts. This has contributed to an increase in the NACS reporting rate from 4% in Q3 to 95% in Q4.
- In Cameroon, SIAPS focused on strengthening monitoring and supervision at the health facility level to improve management and availability of ARVs. SIAPS helped revise the supervision guide, which was adopted for use at the regional medical stores (CAPRs) and health facilities. SIAPS also conducted supportive supervisions in 34 facilities within USAID-supported regions to review their performance in the management of ARVs and patients.
- In Burundi, SIAPS worked with the PNILP and Directorate of Pharmacies, Medicines, and Laboratories (DPML) to provide supportive supervision to 24 health district pharmacies and 512 health centers on the appropriate use of distribution and consumption data for supply management, as well as coaching community health workers on malaria case management for children under-five.
- In Swaziland, SIAPS-supported supervision and mentorship contributed to the improvement of stock card update rates from 44% to 83% in 6 months.

CASE STUDY

Strengthening Pharmaceutical Services through Structured Supportive Supervision in Namibia

Building Capacity to Meet the Demands of an Advancing Pharmaceutical System

An assessment of Namibia's pharmaceutical system conducted in 2009¹ identified a number of capacity-building challenges to be addressed to improve pharmaceutical services. These challenges included shortages of key staff, unmanageable workloads, and inadequate storage space for medicines. In response, the Ministry of Health and Social Services (MoHSS) identified several key mechanisms to address these challenges and strengthen the pharmaceutical sector, including improving the functionality of drugs and therapeutics committees (DTCs), expanding use of the Electronic Dispensing Tool (EDT) to track pharmaceutical products and patients, revising the current method of stock management, and harnessing data for decision making.

Resolving Pharmaceutical Challenges through Supportive Supervision

Supportive supervisory visits (SSVs), included as a key method for implementing these improvements, are structured visits to facilities conducted by teams assembled through the Division of Pharmaceutical Services. SIAPS helps to structure and conduct supportive visits through technical assistance based on the principles of continuous quality improvement (CQI).



As the cornerstone of its planned activities, the MoHSS, with support from SIAPS, decided to revamp SSVs to monitor performance and evaluate implementation of the pharmaceutical services provided in each region. SIAPS provided technical assistance in the development of the indicator-based checklist, which uses indicators to guide the collection of data, standardizes the assessments conducted across multiple facilities, and ensures data are aggregated and analyzed in a timely manner for faster feedback.

The checklist assesses the adequacy of storage conditions, inventory control practices, how well DTCs are functioning, the use of pharmaceutical management information systems, level of quality in service delivery, remaining training needs, and medication safety issues. The checklist also assesses the implementation of recommendations made in previous supervisory visits and monitors health facility use of tools that have been implemented for patient and inventory management, such as the Electronic Dispensing Tool (EDT). The visits are funded and coordinated by

¹ Technical Report: Exploring the Establishment of a Pharmacy Course at the University of Namibia March 12–27, 2009 Tina Brock, Tana Wuliji, Evans Sagwa, David Mafirizi, July, 2009

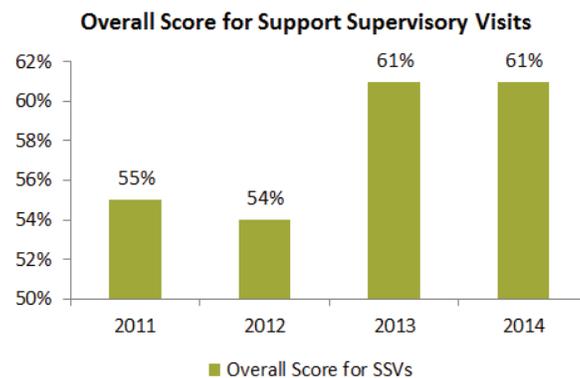
the Pharmaceutical Services Division and are conducted once a year by teams comprising representatives from MoHSS, National Medicines Policy Coordination (NMPC), and the Global Fund, as well as regional directorates and Pharmacists. The regional pharmacists participate in the visits to build their capacity for conducting regular support supervision without support from development partners, which helps encourage continuity and country ownership.

Data are collected from facility records, stock cards, physical inventory, and discussions with staff involved in pharmaceutical management. The pharmacist in charge, the facility manager, and the regional pharmacist are each given a copy of the completed checklist to enable them to immediately act on identified gaps that require follow-up. Feedback from the SSVs is provided to regional management teams (RMTs) that help to manage the implementation and provision of health services in each region.

SSVs are now conducted across all of Namibia's districts, including the referral hospitals, the two multiregional medical stores, and primary health care facilities. SIAPS has ably transitioned the planning and funding for this activity to the Ministry and continues to provide technical assistance in the review of reports and development of effective interventions to address issues identified during the visits. SIAPS has also provided technical support to the national level to analyze and aggregate all data collected to produce annual feedback reports that are distributed to all regions, stakeholders, and policymakers at the MoHSS.

Supportive Supervision Leads to Targeted Improvements in Pharmaceutical Services

Overall scores have increased since the program began in 2011, particularly in use of the EDT and resolution of issues identified during supervisory visits. However improvements in performance in the various indicators monitored by the checklists have been hindered by various

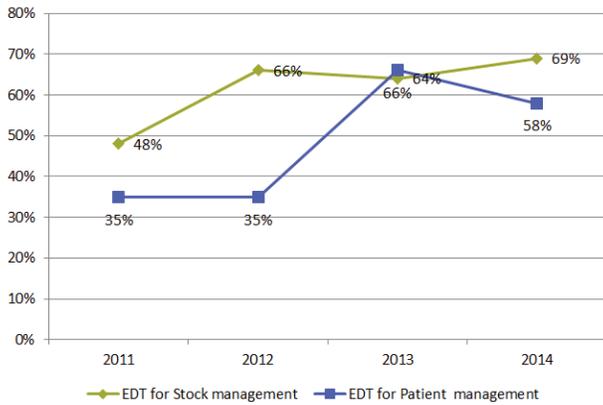


challenges, such as increased numbers of patients enrolled into HIV care without corresponding increases in the capacity of the health systems to cope with higher numbers of patients. Performance has also been affected by high turnover in pharmaceutical staff, which has led to losses of institutional memory when trained staff members leave.

The feedback report has allowed national and regional decision-makers to address gaps and act on the recommendations. For example, in 2011, the report noted challenges in measuring patient adherence to antiretroviral treatment (ART) and failure to properly use EDT for case management. The report recommended providing training on EDT and ART standard operating procedures (SOPs) to improve ART services delivery in health facilities. As a result, the Division of Pharmaceutical Services, with support from SIAPS, conducted a number of trainings on and upgrades to the EDT to help facilities monitor patient adherence through collection of pill counts and other data. These EDT upgrades also became important in enabling Namibia to start reporting on Early Warning Indicators (EWI) from the EDT reports.

SSVs have influenced major decisions at the MoHSS, including the construction of new storage space for medicines at Onandjokwe and Nyangana hospitals. By including regional pharmacists in the SSV teams, SIAPS is building local capacity to continue conducting SSVs after the conclusion of the SIAPS program. Health facilities now recognize the value of SSVs as a quality improvement mechanism

Use of the EDT for patient & stock management



and appreciate this level of support. The Pharmaceutical Services Division has progressively taken over the logistics and coordination of the SSVs and will eventually take over all aspects of SSVs.

Transitioning to country ownership

SIAPS continues to work with and mentor MoHSS officials during SSVs. The engagement of regional pharmacists has enhanced their capacity to conduct these visits. In the most recent SSVs, recent pharmacy graduates at the Windhoek Central Hospital also participated in the SSVs to further build local capacity. Technical assistance and capacity building has also been provided to the Division of Pharmaceutical Services to aggregate the data, and produce and disseminate feedback reports. SIAPS also plans to support the MOHSS in the development of a reference document that can be used to guide SSVs.

IR3

INFORMATION FOR DECISION MAKING CHALLENGES ADDRESSED IN THE PHARMACEUTICAL SECTOR



THE CHALLENGE

There are numerous challenges related to having information and using information for decision making in the pharmaceutical sector. A shortage of trained staff coupled with a high attrition rate means lack of personnel to implement systems. Data collection tools are either unavailable or non-standardized making recording or reporting difficult and inconsistent. Logistics management information systems, IT infrastructure, and technical support are weak, particularly in remote areas. There are also data quality issues including lack of or delayed reporting and discrepancies between electronic system data and manual records.

SIAPS Approach for Addressing Information for Decision-Making Challenges

SIAPS supports the integration of pharmaceutical data collection, processing, and presentation of information to help staff at all levels of a country's health system make evidence-based decisions to manage health and laboratory commodities and pharmaceutical services.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

SIAPS activities have focused on capacity building for aggregation, analysis, presentation, and dissemination of information to support evidence-based decision making. Interventions build countries' capacity in data collection and analysis. SIAPS has applied strategies that include assessing and evaluating local information needs, leveraging technologies in designing tools, harmonizing tools to help integrate pharmaceutical management information systems (PMIS), and strengthening local organizations to customize, maintain, and take ownership of the tools and also to analyze, manage, and use the resulting data for decision making. Through these tools, software solutions, and pharmaceutical management information system-related activities, SIAPS helped ensure that quality pharmaceutical information is available to formulate pharmaceutical policy and plans to monitor supply chain systems and pharmaceutical services.

Data Utilization

Whether it is an electronic system replacing paper-based reporting and recording forms, a user-friendly tool for procuring and forecasting medicine supplies, an early warning tool, or a logistic management information system (LMIS), SIAPS aims to meet the needs of the country and empower decision makers at all levels to take action based on accurate and reliable data. QuanTB, SIAPS's downloadable forecasting, quantification, and early warning tool, was refined and launched in preparation for the 44th UNION World Conference in Barcelona. As of September 30, 2014, there were approximately 600 downloads of QuanTB from the SIAPS website. QuanTB has now been officially adopted by the National TB Program (NTP) in eight countries.

SIAPS has enhanced the capacity and skills of over 110 staff from NTP, the Global Fund, World Health Organization (WHO), and partner organizations from 7 countries on the use of QuanTB. Using the data from this tool, multi-country (Tanzania, Uganda, Kenya, Bangladesh, Zimbabwe, Zambia, and Ethiopia) web-based dashboards are produced to display early warning system data to prevent stock-outs and minimize TB medicine expiries. This information has resulted in the ability of stakeholders to take quick action for emergency procurement, rescheduling of shipments, cancellation of orders, and redistribution of excess products whenever required.

SIAPS has been providing support to regional and country GDF missions in quantification, forecasting, and establishing early warning indicators. SIAPS worked with WHO's Global Drug Facility (GDF) and WHO staff to define minimal requirements for integrating TB data with the GDF early warning stock-out system. In Bangladesh, QuanTB was used to forecast TB medicines needs and to identify potential stock-outs and overstocks. The government also used the QuanTB data to work with the GDF and manufacturers to adjust upcoming shipments and re-route some unneeded products to nearby countries. In the reporting year, there has been increased utilization of SIAPS's developed e-TB Manager for the integrated management of TB information. e-TB Manager is currently operating in 2,519 sites in 10 countries. Globally, 3,011 active users are managing 250,783 TB cases, DR-TB cases, and presumptive TB individuals.

Through SIAPS assistance, 104 facilities in Lesotho maintained complete patient

SIAPS countries have effectively used project tools such as the electronic dispensing tool (EDT), RxSolution, eTB Manager, Quantimed, QuanTB, Pharmadex, and mobile devices for data collection. To enhance data visibility and to present aggregated and analyzed data for making decision, the countries relied on dashboards set up by SIAPS.

information; monitored stock status in 104 facilities on a monthly basis; and shared the report with partners and stakeholders to address gaps. Consequently, 98% of Lesotho's supported facilities experienced no stock-out of ARVs during the year.

SIAPS collaborated with the Regional Health Bureaus in Ethiopia to provide support to the sites with Audible Pharmacy Transactions and Services (APTS) to strengthen their information and reporting system. As a result, hospitals can generate monthly sales reports by category and reports on services (prescribing indicators, affordability, and workload). This transaction and service information enables managers to make better decisions. The data provided through APTS also resulted in the government's decision to increase the number of personnel from 12 to 21. As a result, the wastage has gone down to 2%, which is well below the target from the Ethiopian health strategy development plan.

SIAPS supported further improvements to the web-based medicines registration tool, Pharmadex, in Namibia, Bangladesh, and Ethiopia. In Namibia, the Namibia Medicines Registration Council completed the manual evaluation of the medicines dossiers and used Pharmadex to assign registration numbers to 507 newly registered medicines, resulting in more than 5,400 registered medicines in the country. Of the 17% of the registration backlog that was screened, 65% of the products did not meet the minimum registration requirements, and therefore were not allowed on the market.

Data Quality

SIAPS supports various tools, software, and pharmaceutical management information systems, to ensure sustainability and increase data quality in the countries. In Ukraine, SIAPS and the Ukrainian Center for Disease Control resumed regular joint monthly meetings to advance the scale-up of e-TB Manager and enhance its functionality. With routine support to regional users, all 27 oblasts are entering data into e-TB Manager, and currently over 130,000 patients are managed in Ukraine, up from 67,000 in year two. Steps were taken toward assuring e-TB Manager data quality as TB case numbers generated by e-TB Manager were cross checked with paper-based reports and results indicated a 99% consistency as of July 2014.

Seven countries (Cameroon, Dominican Republic, Ethiopia, Guinea, Lesotho, Mali, and Swaziland) are regularly conducting quarterly joint supportive supervision visits to target health facilities to assess the performance of the pharmaceutical system in the use of data and information, as well as timely and accurate data reporting. These supervision visits are followed by stakeholder meetings, which include a review of quarterly reports and the development of executable action plans as part of the continuous monitoring of performance using various indicators. This participatory, transparent process is being institutionalized in these countries, and is contributing to health system strengthening and sustainability.

Information System Design and Collaboration

The SIAPS West Africa Regional Project, Bangladesh, South Africa, Cameroon, Ethiopia, South Sudan, and Swaziland, are using web-based dashboards as platforms to enhance data and information visibility for early warning indicators

monitoring and decision making. The dashboards present monthly stock status, pipeline, financial, and consumption information that is used to determine gaps, decide on procurement and shipment schedules, redistribute any overstocks, and other supply chain management actions. The SIAPS team in Cameroon implemented the HIV and AIDS commodities tracking tool that serves as an early warning system for stock status in the country at the central and regional levels. Over the course of the project year, inventory control improved dramatically from 20% to 62-97%, as well as the submission of LMIS reports and completeness of patient information. These are key indicators to support evidence-based decision making for products and patient management.

In South Africa, a bar coding function for the RxSolution stock management module was developed. In addition, the biometric (finger printing) function for the RxSolution dispensing module is in the final stages of development. SIAPS also developed an interface between RxSolution and RxLite, a smart phone-based application, which is currently being piloted for monitoring and reporting medicines availability in remote clinics. These clinics do not have the required infrastructure to use the full RxSolution system, so this mHealth application, if feasible, will ultimately be used to manage orders from the clinics. The pilot is being conducted in partnership with VODACOM, one of the main cell phone network providers in South Africa. Together with the local partner Health Systems Trust, SIAPS increased the number of sites where RxSolution is installed from 313 to 350 countrywide. In SWAZILAND, together with the MoH Health Management Information System Department, SIAPS also conducted an assessment of the use of RxSolution, targeting 39 ART Facilities and 3 central warehouses. This assessment identifies the gaps and inconsistencies in use of the system and the findings were used to develop a robust and sustainable end-user support plan.

Because Infomaker helps speed up the production of standard management reports from the medical depot inventory management systems as required by the National Department of Health, SIAPS held a meeting with personnel from the Western Cape Medical Depot and developed a plan to facilitate the use of standard and customized management Infomaker report libraries for all depots through collaboration with the State Information Technology Agency (SITA). SIAPs also facilitated the installation of Infomaker at the North West pharmaceutical depot.

Dashboard Information Display for Early Warning and Stock Status Monitoring

Although a high volume of data and information is produced using tables and charts, presenting the data tends to be cumbersome and not user-friendly for making immediate decisions. A dashboard is an information display platform used to inform decision making and assist the identification of solutions to preempt and mitigate risks of stock-out and waste in the short-, medium- and long-term.

Bangladesh is using an LMIS, with electronic tools at the upazila and central levels. The Upazila Inventory Management System (UMIS), and the web-based Supply Chain Information Portal (SCIP) are both continuously updating the family planning commodity status across the country. Central, regional, and upazila-level managers of the Directorate General of Family Planning enter logistics data, such as consumption and stock on hand, into the UMIS. This information is then consolidated and uploaded to the web-based SCIP. A key feature of the portal is an interactive dashboard, which presents easy-to-understand charts, maps, and tables on stock levels throughout the country to improve accountability and overall management of TB and FP product procurement and stock status. The portal, which became operational in 2011, is the first of its kind for information management in the public sector.

As a result of the implementation of these electronic tools, continuous monitoring of stock status and the ability to make more appropriate informed supply chain decisions were made possible. Stock-outs (including, potential stock-out and under-stock) of injectables and IUDs have gone down significantly in 2013 compared to 2009. There have been no stock-outs of oral pills since 2010. Potential stock-outs were identified and reduced by more than 85% at both upazila stores and service delivery points compared with 2009, while under-stock of the same commodities was also reduced by 60% during the same period at both levels.

The supply chain management portal has led to the following results:

- Trigger alerts, through e-mails and strategic monitoring systems, to the responsible procurement officer for appropriate action.
- Increased access to information on procurement delays and bottlenecks thus facilitating management and decision making
- Timely completion of procurement processes as per procurement plans
- Collecting real-time data on procurement using e-tools such as the portal contributed to improving the quality and quantity of information to support decision making.

In Ethiopia, the continuous results monitoring system uses various dashboards to display progress and result trends in over ten systems and service indicators. Monthly stock status is reported on key products to show stock levels, pipeline, shelf life, and actions to be taken to avoid stock-out and waste. Information is presented to partners and stakeholders in a dashboard format that is easy to understand and allows for informed decision making.

The recently launched SIAPS West Africa Project has developed a web-based dashboard to report on products used to treat HIV and associated diseases. SIAPS has provided training for target countries in West and Central Africa to access information on early warning signs to mitigate stock out threats and monitor progress towards meeting treatment targets. The dashboard will assist focus countries, and sub-regional organizations including: USAID/WA, UNAIDS regional, WAHO, Global Fund, and other stakeholders, in improving forecasting, supply planning, and procurement to support the continuous availability of ARVs, TB, and FP products, rapid test kits, and other related commodities.

CASE STUDY

QuanTB Helps Ensure Medicines Availability, Averts Waste, and Saves Money in Bangladesh

Curbing the spread of tuberculosis (TB) requires that patients have uninterrupted access to a full course of treatment—frequently a difficult task in developing country settings considering that each regimen includes multiple medicines taken over the span of several months. These may need to be customized based on the type of TB being treated and the patient's reaction to the prescribed combination. The emergence of multidrug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB) further complicates the management of TB medicines. Patients with these infections require second-line treatments, which must be taken for a longer duration and have more side effects than first-line treatments. Additionally, while a full course of treatment with first-line TB medicines costs approximately \$20, second-line treatments can cost up to \$5,000 per regimen.¹

Ensuring that TB medicines are available to use when and where they are needed requires strong systems that promote effective medicines management. From forecasting and procurement, to distribution and stock monitoring, these activities often involve extensive planning, complex analyses, and close coordination between health facilities, ministries of health, and suppliers like the Global Drug Facility. In Bangladesh, SIAPS is working with the National Tuberculosis Program (NTP) to strengthen the management of TB medicines, project future needs, and build capacity to ensure that TB medicines are readily available to those who need them.

Partnering to Improve Supply Monitoring and Planning

Recognizing the importance of effective medicines management in decreasing TB incidence, the NTP, with support from SIAPS, formed a national Procurement and Supply Management (PSM) unit to ensure accurate forecasting, timely procurement, and effective stock management of TB medicines across Bangladesh. The unit brings together partners from the NTP, SIAPS, the World Health Organization, the TB Care II project, the Damien Foundation, and BRAC to form a single platform for effective collaboration for the multidisciplinary group.

In March 2014, the PSM unit began using the SIAPS-developed QuanTB tool to quantify the projected amount of TB medicines that would be required for the upcoming year. By capturing, collating, and analyzing multiple triangulated sources of data, and by reassessing previous forecasting assumptions to ensure that the number of current and projected cases were accurate, the forecasting exercise yielded better estimates of the number of anticipated TB cases and how many medicines would be required.

QuanTB is an electronic forecasting, quantification, and early warning tool designed to improve procurement processes, ordering, and planning for TB treatment. QuanTB, a tool which can be downloaded to any desktop, can help program managers quickly calculate forecasting needs and share key information such as actual versus planned consumption, potential stock out scenarios, and upcoming expiries through a user-friendly dashboard.

¹ World Health Organization. Drug-resistant tuberculosis now at record levels. 18 March 2010. Accessed from: http://www.who.int/mediacentre/news/releases/2010/drug_resistant_tb_20100318/en/

The first quantification exercise conducted using QuanTB indicated two important findings. The first was that current stock levels for first-line TB drugs were at risk for a potential stock-out which could have prevented approximately 1,000 patients from receiving their medicines. In contrast, the second finding indicated that previous procurement assumptions and unanticipated variations in the number of patients started on treatment had resulted in an overstock of medicines typically used to treat extensively drug-resistant TB. The exercise also indicated that several overstocked medicines were set to expire in the coming months.

Global Drug Facility to expedite several previously placed orders to ensure that current patients could continue their treatments uninterrupted and that enough supplies were available for new patients.

The NTP team was also able to minimize the extent of overstocked second-line medicines by cancelling, deferring, and reallocating upcoming orders. Over 1.5 million doses of second-line TB medicines were cancelled and over a million doses were reallocated to other countries in the region, saving the NTP \$899,976.

SIAPS assisted the NTP in addressing the excess of second-line TB medicines already in-country by using a QuanTB feature that allows for the development of several alternate treatment regimens within existing standard treatment guidelines. By quickly carrying out complex dosing calculations, QuanTB helped to determine that the second-line medicines, originally intended for treatment of XDR-TB patients, could be used for MDR-TB patients. This would allow the NTP to use up the excess stock before its expiration date, while also ensuring that enough stock remains to treat current and expected XDR-TB patients.



A sample dashboard generated using QuanTB, designed to provide early warning information “at a glance”. Green indicates months of stock on hand, yellow indicates stock on order, and red indicates potential stock-outs.

From Analysis to Action: Data-driven decision-making improves management of TB medicines

With QuanTB acting as an early warning system signaling potential stock management issues, the NTP, with technical support from SIAPS, was able to assess these issues and take immediate steps to ensure continued availability of TB medicines while eliminating unnecessary medicines waste.

To address the potential stock-out of first-line TB medicines, the NTP worked with the

Partnership and Planning for Stronger Pharmaceutical Management in the Long Term

The NTP, along with relevant stakeholders and support from SIAPS, is now reviewing procurement data for TB medicines on a regular basis and addresses any issues through the PSM platform. Through increased collaboration and use of reliable data for informed decision-making, the NTP now has an early warning mechanism in place that can monitor and track existing stock levels, alert key stakeholders to potential stock-outs and expiries, and improve the availability of medicines for TB patients in Bangladesh.

IR4 FINANCING STRATEGIES AND MECHANISMS STRENGTHENED TO IMPROVE ACCESS TO MEDICINES



THE CHALLENGE

Traditionally, pharmaceutical system financing has been perceived as funding pharmaceutical purchasing; initiatives, such as the Global Fund, focus heavily on such funding. However, even countries that have adequate funds to procure medicines cannot always manage the flow of money and assure the availability of health supplies. Financing, therefore, broadly covers resource mobilization and maximizing efficiencies, resource pooling, and payment and purchasing.

Governments and donors need to work together to ensure efficient allocation of these resources, as well as ensuring the generation of future funds. Financial resources are finite and, in many cases, may be insufficient to meet all public health needs. However, the onus is on all key players within the public health system to accurately estimate financial need, develop creative mechanisms to generate the funds, and ensure the prudent and economic use of these finite resources.

SIAPS Approach for Strengthening Financing to Improve Access to Medicines

SIAPS focuses on enhancing financial mechanisms and strategies to reduce financial barriers to access to medicines, ensuring more efficient use of existing and supporting generation of additional financial resources.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

In the past year, SIAPS has helped countries conduct analyses to improve decisions regarding cost containment, greater efficiency, and options for mobilizing financing. These include evaluation of alternate supply chain systems; analysis of financial flow and sustainability; identification of options to remove roadblocks; development and implementation of systems for tracking, monitoring, and controlling pharmaceutical spending; and analysis and evaluation of pricing policy options. Our health management expertise combined with SIAPS' partners' knowledge and experience in innovative financing strategies have assisted countries develop systems to maximize their pharmaceutical resources and improve health outcomes.

Tracking Pharmaceutical Spending

Pharmaceuticals usually account for a large proportion of a health systems budget, and a relatively small number of pharmaceuticals may account for most of the annual consumption within a pharmaceutical system. Analyzing consumption patterns and the value of total consumption for all items is a very useful approach to improving the use of resources. In the Dominican Republic, SIAPS supported completion of a funding gap analysis for essential medicines. South Africa performed ABC analyses of drugs based on the generic name and therapeutic class across five provinces. In addition, SIAPS worked with the Dr. George Mukhari Hospital in South Africa's Gauteng province to perform an ABC analysis with specific focus on high institutional consumption of antibiotics. An analysis of the expenditure on antibiotics per dosage form revealed that more than half of the expenditure was on injectable antibiotics.

Similarly, Ethiopia used the principles of ABC value analysis and ABC/VEN reconciliation to conduct a medicines budget utilization study at three hospitals in the Tigray region. Other facilities, such as the Jimma University Specialized Hospital and the Mettu Karl Hospital, conducted ABC analyses with SIAPS support and an ABC/VEN analysis was carried out in the Debre Tabor region. Based on results of these analyses, decision makers in these countries are working with SIAPS to design corrective interventions, plan their budgets for upcoming years, and modify institutional practices for better use of financial resources. Particularly in the Tigray region of Ethiopia, three health facilities took action by instituting more-stringent control measures on drugs that accounted for 70-80% of the medicines budget and transferring unnecessary drugs to other facilities with greater demand for them.

The final draft of the pharmaceutical financial flow assessment tool is currently being finalized in collaboration with SIAPS' partner, R4D. The tool is intended to track the flow of funds in the pharmaceutical sector, whether originating from donors or from public funds, thereby allowing trend analysis over time and across programs, facilitating identification of gaps, and informing resource allocation.

Efficient Utilization

SIAPS also worked with countries to estimate financial resources requirements for pharmaceuticals through forecasting and the conduct of pipeline and financial gap analyses. In Angola, SIAPS supported the National Malaria Control Program

SIAPS Support to Countries for Global Fund Proposals

Burundi received
\$26.4m

Swaziland received
\$45.4m

Namibia received
\$19.3m

Dominican Republic
received \$5.9m

Ukraine received
\$60m

(NMCP) to conduct a financial gap analysis using the results of a five-year forecasting exercise for malaria commodities. As a result of this activity, the Angola national malaria control strategic plan was developed as well as a concept note for submission to the Global Fund as part of the new funding mechanism that will start in January 2015. In Swaziland, SIAPS conducted the Swaziland Health Laboratory Services annual forecasting exercise for 2015/2016. SIAPS Swaziland was also able to provide actual facility-consumption data from the Commodity Tracking System, which was used to develop and present the 2015/2016 budget request for an estimated \$10.3 million.

SIAPS in the Dominican Republic worked with national counterparts to complete the technical report titled *Programming the Purchase of Medicines and Supplies in the Dominican Republic's Public Health System*. This comprehensive report provides an analysis of the financial gaps that need to be addressed in the procurement of all the estimated materials. The results were presented to the Ministers of Health and Finance during a joint meeting in September 2014. Furthermore, another technical report titled *Review of the List of High-Cost Medicines used by the Dominican Republic's Protected Diseases Program and Planning of Purchases for 2015* was finalized and will be used to support decision making and efficient use of resources.

SIAPS worked with South Africa's Directorate of Affordable Medicine to prepare and award pharmaceutical tenders. The interventions provided by SIAPS during the award process resulted in a net savings of ZAR 8.5 million (USD ~760,000) as compared to the previous tender contracts. The interventions included the development of a template to standardize price data research and price comparisons and generate a price report using local and international price data. The information from this report was then used by the bid evaluation committee in the process of awarding tenders. Also, a 25% price decrease was achieved by switching to insulin cartridges rather than non-disposable pens which were being used for the majority (67%) of insulin needs.

SIAPS also continues to provide technical assistance to countries seeking additional financial support from the Global Fund. By developing Global Fund grant proposals and ensuring donor compliance to access additional rounds of existing funds, countries such as Cameroon, Burundi, Ukraine, and South Sudan have been able to access substantial additional funding.

Universal Health Coverage

SIAPS has served as an advocate and technical resource for countries that are striving to achieve universal health coverage (UHC) as well as countries seeking information about pharmacy benefits management and creative financing mechanisms. For example, SIAPS Namibia is a member of the Universal Health Coverage Advisory Committee of Namibia and has participated actively in their meetings and conferences. In September 2014, SIAPS Namibia attended the Namibian Association of Medical Aid Funds 8th annual conference in Windhoek which focused on a central theme of "Drivers of Healthcare Costs: Alternative Perspectives." In Cape Town, South Africa, SIAPS, in collaboration with Harvard and WHO, organized a UHC conference titled "Universal Health Coverage - Considerations in Designing Medicines Benefits Policies and Programs." The conference brought together academia, donors, health insurance and finance

professionals, and health policy makers. Attendees shared experiences about how countries are incorporating or planning to incorporate medicines coverage into their UHC strategies; developed a shared understanding of how sound medicines benefits design and management can contribute to cost containment and improved care; and build a case for evidence-based decision making in medicines benefit design and management. Additionally, the results of recent assessments conducted by SIAPS in Namibia and South Africa on managing medicine benefits were shared.

The Role of PTCs in Using Financial Resources Efficiently in South Africa

In South Africa, pharmaceuticals are the second largest line item in the national budget after human resources. Analyzing and controlling pharmaceutical costs is critical to ensuring the sustainability of the health system and the efficient provision of health care services to an ever-growing population. Drug and Therapeutic Committees, referred to in South Africa as Pharmaceutical and Therapeutic Committees (PTCs), help to standardize treatment protocols, promote rational use of medicines, and improve quality of pharmaceutical services. PTCs also provide a mechanism for ensuring the efficient use of financial resources. In Gauteng province, where a quarter of South Africa's population lives, the Gauteng Provincial Pharmaceutical and Therapeutics Committee (GPPTC) oversees a total of 32 hospitals and health facilities, as well as five district offices. The GPPTC plays a crucial advisory role for the analysis and control of the pharmaceutical expenditure in the province.

Leveraging PTCs to Ensure Effective Financial Management

Using the pharmaceutical systems strengthening approach, SIAPS supported the GPPTC in three critical systems-strengthening areas. First, SIAPS facilitated the development and approval of provincial guidelines to establish pharmaceutical and therapeutics committees (PTCs) at all health facilities in Gauteng Province. The guidelines reinforce the governance mechanisms supporting the PTCs, outlining expected compliance to procurement practices and assessing pharmaceutical expenditures. Second, SIAPS strengthened human resources

capacity through the implementation of a workshop on financial management for pharmacists, carried out in tertiary hospitals and at the district level. Third, SIAPS strengthened information systems through the implementation of financial reporting software at the depot level.

Following an analysis of the expenditure per medicine and per therapeutic class, the GPPTC in collaboration with SIAPS reviewed the available evidence and concluded that therapeutic interventions could potentially result in significant reductions in expenditure without compromising treatment safety and efficacy. The decisions included requiring pre-approval by PTCs to use selected medicines and restricting the use of some medicines to higher levels of care.

Using Financial Data for Informed Decision Making

In February 2014, the GPPTC made an official recommendations to use enalapril as the preferred ACE inhibitor and amlodipine as the preferred calcium channel blocker, actions which are expected to save R6.9 million (\$646,000) and R10.2 million (\$955,000), respectively, for every 100,000 hypertensive patients.

The GPPTC also designed and implemented two therapeutic interventions to support the safe and cost-effective use of medicines at the district and hospital levels by strengthening the compliance with the national standard treatment guidelines (STGs). A defined daily dose (DDD) analysis was performed to compare the unit costs of different formulations of insulin. The analysis determined that, by increasing the use

of insulin vials and decreasing the use of pensets, approximately R1.6 million (\$150,000) could be saved per 100,000 diabetic patients per year.

Supporting Long-Term Fiscal Sustainability

While necessary changes to prescribing and treatment practices have been identified, modifying these practices can be extremely challenging. SIAPS is therefore providing ongoing support to the GPPTC in implementing these recommendations. SIAPS also continues to help support the GPPTC to ensure efficient

financial management in the provision of pharmaceutical services by monitoring expenditures and conducting future analyses. Through its support to the GPPTC, SIAPS is building local capacity to better use financial management analyses, helping South African health care providers and facilities to make informed decisions so limited resources can be used as efficiently as possible.

IR5a

SUPPLY MANAGEMENT IMPROVED TO ACHIEVE DESIRED HEALTH OUTCOMES



THE CHALLENGE

Achievement of health goals, such as an AIDS-free generation, A Promised Renewed for ending preventable child and maternal deaths, and protecting communities from infectious diseases depends on effective healthcare supply chains. However, these supply chains in countries most affected by major public health diseases are confronted by many constraints. These include weak human resource capacity and high turnover; weak leadership; poorly defined supply chain operating procedures; weak infrastructure; inadequate funding; unavailability of reliable supply chain data; and poor medicine storage conditions.

SIAPS Approach for Improving Supply Management

SIAPS focuses on strengthening the supply sub-system building blocks of governance, financing, human resource capacity, information for supply decision making, and medicine availability with the broad objective of reducing stock-outs, minimizing wastage, and ensuring continuous availability of quality medicines and other health products.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

Supply Planning

SIAPS has developed an approach for quantification that focusses on setting up quantification coordination systems; the details of processes; steps for quantification; and regular revision of forecasts. In Cameroon, Ethiopia, and Mali, SIAPS assisted in the establishment of quantification coordination committees, with specific terms of reference across health programs to create more streamlined, integrated, and reliable quantification systems.

SIAPS collaborated with government ministries, donors, and supply chain partners to evaluate existing procurement practices and improve procurement methods, emphasizing transparency and best-value procurement. For example, the program has developed a methodology and set of tools to assess sub-national procurement of maternal health medicines and validated these tools in Bangladesh. The purpose of the assessment was to understand how sub-national procurement practices affect access to quality maternal health medicines at the district level and inform a broader discussion on potential strategies to improve access to these medicines, thereby continuing to reduce maternal mortality in Bangladesh.

In addition to pharmaceuticals and health supplies, SIAPS works to increase the management and availability of essential laboratory equipment and diagnostics. In Swaziland, the clinic laboratory reporting and ordering system has been revised to link with the ART laboratory monitoring sites. In Lesotho, SIAPS trained and mentored 24 lab commodity managers, increasing the LMIS reporting rate to 95%, well above the 70% target.

Through the SIAPS-facilitated establishment of the multi-disciplinary Forecasting and Supply Planning Technical Working Group (TWG) in Swaziland, the MoH departments, health programs, and partner organizations have been able to more effectively compile information from the LMIS and properly plan procurement and distribution schedules to avoid stock-outs and overstocking. This year, SIAPS successfully completed the HIV and AIDS quantification requirements for 2014-2016, paying close attention to the increased demand brought by the revision of treatment and eligibility requirements (CD4 count of 500, rather than the previous count of 350) as well as the Option B+ initiative in PMTCT. The program helped finalize estimates of the financial resources required for the first year for medicines and laboratory commodities. With this information, Swaziland's Ministry of Finance was able to prepare financial plans and allocate \$11 million for medicines so far. The results of the supply plans have also been used to inform tenders and procurement plans for HIV and AIDS, TB, laboratory, and family planning commodities. The reduction in costs have been continuous and beneficial – in one quarter, the procurement budget for ART and reproductive health commodities was reduced by 6.4% and 69.2% respectively. Additionally, in Cameroon, after quantification supported by SIAPS, the Global Fund recently approved Round 10 procurement funding of \$55million allocated to HIV and AIDS commodities

In Bangladesh, all 32 line directors and 7 members of the PLMC of the Ministry of Health and Family Welfare (MoHFW) were trained and successfully developed 32 integrated procurement plans that were entered into the online Supply Chain

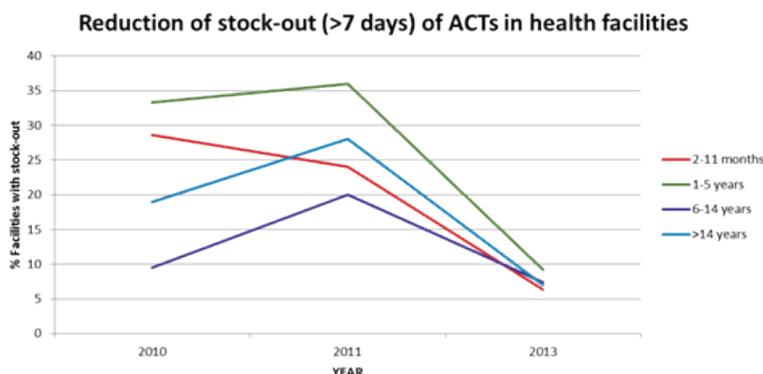
Management Portal. Also, 100% of periphery-level facilities under the Directorate General of Family Planning (DGFP) that use the electronic Upazila Inventory Management System regularly reported on their stock status, revealing no stock-outs of oral contraceptive pills. With SIAPS support, the DGFP upazila stores have been able to consistently report only a 1% stock-out rate of Drugs and Dietary Kits (DDS kits) and contraceptives since December 2011, improving from a baseline of 7%.

With SIAPS's assistance in the DRC, monthly stock status reporting rates increased from 0 to 63%. Given the availability of stock data, overstocked malaria commodities were successfully dispatched from two provinces to a new PMI province. To avoid RDT stock-outs in the Sud Kivu Province, SIAPS redistributed 78,750 rapid diagnostic tests (RDTs) from the Katanga Province and 56,250 RDTs from the Kasai Oriental Province. These interventions have improved the availability and quality of medicines for patients in the community.

Through the establishment of the LMU in South Sudan, the MoH is able to now consistently monitor and report on the availability of 15 tracer medicines in health facilities across the country. The LMU has effectively implemented a dashboard early warning system to report on commodities that are understocked or stocked out.

SIAPS Approach for Improving Supply Management

In Burundi, SIAPS has supported MOH to formulate a national policy for the introduction of intermittent preventive treatment of malaria for pregnant women (IPTp) and has successfully and positively contributed to strengthening the quantification system, resulting in an increase in the availability of life-saving commodities, such as ACTs.



System Strengthening

Key supply chain management functions include quantification of needs, procurement, warehousing and inventory management, logistics information system, and transportation of health commodities. Effective and reliable supply of medicines and other health commodities does not depend on optimal performance of any single functional area, but depends on overall good performance across all of these functions. Good governance and oversight are crucial for effective supply management. Part of the SIAPS strategy is to support the establishment of governance bodies, which strengthen the healthcare stewardship role of governments. Examples of healthcare supply management governance bodies

whose capacity has been strengthened by SIAPS across several countries include Quantification Coordination Committees, Pharmaceutical Logistics Management Unit (PLMU), Procurement and Logistics Management Cell (PLMC) in Bangladesh; Supply Chain Coordination Unit (SCCU) in Lesotho; and Logistics Management Unit (LMU) in South Sudan.

Additionally, to increase supply chain efficiency and product availability, SIAPS has assessed various countries' and programs' capacity to manage pharmaceuticals and supplies at all levels, both public and private sectors. Then, using a stakeholder consensus approach, SIAPS has developed interventions to strengthen the system for the long term, such as building capacity of facility-level staff to track medicine consumption and manage inventory. SIAPS' partner organization, Logistics Management Institute (LMI), has helped conduct such assessments, measuring the supply chain systems' strengths and weaknesses in Angola, Bangladesh, and Swaziland. SIAPS has performed supportive supervision visits with staff in Bolivia, Brazil, Burundi, Columbia, DRC, and Ethiopia. These visits have helped staff design inventory control systems (such as the minimum and maximum systems), effectively track and replenish stock, and ensure other management and logistics tasks are promptly addressed.

In Angola, SIAPS supported CECOMA (Central Procurement Agency for Medicines and Medical Supplies) to implement a pallet numbering and locator system and unique product coding as foundational blocks toward the development of a more robust electronic warehouse management system. SIAPS assisted CECOMA to design job aids and guiding documents to improve staff safety, use of mechanical handling equipment, security, and transport, based on warehouse best practices. In Mali, through SIAPS support provided to the DPM (Direction de la Pharmacie et du Médicament) and regional health directorates, 37% of health facilities continued using checklists to monitor and improve storage conditions compared to a baseline of 0%.

SIAPS has helped countries introduce new management technologies to better manage data and use information to improve procurement, budgeting, distribution, warehouse management, and stock status monitoring throughout the supply chain. In Ukraine, despite the political unrest, the team was able to use data from e-TB Manager and the e-TBM quantification tool to support the Ukrainian Center for Disease Control (UCDC) in planning for the Global Fund quarterly distribution of second-line TB medicines to 15 oblasts. Also, the QuanTB tool and early warning system were introduced for the management of TB medicines in Ethiopia. On the basis of relevant information, SIAPS has facilitated the distribution of ACTs on an emergency basis in DRC and Guinea, ensuring availability of these critical medicines for patients across the community.

With the development of the Provincial Medicine Procurement Unit (PMPU), SIAPS supported the Government of South Africa in managing a transparent and systematic procurement process in two provinces. The Minister of Health proposed the introduction of a direct delivery process (DDV) to reduce the length of the supply chain, overcome weaknesses at the provincial warehouses, and ensure uninterrupted supply of medicines to public health facilities. With SIAPS's technical assistance, the pharmaceutical depot in the Limpopo Province was able to report 79% availability of medicines by March 2014. This is a significant increase from the 50% average availability reported last year.

Vertical systems enable the delivery of particular life-saving commodities in a weak health system. As programs mature, SIAPS works with countries to integrate vertical programs into the essential medicines supply system to maximize efficiency and long-term sustainability. Integrating supply services also allow programs to leverage resources and share capacity-building costs. In Lesotho, MoH is working closely with SIAPS to build their new Supply Chain Coordination Unit (SCCU), developing a strategic plan to increase communication across health programs and health system levels. With SIAP's assistance, procurement, quantification, and logistics management units have also been organized to systematize information flow and strengthen supply chain decision-making in Bangladesh, Ethiopia, South Africa, and South Sudan.

IR5b PHARMACEUTICAL SERVICES IMPROVED TO ACHIEVE DESIRED HEALTH OUTCOMES



THE CHALLENGE

WHO estimates that nearly 50% of all medicine use is inappropriate.¹ The health system, health care providers, patients, and the community all contribute to this problem in a variety of ways. In addition to increasing morbidity, mortality, cost, and adverse events, irrational medicine use also contributes to the global problem of antimicrobial resistance (AMR).

Poor product quality, adverse drug reactions (ADRs), and medication errors have a huge negative impact on patients' health care. Most resource-constrained

SIAPS Approach for Improving Pharmaceutical Services

Ensuring good pharmaceutical services assures efficacious, safe, and cost-effective use of quality-assured pharmaceuticals to those that need them, when and where they are needed. SIAPS uses a pharmaceutical system strengthening approach that is rooted in the WHO health systems framework and the key principles of the Global Health Initiative to help countries build their capacity to improve pharmaceutical services, focusing on improving medicine use and containing AMR.

countries lack expertise and resources to develop and maintain a well-functioning pharmacovigilance (PV) system, which protects the public's health from adverse drug events and substandard or counterfeit products, and helps maintain therapeutic effectiveness in the case of antimicrobial medicines. Some of the factors contributing to weak PV systems in resource-constrained settings include lack of capacity and skills, poor ADR reporting culture, increasing demands from public health programs, and weak regulatory systems.

KEY ACHIEVEMENTS, INNOVATIONS, AND EVIDENCE OF SUCCESS

Patient Safety and Therapeutic Effectiveness Assured

During this reporting year, SIAPS helped countries adopt both active and passive approaches to identify medicine-related problems, including ADRs, product problems, and product use errors. In South Africa, SIAPS continued to support the National Pharmacovigilance Center to implement a decentralized patient-focused PV system in Mpumalanga, which consists of 28 clusters. SIAPS conducted two workshops to strengthen PV and monitoring of ADRs and provided support to two clusters that had not been reporting. These clusters are now submitting an average of 30 ADR reports per month. To date, 2,697 ADR reports have been received in Mpumalanga since the program began in 2010. Phase two implementation of the PV system in Northwest Province was initiated during this project year, which involved on-site mentorship and support to enhance quality of reporting.

In Ethiopia, SIAPS supported efforts to raise awareness on PV among health care providers. SIAPS distributed ADR reporting forms, allergy cards, copies of PV frameworks, PV newsletters, adverse event bulletins, and training manuals to teaching institutions and health facilities throughout the country. The number of health facilities reporting ADRs substantially increased (from 22 facilities in the first quarter to 62 facilities by the fourth quarter). In the last two years, five regulatory decisions have been made based on ADR reports. Of these, three decisions were made during this annual reporting year—one relating to Ringer's lactate preparation, the second to amoxicillin, and the third to a fixed-dose anti-TB combination product (RHZE), following reports of product quality defects.

In Namibia, SIAPS rendered technical assistance for active surveillance activities at Windhoek Central State Hospital and Katutura State Hospital. The Therapeutics Information and Pharmacovigilance Center (TIPC) and SIAPS collaborated to train field promoters on PV and on an ADR reporting tool. In Ukraine, SIAPS supported a PV strategy for the National TB program (NTP), which was developed to increase reporting of ADRs through an automated information system, expand active surveillance, and conduct PV audits. SIAPS helped initiate implementation of the automated PV information system (PAIS) in collaboration with the State Expert Center (SEC) and the developer, RGData. A basic version of PAIS was successfully installed into the SEC server and tested. The ultimate goal is to create a fully functioning system that automates the process of reporting ADRs and lack of medicine efficacy and limits the need to update information manually. In addition, an action plan on PV for the NTP and a draft national plan for monitoring and evaluation of the NTP was submitted to WHO and the State Service for TB/HIV and Other Social Diseases in Ukraine, respectively. In the DRC, SIAPS helped the NTP launch an active PV program for all patients

Preventing and Minimizing Risks Associated with Anti-Tuberculosis Medicines to Improve Patient Safety was published by SIAPS and disseminated via e-drug, the WHO portal, MSH newsletter, and the SIAPS website.

on second-line TB medicines in 14 health facilities in Kinshasa. In preparation, SIAPS provided support to train 26 health workers on PV; the trainees are now actively monitoring two cohorts of patients for ADRs—a treatment group on a nine-month regimen and a control group on a 20-month regimen; 300 adverse event notifications have been created thus far. The activity will track the enrolled patients over the next 12 months to monitor the prevalence of adverse events to inform patient management protocols.

In project year two, SIAPS supported the Ministry of Health (MOH) in Swaziland in initiating a pilot of the HIV/TB active surveillance project at six sentinel sites. During this year, SIAPS continued working with the Pharmacovigilance Unit to collect adverse event data. Bi-monthly monitoring and supportive supervision visits were conducted to follow up on reporting and address challenges. The reporting tool was modified to reduce incomplete data collection at sites. SIAPS also continued providing support to the MOH's Pharmacovigilance Unit to analyze the data collected and release results in the quarterly *Medicines Safety Watch* newsletter. To date, 956 clients have been enrolled in the pilot and 58 adverse events have been recorded, the most common of which are peripheral neuropathy (26%), rash (19%), and dizziness (8%).

With SIAPS support, a national PV program was successfully launched in Bangladesh. It was followed by a two-day training on PV for 20 public and private hospitals, including 13 pharmaceutical companies; 10 additional hospitals and 17 pharmaceutical industries (30 participants) were trained in a separate workshop to extend awareness of PV.

SIAPS has supported the implementation of infection control activities. In Namibia, SIAPS assisted the Division of Quality Assurance at the Ministry of Health and Social Services (MoHSS) to finalize four guidelines on infection prevention and control, operation theater, central sterilization services department, and phlebotomy. A guideline review workshop was convened, attended by 28 healthcare workers. Forty nurses and environmental health practitioners from all 14 regions were trained on how to apply the tools to strengthen infection prevention and control in healthcare facilities. MoHSS also conducted a training of trainers for 31 nurses on the Central Sterile and Supply Department Guidelines and the Operation Theater Manual.

Medication Use Improved

Patient-centered pharmaceutical care is defined as the responsible provision of medication-related care designed to achieve health outcomes that improve or maintain a patient's quality of life.² In Ethiopia, SIAPS introduced pharmaceutical care activities in hospitals that allow clinical and pharmacy staff to easily access patient records to analyze medicine use and adherence; in addition, patient counseling and follow-up empowers patients to take personal responsibility for their treatment. SIAPS collaborated with Jimma and Mekele Universities to organize two rounds of training on clinical pharmacy services. A total of 200

2 Systems for Improved Access to Pharmaceuticals and Services (SIAPS). *Enhancing Health Outcomes for Chronic Diseases in Resource-Limited Settings by Improving the Use of Medicines: The Role of Pharmaceutical Care*. Submitted to the US Agency for International Development by the SIAPS Program. Arlington, VA: Management Sciences for Health.

pharmacists were trained on how to identify and resolve medicine use problems at inpatient wards and antiretroviral therapy (ART) pharmacies. The number of hospitals initiating clinical pharmacy services rose from 40 to 53 during this project year. According to data collected from 26 hospitals between August 2012 and May 2014, pharmacists identified 2,904 drug therapy problems, including unnecessary drug therapy (82%), need for additional drug therapy (83%), ADRs (73%), excessive dosage (85%), and noncompliance (92%). Interventions were carried out for 83% of these cases. Data also show that, of the patients that experienced medication errors, pharmacist interventions resulted in improved treatment outcomes in 91% of cases³.

When developed appropriately and adopted, essential medicines lists (EMLs), standard treatment guidelines (STGs), and national formularies reduce excessive, unnecessary, and inappropriate prescribing practices. SIAPS has built country capacity to ensure a systematic process for developing and implementing STGs, EMLs, and formularies.

- SIAPS supported the revision of the national STG/EML in Lesotho, revision of the national EML in Angola, and development of STGs for HIV in Swaziland.
- As a part of the *Every Woman Every Child* global movement, SIAPS collaborated with WHO, the Belgian Development Agency, and the United Nations Population Fund to integrate all 13 life-saving commodities into the DRC's revised EML.
- In Namibia, SIAPS supported the Pharmaceutical Services Division of MoHSS in finalizing an STG post-implementation assessment report of 11 disease conditions in 13 health facilities in 6 regions of the country. Analysis of 1,090 prescriptions showed that only 26% complied with the STG recommendations for these 11 conditions. As a result, MoHSS is planning to develop a revolving fund with the Health Professionals Council of Namibia to increase access to STGs; in addition, they will strengthen therapeutics committees to supervise prescribers and regularly conduct facility-level medicine use evaluations to promote rational medicine use.
- SIAPS also helps countries apply innovative approaches to ensure that prescribers comply with STGs. In South Africa, SIAPS worked with the National Department of Health to use mobile technology to make the *2012 Adult Hospital Level STG/EML* readily available to prescribers on their smart phones during patient consultations. The smart phone application was officially launched in January 2014 and is available for download on the National Department of Health website at <http://www.health.gov.za/>.
- In Burundi, SIAPS provided supported in updating, printing, and disseminating the new malaria STG and related algorithms. SIAPS is currently supporting Burundi to roll out training on the new malaria STG across the country and encourage compliance to the guidelines.

Proper case management of a disease or health condition helps assure effective treatment and medication safety, promotes high-quality care and cost-effective outcomes, and helps contain drug resistance. SIAPS promotes community case management (CCM), as recommended by WHO and UNICEF, and also looks for innovative ways to promote public-private partnerships to improve case management in the community. SIAPS supports CCM for malaria in Burundi, CCM for tuberculosis (TB) in Tanzania, and integrated CCM (iCCM) for pneumonia, diarrhea, and malaria in Mali, DRC, and Guinea. During the

project year, SIAPS continued to work with the national malaria control program (PNILP) in Burundi to support CCM in two health districts, carrying out supportive supervision visits and training community health workers (CHWs) at health centers. During the last quarter of this reporting year, 11,394 children under five with fever sought care from CHWs in Burundi. Among those children, 10,284 were tested with rapid diagnostic kits and 7,681 were confirmed positive for malaria. Among children who tested positive for malaria, 7,154 (93%) received treatment from CHWs within 24 hours of the onset of fever.

In Tanzania, SIAPS worked with the National Tuberculosis and Leprosy Program to pilot an intervention to increase early TB case detection by engaging private sector drug dispensers. Reaching missed TB cases has been identified by the WHO as a priority in global TB control efforts. The intervention focused on teaching retail drug dispensers to identify clients with TB-like symptoms and refer them to TB centers for appropriate diagnosis and treatment. To strengthen the referral process, a formal linkage was made between pharmacies and accredited drug dispensing outlets (ADDOs) and the TB diagnostic and treatment centers. In addition, SIAPS developed data reporting tools to help evaluate the pilot and assess the private sector's potential to contribute to TB case detection rates. Overall, dispensers' knowledge of the five cardinal TB symptoms improved and was well maintained above baseline levels. At the end of the 16-month pilot, an average of 70% of drug outlets received supervisory visits and 587 clients with TB-like symptoms were referred to TB diagnostic and treatment centers for further evaluation. Of these referred clients, 223 could be tracked at health facilities and 81 of them were confirmed as having TB. The national TB program plans to scale up this intervention in rural regions of Tanzania where ADDOs are common and in urban settings using pharmacies.⁴

Also during this year, SIAPS collected data on best practices in facility-based case management of malaria in Burundi. Findings show that 52.5% of facilities have a copy of the new malaria STGs, 76.5% of prescriptions comply with the new malaria STGs, 63.6% of labels on dispensed medicines were clear and legible, 96.6% of patients received instructions on the use of their medication, and 50.9% of patients can correctly repeat information received about their medication. This data will allow SIAPS to provide support to improve practices and to ensure the rational use of malaria medicines. In addition, SIAPS is collaborating with several partners, including UNICEF, to assist national counterparts in implementation policy and guidelines for intermittent preventive treatment of malaria in pregnancy (IPTp).

Support for medication adherence is essential for empowering patients to better manage their therapies. In Namibia, SIAPS collaborated with MoHSS to develop and print 280 desk flip-charts in 9 local languages and 200 DVDs to increase retention and ARV adherence. The materials were launched and an implementation plan was developed to roll out the treatment literacy materials in the country's 14 regions. In Swaziland, SIAPS adapted the Multi-Method Medication Adherence Assessment Tool, originally developed for ART facilities

⁴ Engaging Private Retail Drug Outlets in Early Tuberculosis Case Finding in Tanzania: Final Report. Submitted to the US Agency for International Development by the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program. Arlington, VA: Management Sciences for Health.

in resource-limited settings, for use in TB facilities. This tool is based on several measurement methods, including self-report, visual analogue scale, pill identification tests, and pill count. SIAPS had introduced the tool to TB adherence officers and TB treatment supporters, trained staff on how to use the tool to determine adherence levels, and helped administer the tool to TB patients supported by DOTS at facilities and in the community. Since February 2013, 18 health facilities have submitted adherence data, which demonstrate that 85% of patients had adherence scores of 80% or above.

WHO regards pre-service education as a key intervention to enhance rational medicine use (RMU). During the year, SIAPS helped the School of Pharmacy at the University of Namibia (UNAM) to develop training content for a theme on RMU, including AMR, within the pharmacy practice II module for undergraduate pharmacy students. The university and SIAPS team developed a detailed instructional delivery framework along with instructors' guides. The instructional delivery design was primarily based on case studies and self-directed learning. UNAM and SIAPS organized a consultative stakeholder workshop in June 2014 to validate the materials. This innovative teaching-learning method on RMU was first offered in August 2014, and preliminary test scores and feedback show that students have taken well to the new teaching method.

Consumer education provides information that encourages patients and community members to use medicines safely and appropriately. In Ethiopia, SIAPS supported the establishment of new drug information services (DIS) at 16 health facilities and strengthened existing DIS units at 6 hospitals. In Tigray region, DIS at four hospitals offered patient education in waiting areas. Between April and June 2014, 3,287 patients received medicine use education. In South Africa, SIAPS supported national and provincial efforts to promote the role

Drug and Therapeutics Committees (DTCs)

DTCs are used to manage the selection of medicines, evaluate medicine use, and implement strategies to improve their use throughout the health care system. In South Africa, SIAPS worked with the RMU sub-committee of the Gauteng Provincial Pharmaceutical and Therapeutics Committee (GPPTC) to design and carry out interventions to improve the use of vitamin B12 and antibiotics. The committee sent letters to each facility with their respective expenditure and usage of antibiotics over the past nine months, the recommended level of care per the EML list for each antibiotic, and a recommendation to set up an antimicrobial stewardship program. The RMU sub-committee also identified the need to assess the use of misoprostol to protect maternal and child health. SIAPS supported the GPPTC in reviewing the quantities of misoprostol used in each facility from two periods: January to June 2012 and January to June 2013. SIAPS continues to provide assistance in conducting this comprehensive analysis, the results of which will be used to promote the safe use of misoprostol to reduce mother and child morbidity and mortality.

In Ethiopia, 22 health facilities have conducted prescription review studies with SIAPS assistance, 12 of which were carried out during this reporting year. The results of the reviews were disseminated to members of the DTC and hospital management, thus informing the development of intervention plans to improve prescribing practices at each location. In Swaziland, SIAPS helped establish pharmacy and therapeutics committees (PTCs) at six hospitals. Two of these six PTCs conducted meetings in which they documented resolutions aimed at improving medicine use.

of pharmacists and pharmacy services during National Pharmacy Week 2014. Partnering with the South African Pharmacy Council, the Pharmaceutical Society of South Africa, and the National Department of Health, SIAPS developed and printed communication material for the *Use Antibiotics Wisely* campaigns.

Medicine use evaluation (MUE) is a critical method for health facilities to review and improve how medicines are prescribed, dispensed, administered, and used. SIAPS works to build capacity of in-country stakeholders to design and implement MUE programs. In Ukraine, SIAPS is helping to pilot a drug utilization review (DUR) to compare prescribing practices, patient ADR monitoring practices, and patient ADR management practices for drug-resistant TB treatment with the national STGs for TB. SIAPS assisted the DUR implementation working group in developing and adjusting the DUR criteria and data collection forms for the DUR pilot project at the Kyiv Oblast TB dispensary. The results will be used to design a plan to curb the misuse of TB treatment and mismanagement of patient care. Similarly, in Bangladesh, SIAPS is helping to initiate a nationwide drug-resistant TB DUR program.

Pharmaceutical Service Standards are Defined, Adopted, and Implemented

Enhancing Health Outcomes for Chronic Diseases in Resource-Limited Settings by Improving the Use of Medicines: The Role of Pharmaceutical Care was published and disseminated via e-drug, the WHO portal, MSH newsletter, and the SIAPS website.

The establishment of minimum standards of pharmaceutical care for public and private sectors is an important area. In Ethiopia, SIAPS supported the Food, Medicine and Health Care Administration and Control Authority (FMHACA) in finalizing minimum standards for pharmaceutical health services that were approved by the national standards authority for implementation in both the public and private sectors. A total of 154 pharmacists from 44 hospitals in the country were trained on clinical pharmacy/pharmaceutical care using the SIAPS-supported standard curriculum and training manual. As a result, nearly 91% of hospitals that participated in the training initiated ward-based clinical pharmacy services. To address the lack of clear policy on PTCs, the National Department of Health of South Africa is collaborating with SIAPS to develop a national policy for the establishment and functioning of PTCs. The PTCs will focus on three core components: a formulary system, RMU including safety and quality, and procurement and financial management.

Emergence of AMR Slowed

SIAPS endeavors to establish global, regional, and country-level AMR coalitions. In South Africa, SIAPS is part of a national antimicrobial stewardship working group that was established by the Director General of Health in October 2013. The group has drafted a national AMR strategy that encompasses health, veterinary medicine, and agriculture sectors. In Namibia, MoHSS has taken major leadership in institutionalizing the HIV drug-resistance early warning indicators (HIV-DR EWIs) strategy and implementing it in all districts. SIAPS is assisting stakeholders in Namibia to use an Electronic Dispensing Tool (EDT) platform to monitor HIV-DR EWIs, including those that provide proxy data on adherence to ART. The EWIs intervention has led to valuable recommendations and several achievements in Namibia, including improving the accuracy of data abstraction, engaging sites on standard dispensing practices, enhancing site collaboration in ART service delivery, boosting the use of the EDT in facilities, and analyzing adherence in each facility.

The percentage of SIAPS-assisted structures (infection control committees, medicine and therapeutics committees, or alternative structures) that have implemented AMR advocacy or containment-related activities in Ethiopia has risen from 29% to 38% during this project year. SIAPS continued to build the capacity of FMHACA to organize AMR/RMU training for media personnel. During the year, FMHACA, with SIAPS support, conducted one round of regional training for 34 journalists to build their capacity to inform, educate, and empower the public regarding AMR and RMU through media outlets. The trainees included representatives from the Amhara region mass media agency and community and FM radio stations, as well as zonal media education personnel.

Supporting Pre- and In-Service Training Programs in Swaziland to Expand and Strengthen the Pharmaceutical Workforce

Challenge: Shortages of well-trained personnel threaten the quality of pharmaceutical services

A number of low-resource countries are facing a severe and prolonged shortage of health workers, particularly in the pharmaceutical sector where pharmacists, pharmacy assistants, and technicians are becoming especially scarce. With antiretroviral treatment (ART) programs growing in many countries, more pharmacists and pharmacy assistants are required to provide effective ART services. Additionally, research has shown that higher patient loads at pharmacies can compromise the quality of care and negatively affect patient retention rates.¹ Overstretched pharmacists and other healthcare workers are often unable to properly counsel patients on medication adherence or monitor their progress—problems which can increase the risk of

drug resistance, foster irrational use of medicines, increase the overall cost of treatment programs, and result in poor patient health outcomes.

Until recently, Swaziland, like many developing countries, did not have an established training program for pharmaceutical health workers. Local students would instead choose to study in universities abroad, which often led them to take jobs outside of Swaziland and exacerbated shortages in the pharmaceutical workforce. To help overcome these challenges, SIAPS supported local stakeholders in Swaziland to develop the first pharmaceutical training program in the country.

SIAPS Approach: Addressing critical gaps in pharmaceutical capacity

The SIAPS approach to building human resource capacity for pharmaceutical services delivery considers gaps in training, competence, and workforce size and distribution. Due to critical human resources shortages, SIAPS focuses on increasing the number of capable and well-trained individuals available to deliver pharmaceutical services. This case study describes sustainable, country-level interventions to expand the cadre of qualified personnel through the establishment of a new pharmacy training program and efforts to promote high-quality, patient-centered pharmaceutical clinical care services through in-service trainings.



Adapted from Wulji T. 2009. Current status of human resources and training in hospital pharmacy. *American Journal of Health-System Pharmacy*. 66(5):856-860.

¹ Lambdin et al. Patient Volume, Human Resource Levels, and Attrition from HIV Treatment Programs in Central Mozambique. *J Acquired Immune Deficiency Syndrome* 2011;57:e33–e39.

Swaziland: Developing an in-country pharmacy training program

In 2010, Swaziland's 287 government facilities shared a total of 16 pharmacists.² Given the dearth of pharmacy workers along with new federal regulations that mandated only specially trained personnel could fill these positions, the Ministry of Health (MOH), with support from SIAPS, set out to establish the first pharmacy training program in Swaziland.

After SIAPS conducted a feasibility study, the MOH decided that the training program would support three types of pharmacy personnel: pharmacy assistants, pharmacy technicians, and pharmacists. In a widely consultative process, the training curricula were developed with inputs from tertiary educational institutions, private sector pharmacists, MOH stakeholders, the Pharmacy Association, local pharmaceutical companies, and non-governmental institutions. SIAPS worked with local stakeholders to identify training needs, create the curriculum content, and outline job descriptions for the new functions. After receiving government funding for the program, the Southern Africa Nazarene University (SANU) established the Department of Pharmacy at its Faculty of Health Sciences in 2012. With technical support and guidance from SIAPS, SANU began offering a two-year certificate and a three-year diploma in pharmacy services.

Since the program's inception, nearly 50 students have entered the pharmacy training program, the first of whom



graduated with a Certificate of Pharmacy in July 2014. With this new generation of pharmacy workers entering workforce, Swaziland has taken an important step forward in meeting its human resources needs to deliver high-quality pharmaceutical care and services. The three-year Diploma in Pharmacy program was also launched in 2014, and additional academic institutions have expressed interest in offering the program and adapting it for part-time or distance learning.

Based on the experiences and key lessons learned from the implementation of the initial pharmacy program, SIAPS continues to support SANU in implementing the Diploma in Pharmacy program, with the intention of expanding the program to a range of training facilities across Swaziland.

² Service Availability Mapping Report (2010). Swaziland Ministry of Health.

SUCCESS STORIES

BETTER PATIENT DATA, BETTER SUPPLY CHAIN, BETTER TREATMENT OUTCOMES

ANGOLA

Ensuring Access to High Quality ARVs

As of 2012, there were a quarter of a million people in Angola living with HIV. In 2009, with the arrival of antiretroviral (ARV) drugs in Africa under the President's Emergency Plan for AIDS Relief (PEPFAR), Angolans living with HIV were given a lifeline for living longer, healthier, and more productive lives. The challenge, however, is to ensure the continuous availability of HIV and AIDS drugs. This requires an efficient and effective supply chain system that uses evidence-based information for decision making. Without a well-functioning supply chain, interruptions in ARV delivery can have calamitous results, including treatment discontinuation for the patient, causing viral resistance and treatment failure. On the other hand, overstocking ARVs wastes money through expiry.

A Better Logistics Management Information System

USAID-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) uses a system-strengthening approach to improve health service delivery by assuring the availability and safe use of pharmaceutical products. The Angola National Institute against HIV and AIDS (INLS) asked the USAID Mission in Luanda to provide technical support to strengthen the HIV and AIDS medicines supply chain.

SIAPS began by conducting a forecasting exercise on the needs of all HIV and AIDS health products. The data collection and analysis showed a weak Logistics Management Information System (LMIS) resulting in poor logistics data collection, organization, and analysis. SIAPS proposed to the INLS that, instead of using less reliable data and assumptions for the forecasting exercise, a longer-term solution should be sought to address the weaknesses in the LMIS.

The immediate solution to resolving problems in the system was to revise the HIV and AIDS monthly reporting and quarterly requisition forms. This first step improved the quality and comprehensiveness of the data at the health-facility and provincial levels. The immediate result of these new and improved forms would be accurate, comprehensive, and timely data needed to make informed decisions.

At the end of 2013, SIAPS provided support to the INLS to organize a one-day stakeholder meeting with selected staff from the INLS, hospitals, and the UNDP/Global Fund to identify and agree upon the key data needed to improve the LMIS. The same exercise was carried out for requisition forms—some of the missing data included quantities per item and whether the requisition was for a planned or emergency order. SIAPS assisted in redesigning the forms into more user-friendly formats and drafted the instructions for filling out the forms.

In February 2014, INLS senior management reviewed and approved the forms. INLS took the lead on disseminating the new forms through cascade training and field visits to selected hospitals and provincial HIV and AIDS teams, demonstrating country-led coordination to ensure ownership and sustainability.



SIAPS assisted in redesigning the forms into more user-friendly formats and drafted the instructions for filling out the forms.

Ownership and Sustainability of LMIS

Currently, the forms are being used in five large hospitals located in Luanda and in six provinces (Lunda sul, Lund norte, Bié, Bengo, Kwanza sul, and Cabinda). The feedback from users has been very positive. The same support will be given to other provinces under the current National Acceleration Plan to Respond to HIV.

Next Steps

SIAPS is working with the INLS to move away from paper-based data entry and reporting to an electronic-based platform now being piloted in the country. Once the electronic-based platform is finalized, health facilities will be able to generate these reports

more easily, effectively, and efficiently. SIAPS is developing a study-tour to Namibia for high-level officials from INLS to learn more about Namibia's experience in generating better information for more informed decision making.

SAVING LIVES THROUGH IMPROVED ACCESS TO CONTRACEPTIVES

BANGLADESH

Access to family planning (FP) commodities undeniably saves the lives of women and their children. In recognition of this, Bangladesh has made significant progress in increasing access to FP methods over the past decade. From 2001 to 2011, the total fertility rate decreased by 23%, from 3.0 to 2.3 births per woman and the percentage of married women with an unmet need for FP decreased from 17% to 14%.¹ Moreover, the maternal mortality ratio decreased by 40% from 322 to 194 maternal deaths per 100,000 live births during this time period.² To continue this progress, Bangladesh, as part of the Family Planning 2020 global partnership, has further committed to increasing adolescent-friendly sexual reproductive health and FP services, providing them at one-third of maternal, newborn, and child health centers and reducing the total fertility rate to 2.0 by 2016 and 1.7 by 2021.³ However, to meet these targets, ensuring access to FP commodities to women and their partners is essential.

In 2013, the Government of Bangladesh (GoB), with support from donors including USAID, invested approximately 35.7 million US dollars (USD) on FP commodities, which led to more than USD 28.7 million in savings in direct health care spending by preventing:

- 760,016 unintended pregnancies
- 498,996 live births

- 948 pregnancy-related and maternal deaths
- 6,565 deaths among children under 5-years of age attributable to sub-optimal birth spacing⁴

SIAPS Works to Improve Access to Contraceptives

Ensuring access to life-saving FP methods requires strengthening the national supply chain system so that quality products are available when and where they are needed. Since 2011, the USAID-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program has been employing a systems approach to supply chain improvement that includes:

- Strengthening governance of supply chain functions within the Directorate General of Family Planning (DGFP)
- Reforming procurement systems and streamlining procurement processes
- Building the capacity of supply chain managers and storekeepers
- Increasing the availability of data for decision making

Improved Coordination in Forecasting and Supply Planning Leads to Cost-Savings

In 2012, SIAPS worked with the DGFP to create the Forecasting Working Group (FWG). The FWG is tasked with forecasting medicine needs and ensuring that resources are allocated to meet these needs. With SIAPS support, a five-year (2012-2016) forecast and a two-year supply plan were developed for FP commodities. As a result of this exercise,

1 Bangladesh Demographic and Health Survey (BDHS) 2011. NIPORT, Mitra and Associates and ICF International. Bangladesh Demographic and Health Survey 2011 Preliminary Report. Dhaka, Bangladesh, and Calverton, Maryland, USA.

2 National Institute of Population Research and Training (NIPORT), MEASURE Evaluation, and icddr. 2012. Bangladesh Maternal Mortality and Health Care Survey 2010. Dhaka, Bangladesh: NIPORT, MEASURE Evaluation, and icddr.

3 <http://www.familyplanning2020.org/countries/all-countries/bangladesh#commitment>

4 Marie Stopes International (MSI) Impact Calculator; downloaded from mariestopes.org/impact-2

DGFP decided not to move forward with an anticipated procurement of 65,000 implants in FY 2012-13, leading to a cost-savings of USD 1.38 million.⁵ Similarly, in the following year, because of coordination between the FWG and other stakeholders, DGFP/FWG reached a consensus not to procure 410,000 implants for FY 2014-15. This has led to approximately USD 4.1 million in savings.

Improved Governance Leads to Streamlined Procurement Processes

SIAPS has worked closely with the GoB to develop the Supply Chain Management Portal (SCMP), an online procurement system that allows DGFP to track and monitor the procurement process of FP commodities. The portal provides information on delays in procurement processes and alerts managers so that appropriate action can be taken. The system has reduced procurement lead time by an average of 32.8 weeks since 2010, facilitating the timely procurement and distribution of FP commodities.⁶

Improved Logistics Information Systems Contributes to a Responsive Supply Chain

SIAPS developed a Logistics Management Information System (LMIS) that collects data on consumption and availability of FP commodities from the district and sub-district (upazila) levels throughout the country.

Data from service delivery points is consolidated and entered into the SCMP, allowing managers to respond quickly and efficiently to avoid stock-outs and overstock of FP commodities. This data has been used to plan for appropriate distribution as well as used to inform forecasting and supply planning at the national level.⁷

Why Invest in Systems Strengthening Approaches to Supply Chain Management?

A recent analysis of the LMIS data showed a reduction of stock-outs of IUDs and implants as well as a continuous supply of condoms, oral pills, and injectables at DGFP warehouses from 2011 to 2013. Similarly, stock-outs of FP commodities at upazila stores have been reduced by 85% since 2009.

Increasing availability of FP commodities requires a systems approach that generates an efficient and responsive supply chain. This begins with evidence-based forecasting and supply planning of essential commodities, efficient and timely procurement processes, and effective LMISs that make data accessible to decision makers so that medicines are available where and when they are needed.

5 Technical Brief: National Reproductive, Maternal and Child Health Commodities Forecasting of Bangladesh for FY 2014-15 and DGFP FWG meeting notes; held in 2012, 2013 and 2014.

6 M G Kibria, et al, *Use of a Supply Chain Management Portal to Ensure an Uninterrupted Supply of Contraceptives in Bangladesh*, 2013.

7 M G Kibria, et al, *Impact of a Computerized Inventory Management System in Ensuring Commodity Security of Contraceptives in Bangladesh*, 2013.

Table 1. Health Impacts of Investing in Family Planning Commodities^{3,1, 2}

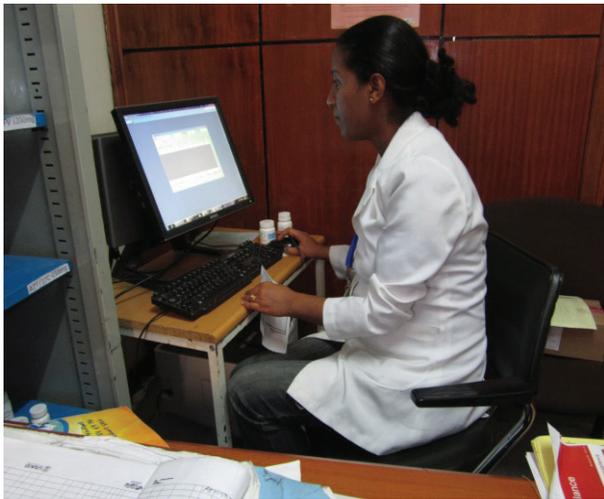
	2011	2012	2013
Condoms distributed to SDPs points ⁵	126,750,000	135,540,000	144,030,000
Oral pills distributed to SDPs ⁵	109,690,000	109,210,000	106,130,000
Injectables distributed to SDPs ⁵	13,750,000	13,790,000	13,660,000
IUDs distributed to SDPs ⁵	274,346	285,547	263,020
Implants distributed to SDPs ⁵	257,973	254,388	274,192
Population growth rate for women of reproductive age (15-49)	1.8%	1.7%	1.6%
Unintended pregnancies averted	1,014,601	895,774	760,016
Unintended live births averted	666,147	588,129	498,996
Maternal deaths averted	1,266	1,117	948
Child (under 5) deaths averted because of improved birth spacing	8,764	7,737	6,565
Direct healthcare costs savings (USD)	\$38,400,000	\$33,900,000	\$28,700,000

1 DGFP Supply Chain Information Portal-SCIP; available at www.dgfplmis.org. Accessed on September 24, 2014.

2 MOHFW Supply Chain Management Portal-SCMP; available at <https://www.scmpbd.org/> Accessed on September 24, 2014.

A PHONE CALL FOR HEALTH: IMPROVING PATIENT CARE AND ADHERENCE TO TREATMENT

Alongside a road in a remote area of the Amhara Region, Solomon Dawit, a truck driver from the Ethiopian capital of Addis Ababa, sits waiting for a ride to the nearest town. He has two big problems: his truck has broken down and he didn't know how long it would take to get the parts needed to fix it, and he was running out of his life-saving antiretroviral (ARV) medication. After one month, Solomon's truck is fixed and he heads back home to Addis Ababa.



Pharmacist Bethlehem Nega using EDT.
Photo credit: SIAPS/Ethiopia

In Addis Ababa, Pharmacist Bethlehem Nega sits at her computer in the ART pharmacy of the Bole Health Center (HC). Using the Electronic Dispensing Tool (EDT), she looks at the names of “lost patients”—ART clients who have missed their appointments. The name of a client who missed his last appointment, Solomon Dawit, pops up. Bethlehem picks up the phone and calls Solomon to remind him to come to the clinic for his medicine. She also sees that he needs his regular six-month check of his CD4 count and she makes an appointment for him.

Solomon comes into Bole HC that very same day and receives a three-month supply of ARVs and his CD4 count is tested. He is

relieved to have his medication because he knows his health depends on taking his pills every day. When he first came to the Bole HC, the pharmacist managing the clinic's Drug Information Service, Belete Wale, provided group counseling on ARVs to Solomon and other patients as they waited for their appointments. Solomon has a good understanding of what the drugs do, how to take them, and how other factors, such as good nutrition, play an important role in maximizing adherence to ART.

Solomon is also happy about the call he received from the pharmacist. “When the pharmacist called me about my missed appointment, it showed they care about me as a person.” According to Bole HC's Head Pharmacist, Workye Molla, the ART department serves an average of 800 patients per month. Every month, there is an average of 40 patients considered lost. And every month, these 40 patients receive a phone call from the ART pharmacy reminding them to come in for their life-saving ARVs.

The EDT

Before the implementation of EDT, pharmaceutical management and information systems in Ethiopia were poor at capturing, aggregating, and reporting data relevant for informing decision making. This was especially true at service delivery points. According to Pharmacist Molla, “We could not follow the patients, their appointments, and regimens. We did not know the amount of drugs that were in our inventory at dispensing units. We did not even know how many patients we served per day.” With the introduction of ART in Ethiopia, it became clear that without an effective information system, it would be challenging—if not impossible—to ensure the uninterrupted availability and rational use of the newly acquired ARVs.

Solomon and the other patients at the Bole HC ART unit are benefitting from the partnership of the USAID-funded SIAPS Ethiopia team of pharmacists and Ethiopia's public health system. SIAPS has partnered with the Ministry of Health's Pharmaceuticals Fund and Supply Agency (PFSA) in all of its pharmaceutical systems-strengthening support to ensure government ownership and sustainability. The team is working with the Bole HC, as well as an estimated 200 ART sites using EDT software and more than 700 sites using the paper-based EDT system around the country. The goal is to establish and maintain an effective electronic information system at ART pharmacies to monitor patient adherence; drug resistance; access to medicines; prescribing, dispensing, and medicine use practices; and patient safety.



Pharmacist Bethlehem Nega counseling a patient.
Photo credit: SIAPS/Ethiopia

EDT is a cutting-edge information system that uses the patient as the focal point. EDT captures the critical information needed to make decisions about the individual's drug regime as well as stock inventory and aggregate patient statistics. When Solomon first entered the Bole HC for treatment, the pharmacist used EDT to create a comprehensive patient profile, which includes his medicine history. Aggregating data on patient uptake, regimen profile, consumption, and stock on hand informs decision making by the pharmacist to make sure that Solomon and all of the patients at the ART pharmacy are getting an uninterrupted supply of the right medicine, in the right amounts, at the right times.

On the basis of Solomon's patient information, along with the other some 800 patients per

month who are treated at Bole HC, Pharmacist Molla is able to manage stock; report adverse drug events, medication errors and drug usage information; and generate customized reports for national HIV and AIDS programs and other relevant stakeholders.

An Integrated Package of Pharmaceutical Systems-Strengthening Support

Solomon's visits to the Bole HC are a very important factor in keeping him healthy, despite living with a life-threatening disease. He isn't aware that SIAPS supports many of the services he receives at the Bole HC ART unit. For example, SIAPS provided the ART pharmacy with the software-based information system, EDT, which keeps track of his treatment; the computer, printer, and office furniture; and the training and mentoring to staff using EDT. SIAPS paid for the phone call from the pharmacist when Solomon missed his appointment. He didn't know that the patient counseling he received from the pharmacist was based on the drug reference books, computer, and Internet access supported by SIAPS. Solomon doesn't know about the support that SIAPS provided to establish the Drug and Therapeutics Committee—a key player in providing the health center with evidence-based selection and quantification of medicines and the rational prescribing and use of medicines.

Solomon is also unaware of the partnerships established between SIAPS and the PFSA; the Food, Medicine and Health Care Administration and Control Authority; other public health agencies; and health facilities that drive the success of these efforts. The SIAPS/Ethiopia technical team has an on-the-ground understanding of the problems and challenges facing the country's pharmaceutical sector. They understand that only country ownership can sustain the successful transformation of Ethiopia's pharmaceutical sector and have developed genuine partnerships with government stakeholders to work toward a common goal. Solomon only knows that, despite his HIV status, he feels strong and healthy and looks forward to living a long and productive life.

The Numbers

SIAPS has rolled out EDT to some 200 sites around the country—the rest are using the paper-based system. The SIAPS/Ethiopia team supports the collection of patient uptake from 657 ART sites (113 government hospitals, 518 government health centers, and 26 private and nongovernmental health facilities). A total of 306,490 patients are covered, more than 95% of all ART patients in Ethiopia (figure 1). The SIAPS/Ethiopia team collects regimen breakdown reports from about 370 ART sites, covering 252,830 ART patients, about 80% of all patients on ART.

A year before, SIAPS provided an analysis of prescription patterns using data generated from the EDT that showed an irrational prescribing of d4T regimens, a common first-line drug



SIAPS has rolled out EDT to some 200 ART sites around the country

regime for new patients initiating ART, which was contrary to recommendations of the new guidelines. On the basis of this information, the Federal Ministry of Health issued an amendment guideline for phasing out d4T regimens for adults. The progress of phasing out d4T regimens was closely monitored using information from EDT and by now it is almost complete (figure 2). Ethiopia's Ministry of Health, along with other US Government partners, are using the same information to monitor implementation of the new ART guideline for pediatric ARV treatment program.

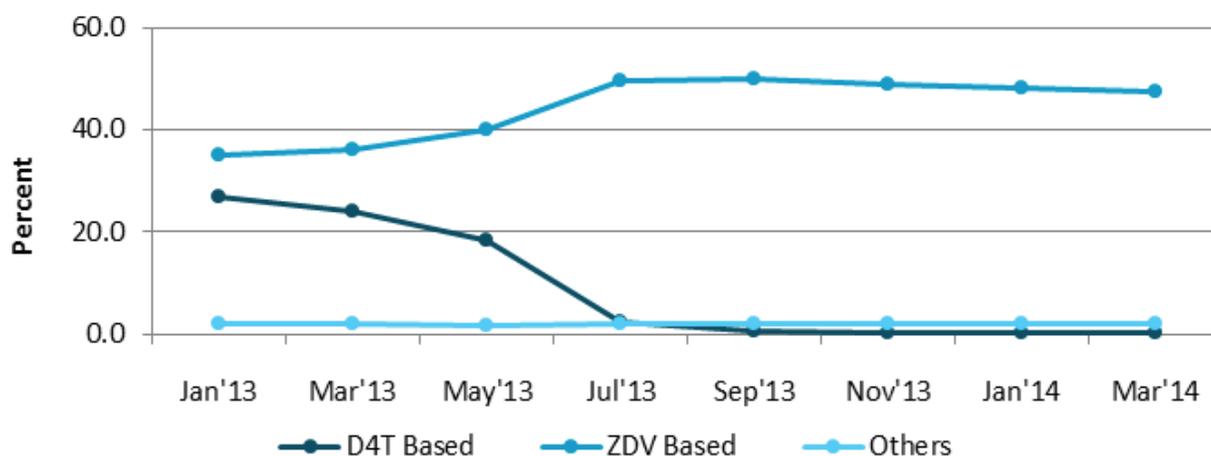


Figure 1. Adult ARVs Prescribing Trends: Jan 2013 to Mar 2014

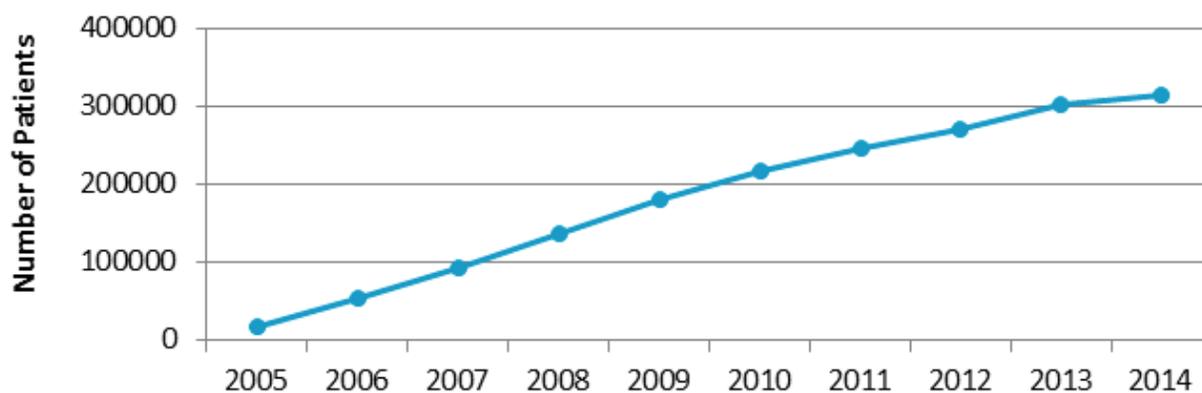


Figure 2. Trends in Patient Uptake at ART Sites Covered by Pharmaceutical Information System

INVESTING IN FRONTLINE HEALTH WORKERS: A BETTER SUPPLY CHAIN FOR TB MEDICINES

PHILIPPINES

Strengthening the Supply Chain

Access to quality medicines and other commodities, including laboratory supplies, is essential to the delivery of tuberculosis (TB) services. In the Philippines, significant efforts are being invested in improving and strengthening the overall management of the TB supply chain, medicine and supply stock-outs, storage conditions, inventory management, information utilization and reporting, and building sustainable systems by increasing the capacity of the health staff to manage supplies and medicines.

Edgar Almoguera, Sr., has been working as a public health nurse in Old Balara Health Center in Quezon City, Metro Manila, since 1994. The health center provides primary healthcare services such as maternal and child care and TB directly observed treatment, short-course (DOTS) to 14,800 families in this urban neighborhood, or *barangay*.

As the supply officer in his unit, he often experienced stock-outs. “In the past, there was no systematic way to request our TB medicines. I only received what had been allocated by the district office. The allocation was not always based on the number of patients. To add to the stock-out problem, I’ve also been challenged by organizing our medicines, given our unit’s lack of storage area,” Edgar said.

Building Capacity for Pharmaceutical Management and Services

The availability of skilled workers to provide and manage pharmaceutical services is a key to ensuring access to quality medicines and other health technologies. The United States Agency for International Development (USAID)-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program works with the host country

government and other stakeholders to assess capacity to manage pharmaceutical supplies and services. SIAPS then identifies areas for improvement and develops a long-term intervention to strengthen the system.

In the Philippines, SIAPS provides technical assistance to the National TB Control Program (NTP) in the overall management of the TB supply chain with a focus on forecasting, quantification, procurement, storage, and distribution. NTP, with the technical assistance of SIAPS, developed the *Practical Guide for the Management of Pharmaceuticals and Health-Related Commodities* (PGMP). This manual outlines the standards in supply chain management and is being rolled-out by NTP to regional, provincial, city, and barangay health units nationwide.

Edgar is one of the first health workers to receive the training on PGMP. In the training, participants learn guidelines for managing TB medicines and supplies, as well as how to requisition medicines based on actual patient cases.

Four months after the PGMP training, Old Balara Health Center has improved its inventory and storage management. With Edgar’s leadership and the support of his colleagues, TB medicines have been reorganized to conform to guidelines, expiries are now being monitored, and stock cards are being regularly updated.

“Constructing a bigger storage area is a huge endeavor. It is my responsibility to be resourceful in implementing simple actions so that the medicines I dispense are of good quality and do not harm our patients,” Edgar said. He has also lobbied the local government unit for storage cabinets.

Better Information for Evidence-Based Decision Making

Good decision making about stock and inventory is based on available, accurate, and reliable information. However, most of the community health facilities in the Philippines do not maintain or update stock cards, and inventory reports do not usually correspond to actual physical counts.

SIAPS works on strengthening capacity for the collection, aggregation, analysis, presentation, and dissemination of information for evidence-based decision making. Using tools developed in-house, SIAPS works with national stakeholders to customize tools to ensure that quality pharmaceuticals are available to inform decisions about supply chain systems and services within the context of a country's health landscape. In the case of Quezon City District 3, SIAPS provided health workers in nine health centers with a TB tracking tool—a simple Excel-based inventory tool.

Initially, the TB tracking tool was designed to improve the recording and reporting on the movement of TB medicines. With the input of the partners, the TB tracking tool has been expanded to calculate the requisition requirements of the health centers. Today, facilities in District 3 submit monthly requisitions based on the number of patients enrolled in the TB registry. The next step is to assist NTP in reestablishing a pull system requisition. With better information leading



Edgar Almoguera, Sr., public health nurse-cum-supply chain management champion of Old Balara, Quezon City

strengthen the supply chain management system in the bustling environs of Quezon City. The BHMC is an innovative, grassroots health-program leadership and management model that was piloted in the barangay Payatas in Quezon City in 2011, and later expanded to District 3. BHMCs are now working on health programs other than TB control, including maternal health.

A critical element in the sustainability of supply chain management systems is to have a functional, community-driven management structure such as the BHMC. Locally owned and results-driven, the BHMC ensures the sustainability of results from technical assistance provided by SIAPS, a core value of the USAID mission.

IMPROVING HEALTH OUTCOMES: MANAGING INFORMATION TO MAXIMIZE RESOURCES

SOUTH SUDAN

Ensuring the Availability of Life-Saving Commodities in a Fragile State

In December 2013, the fragile peace that held the newly independent country of South Sudan collapsed into renewed fighting. Since then, violence has led to massive outflows of people to nearby Ethiopia, and the economy has steadily deteriorated in the absence of oil revenues. Throughout this period of political uncertainty, population displacement, and economic catastrophe, the USAID-funded Systems for Improved Access to Pharmaceuticals and Services (SIAPS) has continued to work with South Sudan's health workers to strengthen its fledgling health system.

In resource-limited settings such as South Sudan, managing information holds the key to maximizing resources to ensure the availability of high-quality essential medicines and supplies, such as artemisinin-based combination therapies (ACTs), antiretrovirals (ARVs), and maternal and child health (MCH) and family planning (FP) products—a high priority for achieving desired health outcomes in South Sudan. SIAPS is playing a crucial role in enhancing capacity for pharmaceutical supply management and services and ensuring the availability of life-saving commodities.

Strengthening the Government's Capacity to Manage Pharmaceutical Supplies

SIAPS' approach to strengthening capacity for pharmaceutical management begins with building consensus among stakeholders to identify areas of improvement. Working with South Sudan's Ministry of Health (MoH), it was clear that the pharmaceutical sector needed more robust Pharmaceutical Management Information System (PMIS) tools. Better alignment of these tools promotes the more efficient management of pharmaceutical supplies.

This restructuring is particularly important for the Emergency Medicines Fund (EMF), which was initiated as a result of frequent shortages of essential and life-saving medicines and supplies in all South Sudanese health facilities. Resources from USAID, the United Kingdom Department for International Development (DFID), and the Norwegian government were pooled to procure a consistent supply of essential medicines and commodities. Collaborative reviews, timely distribution, and rigorous management of PMIS tools are necessary to effectively manage these life-saving medicines and avert potential health crises related to supply shortages.

The Need for Good Data

The current push system of pharmaceutical management, which allocates medical supplies from the central level to the lower levels of the health system, has led to systemic inefficiencies, including both oversupply and supply shortages, and huge stocks of expired products. As a result, MoH plans to shift to a pull system where medical supplies will be distributed on the basis of actual consumption information provided by the lower-level facilities. MoH's efforts, however, have been hampered by the scarcity of reliable data. Dr. Victor Furangi, Director-General of Western Equatoria State, emphasized the importance of effective data collection, saying, "It's certain that we cannot manage the commodities at our health facilities without the availability of the necessary tools and trainings to go with its use."

The SIAPS team responded to the need for more reliable data by working with MoH to review the tools: stock cards; dispensing registers; issue, receipts, and requisition vouchers; monthly reports; and prescription forms for effective pharmaceutical management at the service delivery level. In all, 37,220 copies of agreed-upon PMIS forms

were printed. Dr. Martin Swaka, USAID’s Health Program Specialist, stated, “USAID sees the need for these tools to be reviewed and printed, and we are very excited to see them printed on time and with such high quality. We hope the tools will immediately be made available for use in the facilities in Western and Central Equatoria States.”

The next phase of the project will be distributing the materials and training health workers to quickly and accurately collect and report medicine consumption data up to the national level. Coordinating mechanisms will be instituted at all levels to ensure complete, accurate, and timely functioning of information systems.

Partnerships Matter: Expanding our Reach

It is clear that the challenges facing information management systems in South Sudan will require cooperation among a number of organizations. For this reason, SIAPS has collaborated with other partners, including the South Sudan Health Pooled Fund (HPF) and IMA World Health, to print the agreed-upon PMIS tools to ensure that the states in which they work also have similar capacities for training health workers in and carrying out effective pharmaceutical management. With these important steps, SIAPS is eliminating a major barrier to the implementation of a pull system of pharmaceutical management in South Sudan, which will better direct scarce medical resources.

FORECASTING FOR FAMILY PLANNING: GETTING PROCUREMENT RIGHT

SWAZILAND

Ensuring the availability of family planning (FP) commodities is key to preventing HIV infection and unintended pregnancies. The US Agency for International Development (USAID)-funded Systems for Improving Access to Pharmaceuticals and Services (SIAPS) Program partnered with the Government of Swaziland and the United Nations Population Fund (UNFPA) to conduct a planning and forecasting exercise for procuring these commodities.

Integrating HIV and FP Services: Better Health Outcomes and Cost Effectiveness

In 2009, the President's Emergency Plan for AIDS Relief (PEPFAR) began recommending linking FP services to HIV and AIDS services in its guidance. Integrating FP and HIV and AIDS services results in desired health outcomes and cost savings for both the health consumer and the health provider.

By providing FP with HIV and AIDS services, clients receive a holistic package of information and services that addresses both unintended pregnancies and sexual transmission of HIV. Offering an integrated package of information and services diminishes the stigma and discrimination of HIV and AIDS. Clients are able to access FP information and services as well as receive care and treatment for their HIV. The information provided allows them to also make informed decisions about if and when to have children, and how to avoid unintended pregnancies and prevent sexually transmitted infections.

The financial burden on women to travel to health facilities—both in terms of travel costs and lost opportunity costs for income and household productivity—can be significant. By traveling to one site for an integrated

package of information and services, women save money and are more likely to access the services. For the health provider, reducing unintended pregnancies in HIV-positive women lowers costs for prevention of mother-to-child transmission (PMTCT), pediatric treatment, and mitigating consequences of unintended births.

Reducing HIV and AIDS Infection and Promoting FP in Swaziland

Swaziland has the highest HIV prevalence rate in the world with more than one-fourth of the population infected among the 15- to 49-year-old population and 31% among the 18- to 49-year-old population. The 2007 Swaziland Demographic Survey shows that about 68% of new infections in adults occur in persons older than 25, the majority of whom are married or cohabitate with a single partner.

Swaziland's high prevalence rate has prompted the government to adopt a dual protection strategy to decrease HIV and AIDS transmission and unintended pregnancies through contraceptives, such as condoms. A consistent supply of condoms and other FP commodities are needed for both preventing HIV infection and unintended pregnancies.

Quantification and Forecasting: Getting FP Commodities to the People

SIAPS, in partnership with Swaziland's Ministry of Health and UNFPA, conducted an FP quantification exercise to produce a supply plan for 2014–2018. The objective



SIAPS and its partners used the demographic/morbidity forecasting method. The consumption method was used for comparison and validation purposes.

of the exercise was to plan, mobilize, and secure financial resources for the planning period and to establish estimated procurement requirements for the short term.

SIAPS and its partners used two forecasting methods, with the demographic/morbidity method as the preferred and main method. The consumption method was used for comparison and validation purposes. Forecast requirements were established for the public and private sectors for each of the methods. However, it was possible to establish the procurement requirements for the public sector only. The quantification includes requirements for

male condoms for the prevention of sexually transmitted infections, including HIV, in addition to FP.

Conclusion

SIAPS supports country-level pharmaceutical systems and supply chains for reproductive health commodities. Planning, mobilizing, and securing financial resources requires effective quantification and forecasting to ensure the continuous availability of these commodities to prevent unwanted pregnancies and HIV infection with the desired positive health outcomes for the people of Swaziland.

Product	Unit	2014	2015	2016	2017	2018	Total
Injectable, 3-month (Depo-Provera)	Each	37,550	59,408	109,592	94,640	187,817	489,007
Injectable, 2-month (Noristerat)	Each	318,821	181,115	129,215	70,779	105,989	805,919
Injectable, 1-month (Norigynon)	Each	4,009	18,234	19,004	19,824	25,659	86,730
Oral contraceptive, Lofemenal	Cycle	229,637	140,857	146,178	152,627	153,664	822,963
Oral contraceptive, Ovral	Cycle	109,143	90,025	93,469	96,768	98,830	488,235
Oral contraceptive, Microvral	Cycle	5,000	7,313	12,574	13,093	13,388	51,368
Emergency oral contraceptive, Postinor-2	2 tabs	14,670	8,730	10,542	11,605	12,409	57,956
Male condom	Each	9,708,874	14,741,325	15,373,262	16,020,661	16,649,558	72,493,680
Female condom	Each	385,191	223,284	364,168	402,015	419,803	1,794,461
Implant, Jadelle	Each	0	0	3,097	6,121	6,554	15,772
IUCD, Copper-T	Each	0	0	0	0	0	0

Table 1. Requirements, by Quantity and Year Public Sector Demographic Method

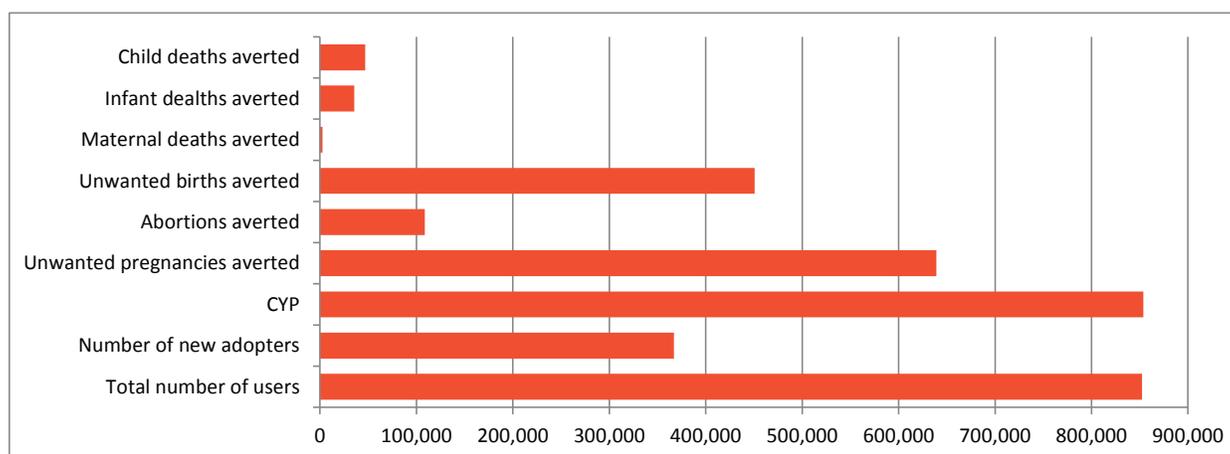


Figure 1. Estimated impacts of the implementation of FP program in Swaziland 2014-2018

COUNTRIES

ANGOLA

FUNDING FOR FY14

\$600,000 PMI

\$520,000 PEPFAR

\$300,000 POP

\$500,000 Exxon-Mobil

KEY PROGRAM STRATEGIES

SIAPS is contributing to Angola's efforts to mitigate the spread of HIV and AIDS, improve malaria case management, and promote MCH/FP efforts by ensuring the availability and appropriate management and use of health commodities related to these health issues.

Background

In Angola, weaknesses in the supply chain system contribute significantly to poor availability of medicines. Many of the essential structural components of a functional regulatory system are in place, but the available structures, plans, and tools are not operationalized. There was no approved essential medicines list to guide procurement and no written policies or procedures at the central procurement agency for procuring and managing stock supply. There are gaps in the logistics management information system (LMIS) at all levels of the supply chain, and strategic direction and human capacity development are needed to optimize the use of information in decision making.

Partners

SIAPS' primary counterparts in Angola are the National Directorate of Medicines and Equipment (DNME); the national public health programs, namely, the National Institute against HIV and AIDS (INLS) and the National Malaria Program (NMCP); the Central Procurement Agency for Medicines and Medical Supplies (CECOMA); all provincial health directorates, with a focus on Luanda, Huambo, Huila, Cunene, and Bié; the National Public Health Directorate (DNISP); and the National Essential Medicines Program (PNME).

Progress up to Year 2

SIAPS and its predecessor programs, SPS and RPM Plus, have been working with the Angolan MOH to develop and implement strategies to strengthen pharmaceutical management (PM) for malaria, HIV and AIDS, and RH/FP at the central and lower levels of the health care delivery system since 2005. This collaboration has improved the availability of important medications by supporting the receipt and distribution of USAID-funded commodities from the national to the provincial level; developing and implementing training, supportive supervision tools, and approaches to build the capacity of medical warehouse and health facility staff to better manage medicines and health commodities; and implementing strategic monitoring tools to inform decisions on procurement and supply chain management.

In FY13, SIAPS conducted two assessments to identify gaps and challenges related to the pharmaceutical regulatory and supply chain systems in Angola. In response to these assessments, SIAPS helped revive and strengthen the Inter-Agency Coordination Committee for Municipal Revitalization (ICC/R) Sub-Commission for logistics, procurement, and operations to provide DNME with a framework for discussions and coordination of all stakeholders in the public supply chain sector. Consequently, the sub-committee helped design and implement technical support for CECOMA to address immediate and mid-term recommendations from the assessment. In addition, the program initiated tailored technical assistance to the provincial health directorates of Huambo and Luanda to conduct PM trainings at the provincial level; validate the national integrated supervision tool; improve the use of information in decision making for malaria, HIV and AIDS, and RH/FP PM;

and improve the capacity of INLS, NMCP, and CECOMA to collect data and do analysis for forecasting their health commodities.

Key Achievements in Year 3

During year 3, SIAPS/Angola made significant achievements toward ensuring the availability and appropriate management and use of health commodities:

- » **Pre-service training:** SIAPS continues to enhance the pharmaceutical capacity of local institutions and individuals by working with a school of pharmaceutical sciences to implement pre-service PM training for bachelor of pharmacy final-year students. In addition, SIAPS supported MoH in developing and delivering an advanced training course in PM to final-year pharmacy students. The course content included the PM cycle as well as pharmacovigilance, quality assurance, and pharmaceutical policies, laws, and regulations.
- » **In-service training and supervision:** In an effort to increase the availability of necessary health commodities for HIV and AIDS, MCH/FP, and malaria case management, SIAPS staff adapted and translated quantification training material on forecasting and supply planning to the Angolan context and trained key players from various MoH programs, hospitals, and provincial health directorates. These participants drafted the TORs for national and multi-institutional quantification technical working groups to take over and harmonize national forecasting and supply planning.
- » **Situational analysis:** Under the coordination of DNME and NMCP, SIAPS facilitated a situational analysis of PM in four focus provinces. Findings and recommendations were presented to provincial and municipal teams who incorporated them into their annual action plans. SIAPS organized a training of trainers in PM with a focus on malaria case management and antimalarial

Strengthening Supply Management in the CECOMA Warehouse

SIAPS worked with CECOMA to finalize and implement 14 SOPs for strengthening warehousing and distribution management systems. Warehouse management transitioned from a product lines-based structure to a function-based management structure, which will be replicated in regional and provincial warehouses. Improvements included:

- A product coding system
- New warehouse job descriptions and job aids
- Appropriate dashboards, key performance indicator metrics, benchmarks, and other guiding documents
- A new pallet numbering system
- A new warehouse management spreadsheet
- Transport option guidelines

All of these inputs allowed for the development of a stock location spreadsheet designed to simplify location of specific products within the warehouse and provide an indication of the number of days remaining before expiry. CECOMA management is organizing weekly technical meetings to monitor the selected key performance indicators, identify bottlenecks, and suggest solutions for improvements.

products for 128 provincial and municipal staff during which they learned to conduct supportive supervisions and tailored training to health facility staff.

- » **Data utilization:** To increase the use of real consumption data in quantifications for determining health facility needs, SIAPS supported the INLS in the revision of monthly reporting and request forms. The INLS took ownership of the new system, providing final inputs to the forms and organizing internal training for staff. Information contained in the revised forms is being incorporated into the INLS electronic patient management system. Currently, the new reporting forms are being implemented in 6 of 18 provinces. SIAPS also collaborated with INLS and Hospital Esperança in an analysis of the hospital’s routinely collected patient management data for the previous 12 months, providing the hospital team with a mechanism to effectively utilize that data for decision making, especially aiming to minimize the risk of ARV stock-outs and increased drug resistance. SIAPS also implemented quarterly strategic tools to monitor procurement and stock levels of antimalarial and HIV and AIDS products, and findings from the end use verification surveys were used to advocate for improved availability and use of essential medicines.
- » **Strategic planning:** SIAPS assisted the DNME to conduct a comprehensive review of Angola’s national pharmaceutical strategic plan (2010–2015). SIAPS provided technical assistance to map progress made in implementing planned activities and achieving targets for the performance indicators, ascertain constraints to progress, and identify priority activities that can be addressed in the plan’s final year. An important component of this activity was realigning the priorities set out in the existing pharmaceutical strategic plan with the long-term national health sector development plan (2012–2025). With assistance from SIAPS, the task force conducted document reviews and key informant and focus group interviews and then synthesized and presented the findings to the DNME. The DNME used the findings to develop its 2014–2015 work plan, which includes the establishment of a national regulatory body for medicines and medical products.

Evidence of Success

	2013	2014
Number of PM guidelines, lists, and SOPs developed (or updated) and submitted for adoption	0	14
Total number of trainees in PM	0	211
Health facilities that completed and submitted an LMIS	69%	90%

BANGLADESH

Background

Bangladesh has made great strides forward in supply management for health commodities over the past few decades, yet remaining issues in logistics and procurement pose challenges for key directorates' ability to effectively support health and population program implementation. While stock-outs of key commodities have decreased at the national level, much work needs to be done to strengthen the system to ensure an uninterrupted supply of quality and safe commodities flows to service delivery points (SDPs). Regulatory and medicine safety systems, including medicine registration and pharmacovigilance, do not yet meet the international standards necessary to protect public health.

Partners

The primary SIAPS counterparts in Bangladesh are the Ministry of Health and Family Welfare (MOHFW) and its key directorates: the Directorate-General of Family Planning (DGFP), the Directorate-General of Health Services (DGHS), and the Directorate-General of Drug Administration (DGDA), as well as the National TB Control Program (NTP), the Central Medical Store Depot (CMSD) and the Procurement and Logistics Management Cell (PLMC).

Progress up to Year 2

In a key step towards procurement reform, SIAPS assisted the MOHFW in establishing a new Procurement and Logistics Management Cell (PLMC). Following the success of the SIAPS predecessor program, SPS, in improving the DGFP's procurement management systems for RH commodities and the development of the Supply Chain Information Portal (SCIP), SIAPS expanded support to the MOHFW and DGHS, with its 32 line directorates. The SCIP's direct links to the Upazila Information Management System (UIMS) has been successful in putting real-time data on the availability of RH commodities at the fingertips of decision makers at all levels. The UIMS also enables sub-district family planning store staff to monitor commodity stocks and field reporting, generate a supply plan, and automatically generate vouchers and reports. SIAPS assisted the DGFP to extend the UIMS to all 488 upazilas, or sub-districts. In addition, the Supply Chain Management Portal (SCMP), as the central repository of all procurement and supply chain information within the MOHFW, has greatly improved the procurement system by electronically integrating 32 annual procurement plans and providing transparent information on the status of procurement packages. Additionally, collaborative work between SIAPS and DGDA resulted in a solid foundation for revamping the regulatory system, with a focus on the drug registration process, as well as the launch of a national pharmacovigilance system.

Key Achievements in Year 3

During Year 3, SIAPS/Bangladesh has had significant achievements in strengthening the capacity of key stakeholders to improve commodity management and regulatory systems aimed at ensuring continuous availability of quality commodities:

FUNDING FOR FY14

\$1,700,000 POP

\$700,000 MCH

\$700,000 TB

KEY PROGRAM STRATEGIES

SIAPS assists key directorates of the MOHFW by strengthening the ability of policymakers, health care providers and institutions to improve commodity management and regulatory systems.

SIAPS emphasizes governance, procurement, institutional capacity-building and other system-strengthening initiatives aimed at ensuring continuous availability of quality goods required to support health care delivery, and the timely availability of reliable data to support evidence-based decision-making.

- » **Policy and Contracts:** To improve commodity management, the first Framework Agreement tender document for use in Bangladesh was approved by the MOHFW and the World Bank. These agreements improve procurement efficiency by pre-authorizing vendors and enabling multi-year agreements that allow for staggered delivery schedules. SIAPS also facilitated the development and institutionalization of the MOHFW Procurement Operations Manual to promote efficient and standardized procurement processes.

Procurement Improvement

DGHS used the new Framework Agreement to procure cholera saline by using SIAPS-developed model tender documents that extend the agreement from one to two years and allow for staggered delivery of products.

Since the inception of PLMC, the new central procurement coordinating body within the MOHFW, procurement efficiency has improved considerably: DGFP procurement lead-time has decreased from 78 weeks in 2013 to 44 weeks in 2014. To encourage this trend, SIAPS successfully advocated in favor of transforming the PLMC into a permanent structure within the MOHFW.

- » **Sustainability:** The September 2014 mid-term review of the Health, Population, and Nutrition Sector Development Program (HPNSDP) recommended that the MOHFW is ready to take over the SCMP as a key component of health systems strengthening. SIAPS has been working with the MOHFW to develop a transfer and sustainability plan.
- » **Stock Tracking:** The 2011 Bangladesh Health Facility Survey found that there are sporadic stock-outs at DGFP SDPs. To track stocks status at the service delivery level, and help ensure that a continuous supply of commodities is available, SIAPS developed a (SDP) dashboard module for the portal. SIAPS worked with partners to pilot the intervention at 20 sub-districts across Bangladesh.
- » **Efficient Use of Storage Space:** To accelerate the condemnation process for obsolete and or unusable items at all DGFP and DGHS health facilities, the PLMC issued several notifications to decentralize the process and SIAPS facilitated several divisional workshops under leadership of PLMC. Subsequently, a substantial number of DGFP warehouses including the central warehouse de-junked their obsolete/unusable items freeing up more than 15,000 sq. ft. of storage space necessary for implementing good warehousing practices.
- » **Equipment Tracking:** The process of standardizing medical equipment throughout the system highlighted the need to focus on equipment maintenance and repair. SIAPS incorporated a new module into the MOHFW's SCMP to track the status of equipment in all health facilities, particularly costly and life-saving equipment.
- » **Forecasting and Cost Savings:** SIAPS participated in the Global Fund's TB joint monitoring mission and helped carry out team recommendations on stock, storage, procurement, and forecasting of TB drugs. The NTP and partners have adopted QuanTB as an early warning system for the availability of TB commodities. Through QuanTB supply planning from May to June, the NTP, SIAPS and key stakeholders identified the need to procure first-

Standardized Equipment Requirements

To standardize equipment, SIAPS worked with the PMLC and MOHFW to develop lists of essential equipment for three levels of hospitals, specifications, as well as a pricing guide. The pricing guide will also help the MOHFW develop realistic budgets for needed equipment.

line medicines for an additional 1,056 clients. The exercise also highlighted the need to cancel the purchase of seven expensive second-line medicines and reallocate a shipment of nine second-line medicines to another country, resulting in savings of over one million dollars (\$1,050,183).

- » **Electronic System for TB Case Management:** SIAPS eTB Manager is functioning in 210 sites across Bangladesh. SIAPS is working with the NTP and key partners to ensure the quality of data in the system.
- » **Pharmacovigilance:** SIAPS is supporting DGDA to build a national pharmacovigilance program—a major milestone in the country’s public health system. The Adverse Drug Reaction Monitoring Cell was named as the National Drug Monitoring Center in Bangladesh. SIAPS worked with DGDA to develop the guidelines for the program. SIAPS collaborated with MOHFW to help DGDA increase reporting of adverse drug reactions and build DGDA’s capacity to analyze these reports.
- » **Pharmaceutical Registration and Licensing:** SIAPS assisted DGDA in making significant progress in strengthening its medicine regulatory functions. SIAPS helped DGDA officials adapt a standardized medicine registration application and review, known as the Common Technical Document Guidelines. These guidelines help DGDA guide pharmaceutical manufacturers to submit product applications consistent with international standards. The guidelines are also used for the review of applications and to steer further adaptations of Pharmadex, the web-based, integrated regulatory information management system created by SIAPS that is currently being customized for use in Bangladesh.
- » **Medicine Quality:** To improve efficiency and transparency in post-marketing surveillance, SIAPS helped DGDA transform its website into a web portal that enables DGDA field officers to provide real-time data on the quality of pharmaceuticals during site inspections. The portal is hosted on the DGDA server and a content management team was established at the DGDA to provide full maintenance.

Bangladesh is now an associate member of the WHO Uppsala International Drug Monitoring Center

Evidence of Success

	2013	2014
Direct upload of logistics data through UMIS to DGFP/LMIS	74%	93%
Data quality in eTB Manager	58%	76%
DGFP procurement lead time	78 weeks	44 weeks
Health professionals trained on pharmaceutical management	2,745 (330 female)	5,285 (730 female)
Stock-outs of RH tracer commodities at Upazila family planning stores	0.61%	0.63%

FUNDING FOR FY14

\$1,225,000 PMI

KEY PROGRAM STRATEGIES

SIAPS will contribute to the main objectives highlighted in the strategic plan to increase access to malaria diagnostic and treatment services thereby significantly reducing mortality due to malaria. In doing so, SIAPS will provide technical assistance to the PNILP to implement successful interventions towards strengthening key institutions in reducing mortality and morbidity due to malaria through strong case management and availability of malaria commodities.

Background

Malaria is a major health problem in Burundi; it is responsible for over a third of the country's mortality among children under five. The Programme National Intégré de Lutte contre le Paludisme (PNILP, National Malaria Control Program) malaria control strategy includes prevention of malaria through the use of LLINs and IRS, improvement in accessibility to effective antimalarial medicines, and early detection and control of epidemics. Despite progress, there are still weaknesses in the country's pharmaceutical management system, poor access to health services, and a lack of accurate laboratory diagnostic capabilities.

Partners

SIAPS primary counterparts in Burundi are the PNILP, the Directorate of Pharmacies, Medicines, and Laboratories (DPML), the Centrale d'Achat des Médicaments Essentiels du Burundi (CAMEBU, Burundi's essential drug purchasing agency) and the Districts. In addition SIAPS Burundi has strong partnerships with the Global Fund, UNICEF, and the Supply Chain Management Systems (SCMS) Project.

Progress up to Year 2

SIAPS Burundi worked closely with PNILP and WHO to develop the 2013–2017 strategic plan, which all Roll-Back Malaria partners are supporting. SIAPS supported the MoH to adopt community Integrated Management of Childhood Illnesses (c-IMCI) and intermittent preventive treatment of malaria during pregnancy (IPTp) as priority interventions. Prior to this, Burundi did not have a policy on c-IMCI or IPTp, which left many pregnant women and children vulnerable. Subsequently, SIAPS worked closely with World Relief to integrate management of diarrhea into existing tools and training modules in preparation for integrated case management of malaria and diarrhea at the community level. In addition, SIAPS led the first national quantification and forecasting for malaria commodities and quantification for ACTs and RDTs. SIAPS Burundi plays a key role in the continued support to the malaria community case management pilot project (PECADOM) in two districts. Data from this project has demonstrated that 86% of children under five that presented with a fever were received by community health workers (CHWs) within 24 hours, 98% were tested with RDTs, and 97% of those that tested positive were treated with ACTs. This data is available because of the SIAPS-supported PNILP database capturing information on CHWs.

Increasing Data Utilization

SIAPS supports the development and implementation of systems for the analysis of data so that health professionals can effectively plan and monitor service delivery. Burundi has been able to analyze monthly requisitions from all 45 districts and provide feedback. As a result of supervisory and coaching visits by the SIAPS team, reporting timeliness has been maintained at over 90% during this project year.

Key Achievements in Year 3

- » **Policies and Procedures:** To increase the management capacity of the PNILP and the DPML, SIAPS continued to strengthen their organizational structures by assisting with developing SOP manuals for financial, administrative, and HR management, and an SOP for appointing staff to new positions. To improve the control of commodities provided to the health facilities and community, SIAPS has supported the PNILP in their effort to become an institution with autonomous management: SIAPS contributed to the decree law, prepared by a PNILP lawyer, which was submitted to the MoH for review.
- » **Malaria Case Management:** SIAPS worked with the PNILP to develop job aids and informational material for promoting good dispensing practices, encouraging compliance of prescriptions to malaria standard treatment guidelines (STGs), and increasing patient adherence to medication.
- » **Community Case Management:** SIAPS support to malaria community case management (CCM) continues to be successful. There are currently 402 CHWs fully trained and equipped to test and treat children under five presenting with fever. In coordination with PNILP, SIAPS provides supportive supervision and coaching to the CHWs with a focus on compliance with malaria case management steps, recognizing danger signs, use of RDTs, and use of the CCM algorithm. SIAPS has seen improvements in malaria prevention counseling, use of RDTs and dispensing practices among the CHWs. Cases attended by CHWs in two districts have increased by at least 30% and the mortality rate of children under five who attended the CHW services remain at almost zero.
- » **In-Service Training and Supervision:** To ensure proper service provision, SIAPS, in collaboration with PNILP, trained 422 health care providers on the new malaria STGs. The Global Fund trained an additional 232.
- » **IPTp:** SIAPS has continually advocated for an IPTp policy in Burundi as it is a proven intervention in reducing maternal malaria episodes and neonatal mortality. The MoH has finally taken a positive step in implementing this policy. SIAPS supported the PNILP and PNSR to define a roadmap for introducing the IPTp policy to Burundi, which included the development of implementation guidelines and training modules. The IPTp policy has been validated and submitted to the Government for final signature, adoption, and implementation. SIAPS coordinated with PNILP and UNICEF in the quantification and procurement of sulfadoxine-pyrimethamine.

Increasing Efficiency in Supply Chain

The MoH central warehouse (CAMEBU) has become the main logistics management office with key representatives from MoH vertical programs: malaria, HIV and AIDS and reproductive health. The monthly requisition process was harmonized for all pharmaceuticals, a major benchmark in increasing efficiency.

PNILP as the Global Fund Principle Recipient

The Government of Burundi selected the PNILP because of its increased management capacity as the proposed Global Fund Principle Recipient for the upcoming malaria concept note under the new funding mechanism. SIAPS continues to support the PNILP and all country partners in preparing the concept note application.

Evidence of Success

	2013	2014
# of national pharmaceutical policies developed or updated	1	4
# of persons trained in pharmaceutical management	1,395	2,152
# of staff that acquired new tasks as a result of task shifting	0	402
# of children under 5 with fever and positive RDT seen by CHW within 24 hours of onset of fever and treated with ACT	4,497	39,197
% of children under 5 with fever and positive RDT seen by CHW within 24 hours of onset of fever and treated with ACT	90%	90%

CAMEROON

FUNDING FOR FY14

\$1,200,000 PEPFAR

KEY PROGRAM STRATEGIES

To ensure a comprehensive HIV and AIDS supply chain management system, SIAPS implements capacity-building strategies that address the users, managers, and key stakeholders in the system. SIAPS considers supply chain management to include an understanding of what is needed to treat patients, to align needs with available resources, and to determine gaps, key players, and expected outcomes. In addition, SIAPS addresses organizational challenges, which will help achieve an effective supply chain of HIV and AIDS commodities.

Background

The health care system in Cameroon has been characterized by low access to HIV and AIDS commodities, primarily due to insufficient funding for procurement. This has resulted in frequent stock-outs at all levels of the supply chain. The efficient functioning of the public pharmaceutical management system is critical to the success of the Ministry of Public Health (MoPH) plans for the scale-up of HIV and AIDS activities. Public pharmaceutical activities in Cameroon are coordinated around the Central Medical Stores (CENAME), the Regional Medical Stores (CAPRs), and public health facility pharmacies. All supplies and drugs are procured and distributed through CENAME, which is challenged by inadequate staffing, coordination, and management of commodities. This results in frequent stock-outs and long restocking times at point-of-care sites.

Partners

SIAPS works closely with the MoPH Directorate of Pharmacy, Medicines, and Laboratory (DPML), the National Commission to Fight AIDS (CNLS), the Central Medical Stores (CENAME), and the Regional Medical Stores (CAPRs) across the country.

Progress up to Year 2

SIAPS focused its first year of implementation on conducting assessments to identify gaps and weaknesses in management of HIV and AIDS commodities, and developing consensus-based strategic and action plans to systematically improve the management and availability of HIV and AIDS commodities. SIAPS Year 2 focused on implementing specific measures identified in Year 1 to improve the management of HIV and AIDS commodities at various levels of the health system. SIAPS has strengthened the capacity of key stakeholders to improve the management of HIV and AIDS commodities at the health facility level, and a variety of capacity-building tools were developed for both the DPML and CNLS in the first two years of SIAPS. These included a pharmaceutical supplies management (PSM) action plan, standard operating procedures (SOPs), and the forecasting and distribution plans for HIV and AIDS commodities for 2013-2017 that were developed with on-site data verification of patient and stock data provided for the quantification. SIAPS's support enabled the Government of Cameroon to meet Global Fund (GF) conditions precedent and secure \$33 million in Round 10 Phase 1 disbursement and \$20 million as an advance through the GF new funding model. Additionally, 17 trainers were trained on the HIV and AIDS commodity reporting tools and implemented roll-out trainings to over 250 data clerks and pharmacy attendants at the health facility level. SIAPS also supported the reorganization and upgrading of the CAPRs and three CENAME warehouses in the six USAID focus regions: Centre, Littoral, Northwest, Southwest, East and Adamawa.

Key Achievements in Year 3

During Year 3, SIAPS/Cameroon has made significant progress in capacity-building and supply chain management with regard to HIV and AIDS

commodities:

- » **In-Service Training and Supervision:** SIAPS is working with targeted CAPRs and antiretroviral treatment (ART) health facilities to improve their internal management and storage capacity to ensure that high-quality commodities are available at distribution points and to strengthen their coordination with CENAME. SIAPS revised the supervision guide to focus on two levels of service delivery: the CAPRs and the health facilities. The supervision guide strengthens monitoring and supervision at the health facility level to improve the management and availability of HIV and AIDS commodities, particularly ARVs.
- » **Data Quality and Access:** SIAPS has helped improve data quality and ensure that data is being disseminated to the appropriate stakeholders through proper reporting channels. In collaboration with CNLS, SIAPS provided supervision and mentoring to 34 ART health facilities. Consequently, completion and submission of facility-level logistics management information system (LMIS) reports increased from 35% to 62%.
- » **Supply Planning:** SIAPS supported the CNLS to establish a coordinated mechanism for quantification, procurement, and distribution of HIV and AIDS commodities; this involved the formalization of the HIV and AIDS commodities quantification subcommittee. SIAPS trained 39 people in forecasting and supply planning of antiretrovirals (ARVs), opportunistic infections medicines (OIs), rapid test kits (RTKs) and laboratory commodities as well as in the use of various tools (Quantimed, ForLAB, and PipeLine). Two forecasting exercises for 2014-2017 were conducted for ARVs, OIs, labs commodities and RTKs and supply plans were developed.

Evidence of Success

	Jan – Mar 2014	Apr – Jul 2014
ART facilities completing and submitting their LMIS reports (n=34)	35%	62%
ART facilities using country-appropriate tools to report on stock and patient data	25%	56%
ART facilities that have stock report corresponding with physical counts for a set indicators drugs	13%	75%
ART facilities that keep complete patient information	15%	71%

DOMINICAN REPUBLIC

FUNDING FOR FY14

\$950,000 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS works with DR counterparts to increase the availability of critical medicines and diagnostic materials for HIV and AIDS and TB through the implementation of the different elements of the unified national pharmaceutical system (SUGEMI), and to transfer capacities and technologies to national counterparts to effectively and efficiently operate the integrated system.

Background

Despite a continuous increase in the number of people living with HIV and AIDS in the Dominican Republic (DR), there is a documented lack of access to diagnosis and treatment in public health facilities. Stock-outs of ARVs and diagnostic commodities in health facilities are the most important cause of this lack of access. A fragmented and disorganized pharmaceutical system is the major factor in the recognized problems of forecasting, procurement, distribution, and use of ARVs and other medicines and health commodities. As a way to address these issues, the Ministry of Health (MOH) moved beyond disease-specific programs and is implementing a unified national pharmaceutical management system, known as Sistema Único de Gestión de Medicamentos e Insumos (SUGEMI). Launched in 2008, SUGEMI is becoming a more efficient and sustainable strategy for improving pharmaceutical management across disease and health areas.

Partners

SIAPS' primary counterpart is the MOH, whom it is supporting in the implementation of SUGEMI. In addition, SIAPS works with the Program of Essential Medicines/Center for Logistical Support (PROMESE/CAL), MOH Hospitals, and the Universidad Central del Este.

Progress up to Year 2

Following the success of the SIAPS predecessor program (SPS) in the initial implementation of SUGEMI, SIAPS supported MOH in integrating HIV and AIDS and TB control programs into SUGEMI, as well as explore options for integrating MOH hospital facilities into SUGEMI. SIAPS developed a certified course on pharmaceutical management and supported national-level estimations and programming exercises for commodity procurement, including laboratory reagents. SIAPS also conducted a financial analysis and helped identify options that led to the mobilization of \$3.8 million to close a financial gap for procuring ARVs.

Key Achievements in Year 3

During year 3, SIAPS/Dominican Republic has had significant achievements in building the capacity of the national counterparts and increasing the availability of critical medicines and diagnostics for HIV and AIDS and TB:

- » **Analyzing and Tracking Costs:** SIAPS continued to provide support for the implementation of the integrated pharmaceutical management information system (PMIS) and SUGEMI, documenting the increasing incidence of stock outs (partly due to inadequate financing). As a result, SIAPS has collected data to determine the extent of the financial gap, so as to inform essential medicines procurement.

- » **Data Utilization for Decision Making:** Virtually all health facilities are using the SUGEMI PMIS to periodically report on availability and consumption of medicines (see table below).
- » **Tools for Capacity Building:** In support of an effective and efficient national system, SIAPS finalized the SOPs for integrating hospitals and laboratories into SUGEMI and has rolled out the training for MOH personnel. Technical assistance is being provided to 21 hospitals to facilitate the integration.
- » **In-Service Training and Supervision:** In an effort to build capacity among national health care providers so that they can effectively and efficiently operate SUGEMI, SIAPS developed and finalized training modules for the second certified course (diploma) on pharmaceutical management. The course, conducted by the Universidad Central del Este, started in November 2013. To date, more than 60 students have completed the course, with SIAPS assistance.

SIAPS DR supported the revision of the high cost medicines list to be included in the programming exercise for 2015 procurement.

Resulting savings will be approximately 21 million US dollars.

Evidence of Success

	2013	2014
% of health facilities that completed and submitted a logistics management information system report for the most recent reporting period	75%	80%
% availability of medicines in health care facilities	70%	95%

DEMOCRATIC REPUBLIC OF THE CONGO

Background

FUNDING FOR FY14

\$350,000 FP/RH

\$750,000 MNCH

\$1,250,000 PMI

\$650,000 TB

\$500,000 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS is reinforcing leadership and governance in the health sector through the development and implementation of a strategic, legal, and regulatory framework as well as improving the coordination of key stakeholders to support and improve commodity management and availability.

The Democratic Republic of Congo (DRC) is undergoing a major health sector reform with the goal of improving the primary health care system through human resource development, strengthening the national pharmaceutical system, reforming the health care finance system, strengthening leadership and governance of the health system, and improving collaboration within the health and other sectors. The DRC National Health Development Plan for 2011-2015 describes medicines as an essential link in the development of the health system. It acknowledges that, in the DRC, there exists a problem with the definition of national medicines due to fragmented procurement and distribution of functions. As a result, there is little availability of medicines in health facilities and a lack of economic and geographic access due to multiple taxes levied upon medicines, which are considered commercial products and not a social good. It is currently acknowledged that the medicines that are circulating in the country are of low quality and pose a problem for the health of the population due to the lack of a rigorous system for quality assurance and for rational medicine management by providers and patients. In addition, most medicines sold in the private, commercial sector are not registered with the National Drug Regulatory Authority (NDRA).

Partners

SIAPS is working with MOH's Central Level Directorate of Pharmacy and Medicines (DPM), the National Federation of Central Essential Medical Stores (FEDECAME), the National Control Programs (malaria, HIV and AIDS, and TB, PNLP, PNLS, and PNLT), National RH Program (PNSR), and the NDRA. In addition, at the regional level, SIAPS is working with the regional distribution centers (CDRs) and depots to ensure timely medicines delivery to health facilities.

Progress up to Year 2

SIAPS provided assistance to five depots, which were subsequently accredited by the National Pharmaceutical Supply System (SNAME) to function as CDRs prior to being registered as such by MOH. These warehouses were approved to store and manage USAID-purchased medicines and distribute them to USAID-supported health zones. SIAPS supported the establishment of a CDR in Sud Kivu, which was the only province without one. Because the provincial government understood the importance of having an organized and efficient distribution center, they donated the land for the CDR and worked with SIAPS to finalize the TORs and to organize the functions of the board of directors and staff of the new CDR.

SIAPS has strengthened the NDRA and the DPM to improve their drug registration procedures, increase the rate at which medicines are registered, and automate the medicine registration process. At the end of 2013, nearly 1,500 pharmaceuticals were registered, and the list of registered medicines was publicly disseminated to all provincial and health district pharmacist inspectors to assist them in monitoring medicines circulating on local markets. Transparency and credibility of the registration process has improved because the NDRA extended

membership on the registration committee to individuals from universities and professional societies. The NDRA and DPM have taken complete ownership of the registration process: MOH now includes regular funding in its budget for quarterly drug registration meetings, with SIAPS providing technical assistance solely at the NDRA's request.

Key Achievements in Year 3

During year 3, SIAPS/DRC made significant achievements in improving the availability and management of health commodities by improving the coordination of key stakeholders and reinforcing their leadership and governance:

- » **Medicines registration:** Drug registration continues to increase, with 1,999 medicines currently in the NDRA database. Over 71% of the drugs on the national essential medicines list (NEML) are now registered. With SIAPS support, the time required to register a product has been reduced from 82 days to 62 days.
- » **Availability of quality products:** In support of universal access to maternal, newborn, and child health (MNCH) commodities, SIAPS advocated for the inclusion of key life-saving MNCH commodities during revision of the NEML. The new NEML, which has been approved and adopted by MOH, includes misopristol to prevent and treat post-partum hemorrhage, chlorhexidine 7.1% for umbilical cord care, and artesunate suppositories for severe malaria. Following adoption of the new NEML, MOH established a 16-member Chlorhexidine Committee made up of MOH staff, implementing partners, and two hospitals in Kinshasa. With assistance from SIAPS, this committee developed a strategy and a roadmap to introduce chlorhexidine to health facilities.
- » **Supply management:** SIAPS, under the leadership of MOH, is the main coordinator of monthly supply chain meetings for all partners involved in the national malaria program. Meetings focus on analyzing the stock

Improving the Preservation of Medicines Through Coaching

The SIAPS Program in DRC supported the Kolwezi health district through the Central Warehouse for Distribution of Essential Medicines in Kolwezi (CDMEK) to improve storage conditions to ensure better medicine quality. This support consisted of building the capacities of the warehouse management team through regular coaching on the minimum conditions for storing medicines, based on standards for best storage practices; a budget line item was also created to cover the operating costs of storage services provided by the Integrated Health Project (IHP). To overcome the lack of financial resources, the CDMEK managers used funds generated by medicine storage and management fees charged to IHP for USAID medicines transiting through this warehouse. The money was used to upgrade warehouse conditions, particularly refreshing and plastering walls, repairing the ceiling, rewiring electrical circuits, adding shelves and pallets, and providing the warehouse with a recording thermometer and monitoring sheets. This work improved the temperature, hygiene, and humidity conditions inside the CDMEK warehouse, thereby improving the quality of medicines provided to the community.

“With our own resources and technical support from the Katanga SIAPS provincial representative, we have improved conditions for medicine storage and preservation; this has also enabled us to recruit three new staff members for effective management of the warehouse, for which we are grateful,” stated Tridon Ngoy, CDMEK Director.

and consumption levels in the USAID-supported health zones to avoid overstocking, expiry, and stock outs. As a result of this increased coordination among stakeholders, nearly 580,000 malaria RDTs that were due to expire in January 2014 were redeployed to other health zones in need.

- » **Supportive supervision:** SIAPS aims to improve the capacity of partners and health districts to monitor and supervise health facilities. In coordination with numerous supportive supervision visits were provided to health facilities in four priority provinces. Health workers were coached on understanding and calculating average monthly consumption, available stock, delivery time, and months-of-stock status for 17 USAID tracer medicines. During these supervisions, an overstock of family planning commodities (female condoms, IUDs, Jadelle, Lo-Femenal, Microlut, Ovrette) was identified, resulting in the commodities being reallocated to non-USAID-supported facilities that were in need.

Improved Monitoring of Patients and ARVs with the Electronic Dispensing Tool

In the DRC, HIV prevalence is estimated at 2.5% of the population. Medicine follow-up for a patient with HIV and AIDS is rarely kept up to date, and when it is, the treatment provider cannot easily access the data, making it difficult to monitor patient care and collect monitoring data that are essential for the decision making required for case management. The General Referral Hospital of Kinshasa is no exception to this challenge.

To respond to this weakness in data management, SIAPS is working with MOH to implement a pilot project to test the Electronic Dispensing Tool (EDT) in three ARV treatment sites: the General Referral Hospital of Kinshasa, the Kokolo Military Hospital, and the Kingasani Hospital. Staff dispensing ARV medicines were trained on using EDT and received an information technology kit from the SIAPS Program, which provides ongoing technical support to ensure better handling of the tool.

After one year of using the tool, the General Referral Hospital of Kinshasa has seen progress in managing ARVs and patient follow-up because of the EDT, as reflected in this statement by pharmacist Sylvain Mbwayama:

The EDT enables us to correctly manage ARV stock inventories, the history of ARV dispensing, record-keeping for people living with HIV, and monitoring of patients lost to follow-up, all resulting in saving time on writing our reports. We can monitor a patient's basic profile and his or her drug history and produce the information needed to calculate medicine needs and to make effective management decisions. Certainly, we had some problems handling the IT tool at first, but now we are making progress, and the work is done with satisfaction at the General Reference Hospital of Kinshasa. We thank SIAPS.

Evidence of Success

	Baseline	2014
# of drugs registered	200	1999
# of days to register drug	82	62
NEML medications registered	-	71.5%
Stock records that correspond to the physical counts for a set of tracer medicines	0%	64%
Health zones that are receiving AS/AQ from the regional warehouses (n=138 targeted by PMI)	35%	88%

ETHIOPIA

Background

The major health problems of Ethiopia remain preventable communicable diseases and nutritional disorders. Despite significant progress in improving the health status of the population in the last 15 years, Ethiopia's people still face a high rate of morbidity and mortality. Ethiopia has been undergoing a major health sector reform, and ensuring a regular and adequate supply of pharmaceuticals and their rational use is one of the core processes of that reform. Numerous improvements have been made over the years; however, the emphasis on availability has overshadowed the importance of rational medicines use and improved access to effective and quality pharmacy services. Irrational use of medicines is still widespread and is manifested by unsound prescribing by physicians and nurses, poor pharmacy dispensing practices, and inappropriate use of medicines by clients. The lack of adherence to treatment guidelines for prescribing medicines (including antiretroviral therapy and malaria) has always been a challenge, resulting in wasted scarce resources as well as poor treatment outcomes for patients. Pharmacy practice in health facilities and community pharmacies is product-centered rather than patient-centered, which leads to medication errors, poor knowledge of patients about their medications, and poor treatment adherence. Moreover, the absence of auditing practices and lack of transparent and auditable systems for managing medicines transactions and services has also resulted in stock outs and, at the same time, wastage. Standards for pharmaceutical services, which are embedded with accountability to ensure ownership by health facilities, are now available but have not been implemented.

Partners

SIAPS benefits from a strong and successful partnership with the Federal Ministry of Health (FMOH), the Food, Medicines, and Health Care Administration and Control Authority (FMHACA), the Pharmaceutical Fund and Supply Agency (PFSA), regional health bureaus (RHBs), health facilities, university schools of pharmacy, professional associations, and other implementing partners including USAID-funded and MSH-managed projects. SIAPS collaboration with stakeholders has always been based on mutual respect, shared vision, and goals. These partnerships have contributed to the ownership and sustainability of key interventions. In some of the innovative interventions like APTS, SIAPS forged effective partnerships between FMOH/RHBs and institutions beyond the health sector, including the Finance, Audit, and Justice Bureaus, which have contributed to internalizing challenges, legalizing actions, and building the required level of confidence to make timely decisions at different levels of the health system.

Progress up to Year 2

SIAPS, in collaboration with Ethiopian stakeholders, registered substantial improvements in pharmacy services during the previous two years. With support from SIAPS, the standards for health facilities have been completed and approved by the standards authority, which enhances ownership of best practices through regulatory interventions such as inspections and licensing; formularies

FUNDING FOR FY14

\$1,354,357 PEPFAR

\$750,000 PMI

KEY PROGRAM STRATEGIES

SIAPS supports stakeholders to produce, disseminate, and promote the use of guidelines, standards, directives, and SOPs to strengthen pharmaceutical good governance, empower government stakeholders to use pharmaceutical data for decision-making, and support the implementation of effective and efficient systems for managing pharmaceutical transactions and services, thereby optimizing the use of the medicines budget allocated to health-facility pharmacies. SIAPS works with stakeholders to scale up innovative ideas and systems to improve services and increase access to essential medicines and quality service.

and guidelines have been revised and updated; a transparent and auditable pharmaceutical transactions and services (APTS) system has been implemented at 13 hospitals in the Amhara and Tigray regions; patient-oriented pharmaceutical care and clinical pharmacy services have been initiated at more than 30 hospitals; and ART-related patient uptake and information on regimen breakdown is being used to support national-level decisions on product quantification and programmatic monitoring, including adherence to treatment guidelines. The antimalarial drug stock status reports generated from the Continuous Result Monitoring System (CRMS) from 40 health facilities in the Oromia region have facilitated stock exchange and transfer between health facilities. The Oromia RHB has developed guidelines for redistribution of excess and near-expiry antimalarial drugs between public health facilities.

Key Achievements in Year 3

During year 3, SIAPS/Ethiopia has had significant achievements in strengthening pharmaceutical good governance, which improves services and increases access to essential medicines:

Assessments of hospitals on their performance in implementing the Ethiopian hospital reform guidelines indicate that most of the hospitals that implemented APTS achieved more than 90% of what is expected from the standards indicated in the pharmacy chapter.

- » **Transparency and auditability:** Based on the significant success of the APTS program, which has optimized resource utilization and improved the quality of pharmacy services in a number of health facilities in the Amhara and Tigray regions, FMOH requested that SIAPS support institutionalization and scale-up at the federal level. The federal APTS regulation, which will mandate APTS in all federal and university hospitals, has been approved by H.E. the Minister of Health and the Ministry of Finance and Economic Development. In addition, Addis Ababa, Tigray, Hariri, Oromia, and the Southern Nations, Nationalities, and Peoples Regions have all drafted regulations for APTS, most of which have been approved and endorsed by the regional governments and are in the process of being enacted by the regional cabinets. To date, 30 hospitals are implementing APTS in 4 regions and 2 city administrations. Moreover, 17 federal and university hospitals have made significant progress in preparation for implementation of APTS.
- » **Automation and integration of regulatory information system:** To promote good governance, transparency, and accountability throughout the pharmaceutical sector, SIAPS has supported FMHACA to establish a health regulatory information center to provide information to clients and the public. In addition, as part of automating the key regulatory functions of FMHACA, SIAPS is working to develop a regulatory information system with an integrated central database, which increases efficiency, effectiveness, transparency, and accountability in the overall medicines, food, and healthcare regulatory functions. This system will manage product registration, licensing, and inspection functions. SIAPS convened stakeholders and set up a governance structure for the automation project, including a steering committee and a technical working group to provide stewardship and promote accountability.
- » **Improving Pharmacy Workflow:** Before implementation of APTS, pharmacy service was delivered through one or two windows with a limited number of pharmacists, creating a long queue of clients to get their

medications. In addition to the long wait time in a context where getting your medicine is uncertain, it was almost impossible to provide information about the medicines to patients because of how the pharmacy was set up and the workload of the pharmacists. After APTS training, hospital CEOs improved these conditions using their own resources. They recruited pharmacy and finance staff according to the workload and window service changed to individualized dispensing counters, ensuring patient privacy during medication use counselling. This has improved patient satisfaction significantly. For example, at Felege Hiwot Referral Hospital in Bahir Dar, patient satisfaction increased from 40 percent to 94 percent.

- » **Financing:** SIAPS has supported more than 20 health facilities in Ethiopia to conduct ABC value analysis and ABC/VEN reconciliation activities as part of its effort to optimize use of their medicines budgets. These analyses have helped hospitals prioritize their medicines budget to better address the health needs of the catchment population. For example, the findings of ABC value analysis at three hospitals in the Tigray region indicated that more than 96% of items procured in these hospitals were from their own drug list and those items taking up 70-80% of the medicines budget, which require stringent control, were identified and documented. In addition, medicine stocks that were not appropriate for the hospital were identified and transferred to other health facilities where those medicines were in demand, thereby avoiding unnecessary expiry and wastage of resources. The ABC analysis in Adwa Hospital revealed that 92% of the budget was spent on either vital or essential medicines and 8% of the budget spent on less essential medicines. Based on these findings, hospitals have designed and implemented interventions to improve rational medicines use and optimize utilization of their medicines budget. This has resulted in a decrease in medicines wastage and an increase in revenue from the sale of medicines, which provides financial leverage to hospitals to ensure access to medicines.
- » **Electronic Dispensing Tool:** SIAPS has partnered with the PFSA to support over 200 ART sites using the computer-based Electronic Dispensing Tool (EDT) and all other nationwide ART sites that are using the paper-based EDT. This system captures critical information needed to make decisions about individuals' drug regimens as well as provide information on stock inventory and aggregate patient statistics. Using the information generated by the EDT, SIAPS provided an analysis of prescription patterns that showed an irrational prescribing of d4T regimes, a common first-line drug regime for new patients initiating ART, which was contrary to recommendations of the current STGs. On the basis of this information, MOH issued an amendment guideline for phasing out d4T regimens for adults. The progress of phasing out d4T regimens was closely monitored from the EDT and, by now, it is almost complete. This information has made significant contributions to streamlining ARV procurement and transitioning patients to new regimens thereby avoiding the risks of stock out and unnecessary expiry of ARVs. FMOH is using the same information to monitor implementation of the new ART guidelines for the pediatric ARV treatment program.

SIAPS/Ethiopia supports the collection of patient uptake data from 657 ART sites (113 government hospitals, 518 government health centers, and 26 private and nongovernmental health facilities). A total of 306,490 patients are covered, more than 95% of all ART patients in Ethiopia.

Auditable Pharmaceutical Transactions and Services in Action

APTS interventions brought about significant changes in the way medicine sales and pharmacy services are managed in hospitals. All hospitals that are implementing APTS can now prepare and analyze monthly reports on medicine sales by category (cash, free, credit) and service (prescribing indicators, affordability, workload, etc.). Having access to this important information has enabled hospital managers to monitor revenues from medicine sales; optimize allocation and use of the medicines budget; and monitor the level of effort of pharmacists and determine the need for additional human resources. This has resulted in improved decision making, which has improved the overall performance and quality of pharmaceutical services at the hospitals. For example:

- The dispensary layout was rearranged at all APTS sites to facilitate a more efficient workflow and convenience for both patients and service providers.
- Manpower deployment at many of the hospitals has increased substantially both in quantity and mix to address documented understaffing.
- Expiry of medicines has decreased to only 2% or less, which is well below the target of the Ethiopian health sector development plan.
- Prices that patients pay have been reduced (for example, at Dessie Hospital, the average price per patient was reduced from 48 birr to 38 birr in less than a year).
- Availability of medicines has improved (for example, at Debremarkos Hospital, the availability of essential medicines increased to 100% in 2014).

» **Pharmacovigilance:** SIAPS/Ethiopia has provided critically needed technical support to FMHACA to strengthen the country's medicines safety monitoring system through the development of an overall strategy, guidelines, adverse drug event (ADE) reporting tool, individual/institutional capacity development, information management system, and communication. This has enabled FMHACA to closely monitor the safety of medicines and take regulatory actions on products that are identified as harmful. SIAPS has provided training on how to identify, prevent, and report ADEs to over 400 health professionals; provided ADE reporting forms and allergy cards; and supported the development of ADR monitoring/pharmacovigilance guidelines, frameworks, and newsletters. SIAPS has also supported the development of training manuals and incorporation of ADR monitoring/pharmacovigilance into pre-service curriculum health teaching institutions throughout the country.

Evidence of Success

	2013	2014
Establishment of Drug and Therapeutics Committees (DTCs)	440	527 health facilities with DTCs, of which 88 have developed and revised their own facility specific medicines list
Drug Information Services	47	53 health facilities have initiated drug information services
Clinical Pharmacy Services	30	40 health facilities have started providing clinical pharmacy services
APTS	13	30 health facilities in 4 regional states and 2 city administrations are implementing APTS
Number of ADR reports	192	223 reports received and entered into ADR/PV database at FMHACA

Institutionalization of Clinical Pharmacy Program

SIAPS collaborated with the Pharmaceutical Fund and Supply Agency (PFSA) and Jimma University to design and implement a practice-based, in-service training program for pharmacists. The goal of the program is to introduce pharmacists to patient-centered pharmacy services in hospitals in order to reduce medication errors, adverse events and drug interactions. SIAPS developed a package of training materials and trained about 200 pharmacists from more than 50 hospitals. In parallel, SIAPS conducted a series of advocacy and consultative meetings to create consensus among stakeholders.

After institutionalizing clinical pharmacy services at the hospitals, experts from Jimma University and SIAPS provided supportive supervision and mentoring visits to strengthen clinical services. The partners produced a guide for documenting clinical pharmacy interventions and other tools, including a patient medication profile form, a daily summary form, a monthly summary form and a chronic patient medication profile form. These tools were distributed to health facilities in partnership with the regional health bureaus to support recording, compiling and reporting clinical pharmacy services.

Following the training, pharmacists were able to initiate clinical services at more than 40 hospitals. SIAPS's advocacy work at the national and regional levels resulted in the Federal Ministry of Health and RHBs to hire the newly graduate pharmacists to further scale-up clinical services. Pharmacists are now members of multi-disciplinary medical teams that also include physicians and nurses.

- Improved trends in patient education on rational use of medicine and AMR
- Improved adherence to treatment of patients with chronic diseases
- Improved relationship between clinicians and pharmacists demonstrated by high acceptance rates (79%) of interventions recommended by pharmacists
- Increased quality care of patients in a secure and private environment
- Improved treatment outcomes as indicated in reports from 26 hospitals where pharmacist interventions resulted in improved treatment outcomes in 91% of the cases

EAST, CENTRAL, AND SOUTHERN AFRICA

FUNDING FOR FY14

\$100,000 TB

KEY PROGRAM STRATEGIES

SIAPS supports ECSA member states in addressing the recurrent TB pharmaceutical supply management issues, specifically focusing on data management and drug management through a regional approach. This will augment the ECSA-HC multi country approach addressing the TB disease burden and will yield positive health outcomes due to the synergy created by both parties.

Background

Nearly one quarter of the world's TB cases in 2013 came from the African region. The African region also reported the highest rates of cases and deaths relative to population. An estimated 480,000 people developed MDR-TB and of these, an estimated 9.6% have extensively drug-resistant tuberculosis (XDR-TB)¹. Four of the East, Central, and Southern Africa (ECSA) countries are among the 22 high TB burden countries and most of these countries have reported XDR-TB cases.

The ECSA Regional Health Community Secretariat (ECSA-HC) is an inter-governmental organization that fosters and strengthens cooperation and capacity to address the health needs of its member states. In the last decade, ECSA-HC has provided technical interventions, policy guidance, and has led coordination that helped respond to three priority diseases in the region: malaria, HIV and AIDS, and TB. ECSA countries, like any other country that is highly burdened with TB, are struggling to address the following key challenges around TB commodities management: lack of availability and poor quality of data that would support successful implementation of TB programs such as data on stock situation, patients care, and challenges; frequent stock-outs of TB commodities; and weak management information systems.

Partners

SIAPS is working through the USAID East Africa Regional Office, directly with the ECSA-HC, specifically the stakeholders in the ECSA countries: Uganda, Kenya, Lesotho, Malawi, Zambia, Zimbabwe, Swaziland, Seychelles, Mauritius, and Tanzania.

Key Achievements in Year 3

The SIAPS/ECSA Project began implementing activities towards improving TB pharmaceutical supply management during Year 3. Funding provided by USAID was one-time funding and will be concluded in November 2014.

- » **Situational Analysis:** SIAPS implemented a rapid situational analysis of the TB data and commodity management situation in five member states (Tanzania, Uganda, Malawi, Swaziland, and Zambia). The analysis showed that while the countries have a strong foundation for TB data and commodity management, improvements are needed in several areas. Although at different maturity levels, all countries have key ingredients to support TB data and commodity management systems, i.e., structures within the government and partners, defined processes, and clear supply chain functions related to TB program commodity management which are defined and operational.
- » **Information Dissemination:** SIAPS helped disseminate findings from the TB data and commodity management analysis during the ECSA TB experts forum in August 2014. Regional TB experts from the country governments, TB programs, WHO, and other key partners such as the AU and EAC were present.

- » **Supply Chain Improvement:** To support the ECSA-HC regional approach, SIAPS initiated the development of the ECSA TB Supply Chain Portal, which will be used to capture, collate, report, and disseminate information on the TB commodity supply chain situation: stock levels, logistics updates, pipeline monitoring, and selected supply chain key performance indicators. This platform is web based and will be hosted by the ECSA-HC covering an initial four countries with the opportunity to add more countries as the development continues. The data sources come from the National TB programs, MoHs, Central Medical Stores, the Global Drug Facility and suppliers, Global Fund, WHO, USAID-EARO, and development partners. Different levels of authorization, user privileges, and data access will be set based on agreement between ECSA-HC, countries, and partners.

- » **Data and Commodity Management:** SIAPS supported ECSA-HC in developing the first five-year strategy for TB data and commodity management. This strategy will position the secretariat as the regional strategic entity to coordinate and strengthen TB data and commodity management in ECSA member states. The strategic objectives developed are:
 - Establish a platform for TB commodities and information management for ECSA-HC member states (a regional web-based supply chain management portal and learning center).
 - Improve supply chain management of TB commodities through coordination and harmonization of TB supply chain guidelines, and promote inter-country commodity transfer in cases of stock-outs.
 - Strengthen human resource capacity on TB commodity management within the ECSA community by conducting a comprehensive TB data and commodity management human resource gap analysis and develop plans and strategies to address HR gaps.
 - Strengthen TB lab commodities and data management among ECSA member states.

To support the five-year strategy, SIAPS facilitated the development of a detailed implementation plan detailing future activities, resources required, timelines, key milestones, and budgets. A detailed monitoring and evaluation framework was also developed. In addition, SIAPS has been invited to present the strategy to the Directors Joint Consultative Committee, which is the highest advisory body to the ECSA minister, in December 2014. This is a unique opportunity for the ministers to learn about SIAPS support.

Evidence of Success

	2014
# of regional TB supply chain management portal (electronic platform) has been developed	1
# of partners at SIAPS's international/regional workshops/symposia on sharing best practices and tools for pharmaceutical management	12
# of participants trained in the components of the WHO STOP TB strategy with USG funding	31

FUNDING FOR FY14

\$ 900,000 PMI

\$ 100,000 MCH

\$ 212,000 FP/RH

KEY PROGRAM STRATEGIES

SIAPS is working to ensure the availability of quality pharmaceutical products and effective pharmaceutical services by supporting the reform of regulations governing the supply chain management system, enhancing government oversight and data collection capacities, and improving pharmaceutical management skills at all levels of the health system.

Background

The Guinean health system does not receive sufficient funding from the national government to address the health needs of the population. This leaves the pharmaceutical system very weak. Because of financial constraints and governance issues, the Central Medical Store (PCG) is not capable of ensuring the availability of all necessary medicines. Although donors have begun to send significant quantities of malaria commodities to Guinea in 2013, MOH and PCG lack funding to distribute these commodities from the central PCG warehouse in Conakry to the regional level, and from there to districts and health facilities on a regular basis. An additional challenge has been the poorly functioning medicines information system with little or no data on stock levels or consumption rates reaching the National Malaria Control Program (PNLP). As a result, information on malaria drugs needed for decision making and planning is not available when required. Lastly, Guinea's National Medicines Regulatory Authority (DNPL) is low in financial and staff resources and therefore unable to regulate the pharmaceutical sector.

In late February 2014, a serious Ebola outbreak started in Guinea and is now affecting several countries in West Africa. In the context of a failing public health system and extremely difficult socio-economic conditions, it has been challenging to contain the epidemic. The entire health landscape is expected to change in the months ahead as the country grapples with this unforgiving disease.

Partners

SIAPS works closely with PNL, PCG, DNPL, and the National Health Information System (SNIS). To date, SIAPS has engaged in both national-level activities and activities designed to support the 19 health districts supported by PMI/USAID. Going forward, technical activities will have a national scope and will be conducted by the Government of Guinea with the joint support of all USAID and Global Fund implementing partners.

Progress up to Year 2

SIAPS has been the main implementing partner supporting emergency distributions of antimalarial products (AS-AQ, injectable quinine, sulphadoxine-pyrimethamine, and RDTs) to Guinea's public health centers and hospitals, helping to correct stock-outs at a time when PMI was the only donor supporting medicines distribution in Guinea. To avoid future "emergency" distributions, SIAPS worked closely with PNL, PCG, and other stakeholders to develop a new system and tool for quarterly product orders and deliveries ("pull system") for malaria commodities. Health facilities and districts were trained on the new system in 2013 and a buffer stock of products was placed at the regional warehouse level to encourage the smooth functioning of both the supply and demand sides.

SIAPS has also worked closely with PNLP, SNIS, and in-country institutions and partners to improve the malaria commodity reporting system by introducing a new reporting template and a simplified circuit of transmission for such reports from health facilities to the districts, and on to the central level on a monthly basis. To support PNLP in transitioning from paper to Internet-based reporting and, given the IT constraints in Guinea, SIAPS provided PNLP and data managers from 19 districts with Internet connection keys and monthly Internet access. SIAPS also initiated a “reporting competition” among the districts that resulted in prizes such as laptops, printers, and scanners that are related to reporting needs. Both the new malaria reporting system and the product order and delivery system have been expanded by PNLP and CRS to the rest of the country (Global Fund zones). SIAPS has conducted EUV surveys on malaria commodity management and case management practices, collecting such data routinely for the first time in Guinea. SIAPS and PNLP also initiated quarterly malaria review meetings at the regional level that serve as an opportunity to discuss and improve reporting, conduct specific trainings, exchange on topics of importance, and follow-up on recommendations that need urgent action at the district, regional, and national levels.

Data Utilization

SIAPS took the lead role in developing and launching a new monthly malaria reporting template that now includes more detailed information on patients tested/ confirmed/ treated/ referred, and a brand new section on drug management, including stock status and consumption at the health-facility level.

Key Achievements in Year 3

During year 3, SIAPS/Guinea has had significant achievements in improving the availability of quality pharmaceutical products and services:

- » **Policy and Legislation:** To support the reform of regulations governing the supply system, the DNPL, WHO, and other partners, with SIAPS support, revised the National Pharmaceutical Policy (NPP) and developed a five-year implementation plan (2014-2018). SIAPS facilitated stakeholder meetings, resulting in the acceptance and validation of these documents. During the national health review meeting held in June 2014, MOH used the validated NPP and implementation plan as the primary reference documents for Guinea’s pharmaceutical sector. Additionally, SIAPS participated in elaborating the National Strategic Plan on Community Health.
- » **Central Level Roles and Responsibilities:** SIAPS supported MOH in the review of the roles and responsibilities for procurement, storage, and distribution of health commodities under the Government of Guinea’s convention with the autonomous PCG. The key officials from the Ministries of Finance and Health agreed to revise the convention, enabling the use of public funds for PCG to procure essential medicines and to help it recover from debt.
- » **Technical Capacity Building:** To improve pharmaceutical management skills, SIAPS delivered a series of trainings for PCG staff and played a lead role in drafting SOPs and key normative documents for the PCG, including: PCG’s five-year strategic plan, a review of its financial statements and assumptions, and its first international tender with funds provided by the Guinean Government. In addition, SIAPS sponsored PCG to conduct pharmaceutical management trainings for more than 115 health workers as part of the “Medicines for All” Initiative. SIAPS also organized workshops in five districts, training health workers on proper supervision tools and techniques for community health workers.

- » **Data Quality and Reporting:** Since the launch of Guinea’s new electronic malaria reporting system, all 19 districts in PMI zones have been receiving Internet access, which has led to significant improvement in the transmission of timely reports (as of July 2014, districts were consistently reporting data for more than 90% of facilities in PMI zones, from an estimated baseline of 30% in 2012). PNLP and SIAPS continue to review reports and provide detailed feedback. Additionally, supervisions have been initiated in collaboration with Stop Palu and PNLP to check the validity of data per the source documents. This work-intensive tracking mechanism is critical for improving the quality of reporting over time.
- » **Supply Management:** Due to stock-outs of antimalarials, and at USAID’s request, SIAPS revised its work plan to include a new emergency distribution of commodities to 175 health facilities. SIAPS developed distribution plans based on prior consumption patterns and determined the quantities to be shipped to regional depots so that facilities could have a continuous supply of products until the next distribution. SIAPS continued to provide technical assistance for strengthening the quantification, reporting, and replenishment system for essential medicines, including 13 MCH commodities.

Evidence of Success

	2013	2014
% of health facilities that completed and submitted an LMIS report for the most recent reporting period	80%	97% (July 2014)
# of persons trained in pharmaceutical management (cumulative)	277	506
% of health facilities with all presentations of ACTs available on the day surveyed	38%	76% (July 2014 EUV)
# of pharmaceutical management guidelines, lists, and SOPs developed (or updated) and submitted for adoption (cumulative)	3	7

LAC AMAZON MALARIA INITIATIVE

Background

Thanks to the strengthening of malaria control strategies and the introduction of artemisinin-based combination therapies (ACTs) for the treatment of malaria in the Amazon Basin, the number of malaria cases in the Americas has decreased over the last decade, though some problem areas remain. A regional analysis of antimalarial supply chain management conducted by SIAPS indicates that current problems in the region are attributable to:

The low incidence of malaria in most Amazon Malaria Initiative (AMI) countries, which has limited the commercial interest of pharmaceutical suppliers in participating in national tenders. This is particularly true for medicines with a low volume of consumption, such as those used to treat severe and special malaria cases.

The concentration of the malaria epidemic in vulnerable populations residing or working in remote areas, such as artisanal gold miners along the Brazil/Guyana/Suriname border. Studies suggest the risk of emerging resistance to ACTs in these areas.

The decentralization of public administration and the integration of supply systems in some countries, sometimes leading to a lack of prioritization of malarial control programs in national decision-making processes.

Irregular access to high-quality antimalarials may produce resistance to ACTs in Suriname and Guyana, as well as slowdown the decreasing incidence of malaria in other AMI countries. Irregular access prevents the timely response to outbreaks in low- or non-incidence areas.

Partners

The SIAPS AMI Project is working in Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and several Central American countries in collaboration with the Pan American Health Organization (PAHO) Infectious Disease Division, the US Centers for Disease Control and Prevention (CDC), the US Pharmacopeia's Promoting Quality of Medicines Program, the national malaria control programs in the Amazon and Central American regions, and the local USAID missions.

Progress up to Year 2

SIAPS and the programs that preceded it—Rational Pharmaceutical Management (RPM) Plus and Strengthening Pharmaceutical Systems (SPS)—have successively been the technical pharmaceutical management partners for AMI since 2002. Building upon the success of its predecessors, SIAPS has supported baseline studies and interventions to improve the availability of antimalarials in decentralized, high-incidence areas of Peru (Loreto) and Colombia (Chocó). The interventions which were supported included the design and implementation of distribution procedures, improvement in warehousing conditions, and implementation of malaria pharmaceutical guidelines for primary health care

FUNDING FOR FY14

\$519,875 Malaria

KEY PROGRAM STRATEGIES

SIAPS is focusing on the institutionalization of activities promoted by AMI and the development and implementation of strategies to assure a continuous supply of antimalarials as the key malaria control strategy, particularly in low-incidence areas and areas prone to ACT resistance.

facilities. SIAPS also concluded and disseminated a bottleneck analysis to improve adherence to the PAHO/Strategic Fund (SF) pooled procurement, and transferred the coordination of the antimalarial regional stock monitoring system to SF.

SIAPS collaborated with local counterparts to complete studies on the performance of the malaria control strategies, using an adequacy approach in South and Central American countries. Most of the AMI countries concluded these adequacy studies within the past two years. Additionally, SIAPS supported similar studies in eight Brazilian states to serve as the baseline for improving the performance of malaria control strategies at the national and sub-national levels.

Examples of SIAPS projects include helping to assess the access to and use of antimalarials in a Brazilian artisanal gold mining area and aiding national counterparts in Suriname to prepare for a knowledge, attitude, and practice (KAP) study in gold mining areas.

Key Achievements in Year 3

During Year 3, SIAPS/AMI has made significant strides towards institutionalizing strategies and activities to ensure continuous supply of antimalarials in low-incidence and ACT-resistance-prone areas:

- » **Access:** SIAPS carried out a KAP study to assess access to and use of medicines in Suriname gold mining areas in coordination with PAHO. The results were presented and discussed during a meeting held in Paramaribo on February 2014. Participants at this meeting agreed on national interventions to improve access to high-quality pharmaceuticals in mining areas. They also drafted recommendations for regional interventions in neighboring countries (Brazil and French Guyana), and the support of regional initiatives, including AMI. Six countries have implemented revised criteria for programming and distributing antimalarials in low-incidence areas.
- » **Guidelines and Procedures:** To improve pharmaceutical supply in remote parts of Peru and Colombia, SIAPS developed guidelines and standard operating procedures for distributing and using malaria medicines in Loreto, Peru, and Chocó, Colombia.
- » **Medicine Availability:** The AMI central medicine stores have, on average, 85% of malaria medicines available. Based on the revised estimation of need, considering security stocks for low-incidence areas, the Regional Stock Monitoring System for Antimalarials has contributed to an increased availability of medicines across the countries. A quarterly bulletin that outlines levels of antimalarial stocks has facilitated the requisition and donation of first-line antimalarials among countries, and the donation of medicines for severe malaria through the PAHO Strategic Fund.

Evidence of Success

	2013	2014
% of AMI countries reporting malaria stocks levels quarterly (n = 13)	8	9
% of availability of malaria medicines in central stores	78%	85%

LESOTHO

Background

Much progress has been made in strengthening Lesotho's pharmaceutical sector; yet, despite the country's achievements, many gaps remain in the effective and efficient delivery of health care services. To sustain the impact of interventions that have brought improvements in the pharmaceutical system, many structural and systematic problems remain. They include chronic challenges with pharmaceutical human resource capacity at all levels; weaknesses in policy implementation and legislative frameworks; chronic under-spending; and inefficiencies in the allocation of health resources. Although progress has been made in remedying weak information management, the limitations experienced by the national information management system that inform supply chain decision making result in inefficiencies, with far-reaching ramifications for the national ART program.

Partners

SIAPS supports the Ministry of Health (MOH) by working at the primary level of all 10 districts through the district health management teams (DHMTs), district logistics officers (DLOs), the supply chain coordinators (SCCs), and laboratory logistics advisors (LLAs) to ensure product availability at health centers and hospitals. In addition, SIAPS is supporting the National Drug Service Organization (NDSO), as well as the Pharmacy Departments of the National Health Training College (NHTC) and the National University of Lesotho (NUL).

Progress up to Year 2

Building upon the achievements of previous years, SIAPS made advancements in the implementation of ART and laboratory information systems; data from those systems is routinely analyzed and presented in stock status and technical reports, detailing inventory and information management performance indicators, and has been incorporated into the feedback mechanisms to facilities in the national ART program. This includes SIAPS support to address the Global Fund's condition that MOH establish a robust and functional management information system using RxSolution for the ART program. Data from RxSolution is used to meet all the reporting requirements for the Pharmaceutical Management Information System (PMIS). WHO early warning indicators (EWI) are also tracked using the system at the ART sites. With the implementation of RxSolution, 92% of information being reported is found accurate compared to 78% prior to the introduction of RxSolution. This increase in data quality plays an important role in the quantification and procurement of ARVs in the country.

Key Achievements in Year 3

During year 3, SIAPS/Lesotho had achievements in strengthening the pharmaceutical system by increasing capacity and improving the supply chain management as well as providing strategic information support in a number of result areas:

» **Strategic Planning:** To increase the capacity of key stakeholders in

FUNDING FOR FY14

\$1,100,000 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS is working to strengthen the pharmaceutical system by increasing and enhancing capacity for pharmaceutical supply management and services, providing strategic information support for pharmaceutical and laboratory decision making, and strengthening supply chain management for pharmaceuticals, laboratory, and other ART-related commodities.

Health Partnerships

In support of increased coordination and promoting synergies, SIAPS Lesotho has implemented a number of activities in coordination with other implementing partners in country:

Clinton Health Access Initiative (CHAI)

International Center for AIDS Care and Treatment Programs (ICAP)

The Elizabeth Glaser Pediatric AIDS Foundation (EGPAF)

Partners in Health (PIH)

pharmaceutical supply management, SIAPS supported MOH, NDSO, and other implementing partners in the development of the MOH Procurement and Supply Chain Strategic Plan for Medicines and Health Products 2013/14–2016/17 and the establishment of a supply chain coordinating unit within MOH, including the composition and structure of the Supply Chain Management Unit.

- » **Tools for Capacity Building:** To enhance pharmaceutical and laboratory decision making, SIAPS provided strategic information support to the MOH Laboratory Directorate to review and revise the hospital-level laboratory commodity manual and develop a health-center-level laboratory commodity management procedure manual, which was used to mentor laboratory personnel from each of the 16 nationwide hospitals. In addition, SIAPS supported the MOH Family Health Division to develop LMIS tools for the Nutrition Assessment and Counseling Support (NACS) Program, under which 42 health facilities in 3 pilot districts (Botha Bothe, Thaba Tseka, and Mhale's Hoek) were empowered to take the lead in this process. SIAPS also worked with the MOH Disease Control Directorate (DCD) to review and develop ART/TB PMIS tools. In addition, MOH has adopted QuanTB software for quantification of TB commodities. SIAPS is working with MOH to pilot the use of mHealth (mobile health) application technology at 20 health centers in Maseru. Health centers use smartphones to capture consumption data, which is seamlessly synchronized with data in RxSolution at the DHMTs in real time. ARV consumption and patient pickup times and dates are available immediately at the DHMT. RxSolution is then used to consolidate data and generate relevant reports at the DHMT, which in turn sends this data to MOH using the ePMIS.
- » **Standards, Guidelines, and Procedures:** The current EML for Lesotho was developed in 2006. SIAPS has supported MOH in updating and finalizing a new EML and STGs. The updated EML includes the addition of medicines in HIV and AIDS (Option B+), pediatrics (zinc sulfate, chlorohexidine), nutrition (F75 and F100 formula, Plumpy'Nut®), and obstetrics (misoprostol).

Evidence of Success

	2013	2014
# of individuals who received competency-based certificate or higher-level training to conduct or support supply chain, inventory management, support supervision, or distribution activities	0	292
# of HCWs who successfully completed an in-service training program (cumulative)	137	202
# of persons trained in pharmaceutical management (cumulative)	135	82
# of HCWs who graduated from a pre-service training institution or program, as a result of PEPFAR-supported strengthening efforts (cumulative)	*45	67
% of health facilities that completed and submitted an LMIS report for the most recent reporting period	69%	100%
% of at SIAPS-supported health facilities providing ART that have experienced any stock-outs of ARVs in the last 12 months	*	14%
% of health facilities that keep complete patient information (as per national standards)	*	98%

* Tracking of these indicators only commenced in FY14

Background

In Mali, key health commodities such as antimalarials, family planning (FP) commodities, and other essential pharmaceuticals are frequently unavailable at various levels of the health system. Sufficient information on pharmaceuticals, necessary for planning by the government, donors and technical partners, is also often not readily available. Major obstacles to the effective functioning of Mali's pharmaceutical supply and services include a lack of strategic information for decision making; inadequate coordination among key stakeholders in the pharmaceutical sector; poor capacity in pharmaceutical management of stakeholders at the operational level; irrational use of medicines by physicians and dispensers; inadequate implementation of policy documents and guidelines for key diseases; and a cost recovery system that conflicts with the free medicines policies.

Partners

SIAPS works closely with the Ministry of Health (MoH), including the Department of Pharmacy and Medicines (DPM), the Central Medical Store (Pharmacie Populaire du Mali, or PPM), the National Malaria Control Program (NMCP), and the National Department of Health (DNS), as well as the Regional Directorates of Health (DSR).

Progress up to Year 2

During the first two years of the program, SIAPS interventions were focused on disseminating, at the central and regional levels, the new national drug policy, the Schema Directeur d'Approvisionnement et de Distribution des Medicaments Essentiels, a document that describes Mali's supply chain and all the tools that actors in the pharmaceutical sector must use to manage and track pharmaceuticals. SIAPS also assessed the existing logistics management information system (LMIS) and assisted the MoH in a system redesign, the development of new SOPs, and the trainings of a regional pool of trainers knowledgeable in the use of the new system.

SIAPS also worked on strengthening the coordination and technical capacity of the DPM and NMCP to improve quantification, forecasting, and supply planning for malaria commodities and developed new quantification guides and tools to promote consistency, efficiency, and transparency in the quantification process. In addition, SIAPS assisted other USAID implementing partners in the forecasting and supply planning of family planning (FP) commodities.

Key Achievements in Year 3

During Year 3, SIAPS/Mali has made significant strides toward ensuring the availability of quality pharmaceutical products and effective pharmaceutical services for maternal, neonatal, and child health (MNCH), malaria, and FP commodities and services. Areas of achievement include:

- » **Transparency and accountability:** To improve the functioning of Mali's pharmaceutical supply system, and services and coordination among key

FUNDING FOR FY14

\$1,500,000 MCH

\$550,000 POP

\$500,000 PMI

KEY PROGRAM STRATEGIES

SIAPS will strengthen the pharmaceutical system to ensure the availability of quality pharmaceutical products and effective pharmaceutical services for MCH, malaria, and FP commodities and services in support of MoH national strategies. SIAPS will focus on improving the information management systems and stock management and will build the capacity of the MoH in pharmaceutical governance, coordination, and the dissemination of standards and norms.

stakeholders, SIAPS assisted the DPM in establishing a national committee for the coordination and monitoring of health commodities for malaria, MNCH, HIV, TB, and FP programs. Upon official establishment by the MoH in January 2014, the DPM, with SIAPS support, established a quantification subcommittee with technical working groups for each category of commodity. With assistance from SIAPS, the two newly established technical working groups for FP and for malaria completed a quantification exercise for contraceptives and malaria commodities.

- » **Tools for capacity-building:** To improve the information management systems and build capacity in stock management, SIAPS worked with the DPM and each of the six regional health directorates (DSR) to roll out trainings for the upgraded LMIS for pharmacists, district warehouse managers, and health information managers. Trainings focused on warehouse management, storage, tools (such as stock cards and logistical reporting tools), and how to calculate commodities needs per the new LMIS standard operating procedure (SOP) requirements. SIAPS also supported the MoH in developing and disseminating pharmaceutical supervision guidelines and tools to be used for supportive supervision at all levels.
- » **Data for decision making:** End user verification (EUV) surveys conducted by SIAPS indicated that consumption data for rapid diagnostics tests (RDTs) does not reflect actual needs due to the lack of financial accessibility. (RDTs were free only for pregnant women and children under 5.) Using this data, SIAPS worked with the NMCP and other key stakeholders to advocate and receive approval for free RDTs to everyone. With the financial barriers to access and availability removed, it is expected that RDT use will align with malaria standard treatment guidelines (STGs) and their consumption will increase.
- » **Pharmaceutical sector governance strengthened:** SIAPS assisted the PPM in developing a five-year strategic plan that will guide the organization on the goals and key objectives to be achieved. The strategic plan includes interventions, directions, responsible parties, required resources, timelines, and guidelines for monitoring the implementation of PPM activities to achieve a more stable central medical store that meets minimum international standards for public health procurement and supply chain management.

Evidence of Success

	2013	2014
# of civil society organizations that participated in or monitored pharmaceutical management operations in the past year	2	9
# of national pharmaceutical sector strategic plans developed	0	1
# of persons trained in pharmaceutical management	22	792
% of trainees successfully completing post-training action plan	0%	25%
% of stock records that corresponds with physical counts for a set of indicator drugs in MoH storage and health facilities	16.25%	42.56%
% of warehouses with stock-outs of a pre-selected group of medicines for 3 days or more in the last three months	88.9%	65.6%
% of health facilities that completed and submitted an LMIS report for the most recent reporting period	6.7%	32.6%
% of prescriptions in compliance with STG	77.8%	86.5%

MOZAMBIQUE

Background

The population of Mozambique has limited access to medicines of assured quality, safety, and efficacy, and to effective pharmaceutical services. In addition to a weak supply chain system that limits the availability of products at service delivery points, there are notable deficiencies in the pharmaceutical policies and legislations governing the availability and use of products; the institutional, organizational, and human resource capacity of the pharmaceutical sector to perform its regulatory functions; the monitoring of medicine safety and rational use; and the overall management and delivery of pharmaceutical services at the facility level. These problems stem not only from limited financial resources but also from weak governance, insufficient capacity in effective pharmaceutical management, inadequate availability and use of strategic information, and limited monitoring and supervision of pharmaceutical services at the facility level. Furthermore, medicine pricing control systems are not implemented and enforced according to the international standards or the existing local laws addressing these issues.

Partners

SIAPS works at the central level, supporting the Ministry of Health's (MISAU) pharmaceutical sector partners: the Pharmacy Department (PD), the Hospital Pharmacy Department (HPD) of the National Directorate of Medical Assistance (DNAM), and the Central Medical Store (CMAM).

Progress up to Year 2

To improve the rigor of pharmaceutical product registration in line with international recommendations, as well as standardize the registration process and make it more transparent and efficient, SIAPS supported the PD to strengthen the registration system for medicines. SIAPS trained the product registration sector staff to evaluate medicines dossiers and develop tools, including guidelines and SOPs that clearly outline the processes, criteria, and procedures for evaluating dossiers and registering pharmaceuticals. To support HPD's priority intervention—establishing DTCs at hospitals with the aim of improving the appropriate use of medicines at the hospital level—SIAPS revised the terms of reference (TOR) and membership profile for the committees, introduced DTC-related trainings on key DTC functionalities, and instituted the process of creating an environment to encourage system-based cross-communication and collaboration between stakeholders related to DTCs and other areas of hospital management through a national DTC workshop. In FY13, SIAPS held a pharmacovigilance (PV) training workshop, which set the stage for the SIAPS-organized consensus meeting on the PD's vision of the national PV system for medicines and vaccines. The consensus meeting included participation from MISAU central departments, programs, and provincial health authorities, as well as representatives from academic and research institutions. The meeting participants agreed that medicines safety is a shared responsibility and that the development and strengthening of the PV system needs stronger voluntary reporting of suspected adverse events.

FUNDING FOR FY14

\$780,000 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS supports the pharmaceutical sector in the areas of policy, regulatory functions (registration, pharmacovigilance, and inspection) and pharmaceutical services. SIAPS uses a systems-strengthening approach that focuses on improving governance, human resource capacity, use of strategic information for decision making and the delivery of services at the facility level, with special emphasis on strengthening the Pharmacy Department and the Department of Hospital Pharmacy of the National Directorate for Medical Assistance.

Key Achievements in Year 3

In Year 3, SIAPS/Mozambique has made significant progress toward improving the governance and capacity of the pharmaceutical sector in a number of result areas:

- » **Transparency and Accountability:** In an effort to streamline procurement activities, minimize institutional costs, and optimize patient care, SIAPS supported the establishment of a national essential medicines list (NEML) committee in Mozambique, which was approved by the PD and MISAU. SIAPS finalized all necessary procedures, guidelines, and references for the revision of the NEML and presented them to the members of the NEML Committee and key MISAU staff at the first general meeting. The World Health Organization (WHO) also participated in the meeting and presented the standard procedures for the development of this list. The committee secretariat presented the proposed work plan and the chronology of the activities for the development of the NEML.

Working directly with the NEML committee president, SIAPS assisted with and participated in 21 meetings to distribute materials for the selection of medicines to the departments of anesthesia, cardiology, clinical nutrition, dermatology, endocrinology, gastroenterology, gynecology/obstetrics, hematology, internal medicine, laboratory, neurology, oncology, ophthalmology, orthopedics, otorhinolaryngology, pediatrics, psychiatry, pulmonology, stomatology, surgery, and vaccines at the Central Hospital of Maputo (HCM), the largest hospital in the capital. Of these, 75% have already delivered their opinions on the selection tool.

- » **Drug and Therapeutics Committees:** Based on the success of the SIAPS-supported DTC activities in Mozambique, both Mavalane and Jose Macamo Hospitals have requested assistance in implementing a unit dose system in some clinical departments where medicines will be pre-packaged prior to dispensing. SIAPS established nine additional DTCs at the Province level and one at the District level. All were present at the SIAPS supported second National DTC Workshop. Participants exchanged experiences in identifying medicine use problems and solutions and agreed on next steps for the improvement of their activities. In the Provincial Hospitals of Pemba, Chimoio, Quelimane and Tete, a small study on compliance with prescription norms was carried out, and the results were presented to the DTC and other clinicians of each hospital.
- » **Strategic Information for Decision-Making:** To strengthen the availability and utilization of strategic information in the public sector, SIAPS has started the customization of the Pharmadex drug regulatory information system, adapting it to the reality and needs of Mozambique. The Registration Sector Staff of the PD have been successfully trained to use it.
- » **Passive Surveillance System:** SIAPS trained 200 health professionals to identify and report adverse drug reactions (ADRs) in five provinces.

NAMIBIA

Background

Namibia faces a dual health burden of HIV and AIDS and TB, but it has a robust antiretroviral therapy (ART) program and high treatment success rates for drug-sensitive TB. However, the Ministry of Health and Social Services (MoHSS) continues to experience a scarcity of skilled human resources, has a limited capacity for monitoring HIV drug resistance, has a high burden of MDR-TB, and is overstretched in dispensing antiretroviral medicines (ARVs) and in providing pharmaceutical services. The use of private pharmacies for dispensing ARVs to patients treated by the public sector is practically non-existent. There is variable quality of pharmaceutical services across all levels of the public sector health system and the regulation of pharmaceutical products is inefficient.

Partners

SIAPS works closely with the following government entities: National Medicines Policy Coordination (NMPC), Pharmaceutical Control and Inspection (PC&I), Namibia Medicines Regulatory Council (NMRC), National Tuberculosis and Leprosy Program (NTLP) Directorate of Special Programs (DSP), Response Monitoring and Evaluation/DSP, National Health Training Centre (NHTC), and the Namibia Institute of Pathology. SIAPS also works with the University of Namibia (UNAM), the Health Professionals Councils/Pharmacy Council of Namibia (HPCNa), the Pharmaceutical Society of Namibia (PSN), and the Namibia Association of Medical Aid Funds (NAMAF). SIAPS also works in synergy with the USAID-funded Supply Chain Management System, and the Building Local Capacity Projects to build the capacity of the Government of the Republic of Namibia and other local institutions to effectively manage all aspects of pharmaceutical systems and services.

Progress up to Year 2

In the past two years, SIAPS implemented Pharmadex (a tool for medicines registration) and strengthened the pre- and post-market surveillance (PMS) of quality of medicines at the NMRC and PC&I. SIAPS supported NMRC to initiate PMS activities by improving the current inspection and licensing unit electronic registries. SIAPS also helped NMRC to design and implement interventions for encouraging health workers to report on suspected poor quality or defective ARVs. Through the PMS initiative, reports of suspected poor quality medicines are now being submitted to PC&I and samples are being sent for chemical analysis to the Quality Surveillance Laboratory, informing management decisions on quality of medicines. SIAPS supported the Therapeutics Information and Pharmacovigilance Center (TIPC) to establish an active surveillance program for monitoring the safety of first-line ARVs at Central Hospital and Katutura Intermediate Hospital in Windhoek.

SIAPS worked closely with UNAM, helping them develop a strategic plan to guide transition from a Department of Pharmacy within the School of Medicine to a School of Pharmacy (SoP). In addition, SIAPS helped the UNAM SoP develop a

FUNDING FOR FY14

\$984,580 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS is comprehensively strengthening the pharmaceutical systems and services by building the capacity of local institutions to offer pre- and in-service training; greater emphasis on data analysis and use for decision making; increasing patient safety and ART adherence; and improving the quality of pharmaceutical services.

As of March 2014, 91% of pharmacy assistant posts in Namibia's public hospitals were filled, compared to 86% in 2013

pharmacovigilance training module for pharmacy and medical pre-service training and supported the SoP and MoHSS to conduct a workshop and stakeholder call-to-action forum on preventing antimicrobial resistance and promoting the rational use of ARVs, anti-TB, and other medicines. SIAPS supported MoHSS to ensure sustainability of its pharmaceutical management information system (PMIS) and expand its scope to cover lower primary health care (PHC) facilities as well as the central and regional medical stores, NMPC, and PC&I. SIAPS successfully piloted e-TB Manager, which resulted in the NTLP recommending it for nationwide use.

Key Achievements in Year 3

During Year 3, SIAPS/Namibia realized significant achievements in strengthening pharmaceutical systems and services by increasing the capacity of key stakeholders to improve data analysis for decision making and improving the quality of pharmaceutical services.

- » **Pharmaceutical Regulation:** To increase the pool of experts for evaluation of pharmaceutical dossiers for improved registration of ARVs and other medicines, and to monitor the quality of essential medicines, SIAPS supported the NMRC to train 42 health care personnel from public and private health care institutions. Ten of those health professionals (three from the private sector) who were trained on the evaluation of medicines registration applications (dossiers) participated in an intense dossier review session in which 127 dossiers (equivalent to 17% of a three-year backlog) were reviewed.
- » **Pre-Service Training:** SIAPS facilitated stakeholder workshops to review, validate, and finalize training materials on rational medicines use, pharmaceutical supply management, pharmacovigilance, and pharmacoconomics, and to strengthen the capacity of university lecturers to implement the materials for the UNAM Bachelor of Pharmacy program. SIAPS worked with the HPCNa to train facilitators, assessors, and moderators to improve the quality for training pharmacy assistants at the NHTC.
- » **Information Collection, Dissemination, and Use for Decision Making:** To strengthen data analysis and the use of quality data for decision making, SIAPS provided ongoing technical assistance to Namibia's 52 main ART sites enabling the health facilities to continue using the Electronic Dispensing Tool (EDT), e-TB Manager, RxSolution, and PMIS to document and report ART and PMIS logistic and patient data. Over 90% of ART health facilities completed ART PMIS reports monthly. With this information, quarterly ART and PMIS feedback reports for monitoring ART and pharmaceutical service delivery were compiled and disseminated, and PMIS indicators required for reporting were rolled out to PHC facilities. SIAPS discussed with MoHSS the results and recommendations from the assessment of the health care workers compliance with standard treatment guidelines (STGs) and the baseline ART adherence survey. MoHSS used the information to guide ART adherence and retention interventions and increasing access to and compliance with STGs. SIAPS is supporting the NTLP to operationalize and roll out e-TB Manager to all 14 designated drug-resistant TB (DR-TB) centers in Namibia.

- » **Medicines Benefits Management:** SIAPS conducted an assessment to improve health insurance coverage of HIV and AIDS medicines. The report recommended that medical aid schemes realign protocols for HIV and standardize reimbursements to increase coverage of chronic diseases such as HIV. As a member of the Universal Health Coverage Advisory Committee of Namibia, SIAPS participated in multi-stakeholder meetings for reviewing Namibia’s health financing situation and discussed broad strategies for achieving universal health coverage.
- » **Pharmacovigilance and Rational Medicine Use:** SIAPS supported active surveillance activities in two of Namibia’s main hospitals. SIAPS assisted TIPC in analyzing data from 842 suspected adverse drug reactions (ADRs) generated from spontaneous reports submitted between 2011 and 2013, which showed that the majority of ADRs were associated with ARVs. A report entitled Assessing the Safety of ARV Medicines using Spontaneously Reported Adverse Event Data in Namibia’s Vigibase® Database was produced. SIAPS also helped TIPC to enhance the awareness and skills capacity of 62 health workers during doctors and dentists’ forum and 105 TB promoters and district supervisors for pharmacovigilance.
- » **Antimicrobial Resistance:** SIAPS supported the MoHSS and the PSN to organize a workshop on “Pharmacy against AMR” and assisted the multidisciplinary coalition, Namibians Against Antimicrobial Resistance to conduct an AMR workshop at UNAM-SoP. SIAPS worked with one of the trainees of the AMR workshop of 2013 from UNAM to facilitate a regional level accredited Continuing Professional Development workshop on AMR for 24 healthcare workers. SIAPS participated in a three-day workshop on data analysis and compilation of a report on active surveillance of HIV drug resistance (DR). SIAPS provided technical assistance in the data abstraction and analysis of five HIV DR early warning indicators (EWIs) for the 2014 annual EWI study.

SIAPS supported the TIPC to conduct an analysis of sensitivity patterns of medicines in the Nemlist used for the empirical treatment of urinary tract infections (UTIs). The analysis provided evidence for motivating changes to the Nemlist for UTI medicines.

Evidence of Success

	2013	2014
Average number of days taken to evaluate and approve regulatory applications	53	34
Number of pre-service health professional training curricula developed or reformed to address pharmaceutical management topics (number of pharmaceutical management modules incorporated in pharmacy curriculum)	2	4
Number of HCW (Pharmacy Assistants) who graduated from a pre-service training institution or program, as a results of PEPFAR-supported strengthening efforts	53	74
Number of persons trained in pharmaceutical management (in-service training)	249	419
Percentage of ADRs reported that are reviewed	74%	100%
Percentage of encounters with an antibiotic prescribed	45%	44%
Percentage of adults and children known to be alive and on treatment 12 months after initiation of antiretroviral therapy (retention in care)	78.5%	96.7%

PHILIPPINES

FUNDING FOR FY14

\$1,500,000 TB

KEY PROGRAM STRATEGIES

SIAPS focuses on efforts to reduce the TB disease burden through the application of a systems approach to strengthening laboratory diagnostic management, pharmaceutical management, pharmacovigilance and information management. SIAPS approach is aimed at improving the leadership, management, governance, and organizational capacity of the TB program, capacity and deployment of human resources, supply chain management of all TB medicines and laboratory supplies, appropriate use and safety of medicines and utilization of data.

Background

Tuberculosis (TB) is the sixth leading cause of morbidity and mortality in the Philippines and the prevalence of multidrug-resistant TB (MDR-TB) in the country is among the highest globally. The ability to control TB in the country is facing multiple challenges in pharmaceutical management, case detection and management and information management for decision making (NTP Joint Program Review 2013). These challenges, along with health program constraints in human resources, management systems, and leadership may lead to low case detection and poor treatment outcomes and potentially contribute to increase in drug-resistant TB (DR-TB) cases.

Partners

SIAPS is working closely with the Philippines Department of Health (DOH) and its offices including: Disease Prevention and Control Bureau that manages the National TB Control Program (NTP), the Programmatic Management of Drug-Resistant TB (PMDT), National Center for Pharmaceutical Access and Management, Knowledge Management Information Technology Services (KMITS), Materials Management Division, and Central Office Bids and Awards Committee, the National TB Reference Laboratory (NTRL), and the Food and Drug Administration (FDA) of the Philippines. Other partners include the World Health Organization (WHO), Innovations and Multi-sectorial Partnership to Achieve Control of TB (IMPACT) and Technical Assistance Support to Country (TASC), and the Philippine Business for Social Progress (PBSP), the Philippines' principal recipient for the Global Fund. SIAPS is also working at the local level with many government units in Quezon City, Region IV-A, and Region VIII.

Progress up to Year 2

SIAPS worked with its partners to establish a laboratory working group and a PMDT subcommittee to improve coordination and collaboration between the national level offices. In addition, SIAPS assisted the NTP, NTRL, and PMDT/PMO in developing the NTP laboratory network strategic plan, the PMDT sub-plan, and the Philippine strategic Plan of Action to Control TB (PhilPACT). These documents were used to guide the formulation of the Philippines concept note for Global Fund's new funding model. SIAPS aided in revising the NTP Manual of Procedures that describes the new policies and procedures for implementing the TB control services, including case finding, case holding, management of supplies, and monitoring and evaluation, among others. SIAPS assisted the DOH KMITS in the data migration phase of the e-TB Manager to Integrated TB Information System (ITIS) and conducted an assessment to analyze the overall TB information system. The NTP and PMDT, with assistance from SIAPS, achieved zero stock outs of second-line drugs (SLDs) in FY 2013 through regular collaboration with the Global Fund Principal Recipient regarding the forecast, quantification, and delivery of SLDs.

Key Achievements in Year 3

During Year 3, SIAPS/Philippines had significant achievements in a number of result areas:

- » **Strategic Planning:** SIAPS supported the update and review of the Philippines Strategic Plan for TB Control (PhilPACT) and helped NTRL develop the NTP laboratory network strategic plan, which is a sub-plan of the PhilPACT. In addition, SIAPS supported the technical units of NTRL to develop and improve its 2014 action plans including the scale-up plan for the laboratory services and the new TB diagnostics.
- » **Human Resource Capacity:** SIAPS assists NTRL's organizational strengthening by enhancing its organizational structure. SIAPS conducted an assessment of laboratory network's human resources to inform organizational strengthening. The NTP and Global Fund accepted the new staffing requirements for NTRL which will be the basis for future staff recruitment.
- » **Supply Management:** SIAPS supports NTP in the forecasting and quantification of annual requirement and supply planning of PMDT drugs (first-line and second-line drugs), Xpert MTB/Rif, and other laboratory supplies. SIAPS recently expanded its quantification support to include DOTS medicines (Category I and II adult kits and TB in children kits). SIAPS commissioned a national TB supply chain assessment that includes an options analysis for improving the TB supply system performance.
- » **Policies and Guidelines:** SIAPS assisted NTP in the revision of the NTP's procedural manual and in the development of policy for the use and scale-up of Xpert MTB/Rif implementation. Additionally, SIAPS, in coordination with the NTP, developed the Practical Guide for the Management of Pharmaceuticals and Health-Related Commodities, reference on standards in supply chain management. SIAPS also participated in drafting the policy guidelines for TB management during disasters with NTP, WHO, TASC, and IMPACT.
- » **Information Management:** SIAPS has conducted an assessment of the NTP information system. The report describes the system's status and provides guidance to NTP managers on developing strategies to improve information management and its use for decision making and planning. SIAPS helped NTRL develop its standard operating procedures (SOPs) for information management which cover data recording, collection, analysis, reporting, dissemination of reports, and archiving. SIAPS is assisting NTRL to strengthen its M&E capacity. Additionally, SIAPS developed an Excel-based TB tracking tool for inventory management to improve recording and monitoring of stock utilization. This tool was adopted and is presently being used by nine health centers in District 3 Quezon City.
- » **Pharmacovigilance (PV):** SIAPS is working with NTP and FDA of the Philippines in the model-approach of setting up an active pharmacovigilance surveillance system starting with the two studies (nine-month regimen and bedaquiline).

Increased Coordination

At the central level, increased coordination is noted between agencies responsible for the management of TB supplies and commodities through regular meetings facilitated by SIAPS. Since the formation of the Drug Supply Management Sub-Technical Working Group on laboratory supplies management, information on selection, procurement, and inventory control has been more available and accountability is shared between stakeholders.

Expanding the Barangay Health Management Council in Quezon City, Philippines

Since the inception of the Barangay Health Management Council (BHMC) in Payatas with the technical support of SIAPS, health program leadership and management at the grassroots level has improved in the community. This has been translated into better coordination and collaboration among stakeholders, increased financial and human resources for the program, and increased capacity to deliver better quality services in this urban poor settlement.

The initiative has generated interest from Quezon City government officials, NGOs, and technical partners. Quezon City Health Department and political officials consulted SIAPS regarding the scale-up approaches for BHMCs in the city. Upon request of the Health Department, SIAPS provided assistance to strengthen the existing barangay and two newly established BHMCs. SIAPS facilitated meetings to develop and refine BHMC community action plans which now focus on TB control, maternal health, and nutrition -- demonstrating the potential usefulness of BHMCs for programs other than TB.

Evidence of Success

	2013	2014
Number of national pharmaceutical sector strategic plans developed (or updated)	1	2
Number of persons trained in pharmaceutical management	70	175
Number of functional pharmacy management working groups established	0	4
Number of guidelines developed and submitted for adoption	0	3
Percentage of health facilities that used consumption data to inform ordering at last assessment	43% (83/192)	91% (175/192)
Number of monthly TB medicine and laboratory supplies movement reports	0	9
Percentage of SIAPS-assisted sites that have implemented PV or medicine safety activities	0% (0/6)	17% (1/6)

SOUTH AFRICA

Background

South Africa has advanced significantly in the fight against HIV and AIDS, yet the country remains with a generalized epidemic, which has stabilized over the past four years at a national antenatal prevalence of around 30%. In addition, South Africa has the third highest incidence of TB and the fifth highest number of drug-resistant TB cases in the world. TB-HIV co-infection is extremely common with latest research data placing co-infection rates at 60%.

The South African antiretroviral therapy (ART) program is vast and can only succeed if reliable health structures and systems are in place and are supported by healthcare workers with appropriate knowledge and training. As it is, stock-outs of ARVs and other key pharmaceutical supplies continue to plague the healthcare system particularly at facility level. Linked to this is the recognition that pharmaceutical management information systems are not fully meeting requirements to support the provision of pharmaceutical services, thus reducing the healthcare system's ability to produce adequate data and information for management, monitoring and evaluation of the performance of the national health system. The system is further hampered by inadequate infrastructure, and a shortage of suitably qualified and experienced healthcare personnel.

Much has been done by the Health Department including the introduction of fixed dose combination ARVs. In addition, several new initiatives have been implemented towards building new and effective models for pharmaceutical service delivery such as the direct delivery of medicines to facilities and the centralized chronic medicine dispensing and distribution (CCMDD) program. As the country implements these changes, however, there are still several gaps that need to be addressed especially relating to the quality of services rendered. Many facilities still do not fully comply with the National Core Standards, especially as they apply to the ability of pharmaceutical services across the country to ensure patients access their prescribed medicines and that patient waiting times are not excessive. While provincial medicines depots may have had ARVs and other essential medicines in stock, weaknesses in the supply chain system and the lack of appropriate training among facility staff continue to result in facilities not being able to avoid stock-outs.

Partners

SIAPS has an excellent working relationship with the South African Government at all levels. SIAPS works closely with the National Department of Health (NDoH) and Provincial Departments of Health (PDoHs) in all Provinces as well as Pharmacy Schools such as the Nelson Mandela Metropolitan University, University of Limpopo (Medunsa Campus) and the University of the Western Cape. In responding to the SAG's request for technical assistance in the strengthening of pharmaceutical procurement and distribution systems, SIAPS is also collaborating with the Supply Chain Management Systems (SCMS) Project and Health Systems Trust (HST), a local NGO, as well as several other stakeholders.

FUNDING FOR FY14

\$2,800,000 PEPFAR

\$1,000,000 TB

KEY PROGRAM STRATEGIES

SIAPS will strengthen the capacity of pharmaceutical systems at all levels in support of priority health programs. Ensuring that patients have access to quality medicines and pharmaceutical services in an integrated patient-centered system where medicines are available and are used rationally, systems and processes support efficient and effective use of resources, and leadership and management practices and good governance principles are applied at all levels.

Progress up to Year 2

SIAPS has contributed to the good governance of pharmaceutical procurement and distribution by supporting the management of national tenders and development of service level agreements between depots and demanders. SIAPS has also worked with the Office of Health Standards Compliance towards ensuring compliance with the National Core Standards for service provision in health facilities and supporting the development and implementation of relevant policies, laws, regulations, rules and guidelines to promote good governance in the pharmaceutical system. SIAPS has significantly contributed to the development of leadership and management capacity for pharmacy managers through the Pharmaceutical Leadership Development Program which provides a platform for pharmacy personnel to address real workplace challenges in a systematic way whilst building individual and institutional capacity towards effective service provision. SIAPS continued to develop and implement RxSolution, an integrated electronic inventory management system, in public health facilities across the country. SIAPS also facilitated the installation of and trainings for Infomaker®, an off the shelf commercial software, at provincial depots to streamline the extraction of customized reports from inventory management systems. SIAPS has contributed to the development and implementation of processes, procedures and tools to strengthen the pharmaceutical supply chain at the national and provincial levels and has supported the revision of the Essential Medicines List (EML) and development of formularies.

Policies and Procedures

SIAPS supported the development and finalization of several policy and procedural documents:

- North West Standard Operating Procedures
- Guidelines for Implementation of Pharmaceutical and Therapeutics Committees (PTCs) in Gauteng Province
- Service Level Agreements between depots and demanders (Eastern Cape and Gauteng provinces)
- Criteria for awarding pharmacy licenses

Key Achievements in Year 3

During Year 3, SIAPS/South Africa had significant achievements in a number of result areas:

- » **Standards and Accreditation:** To improve access to antiretroviral (ARV) and other medicines for chronic diseases, the NDoH has introduced a new model for the provision of chronic medication to public sector patients, the CCMD program. SIAPS is assisting in the implementation of the CCMD model in eight provinces in South Africa. SIAPS helped the NDoH identify a set of indicators for monitoring service delivery at provincial, district, and facility levels, as well as by service providers. In addition, SIAPS contributed to the development of contractual agreements between the provinces and service providers responsible for preparing the prescriptions as well as between the NDoH and the service providers contracted to provide pick-up sites for prescriptions.
- » **Pharmaceutical Licensing:** Technical assistance provided by SIAPS to NDoH to improve governance in the licensing process culminated in the publication of revised criteria for awarding licenses for pharmacies. The criteria were published in the Government Gazette in February 2014 for public comment. The new criteria are based on population per sub-district and will support the intention of the National Drug Policy to improve community access to pharmaceutical services.
- » **Tender Management:** SIAPS has provided support to the Directorate: Affordable Medicine in the management of tenders for pharmaceuticals and medical consumables since 2012. Notable achievements have included a R2.2 billion saving on the ARV tender awarded in November 2012. SIAPS also contributed to the quantification of estimates for this tender which was the

first to include fixed dose combination ARVs. In 2014, a net savings of R8.5 million compared to costs from the previous contract was attained on the tender for injectable medicines. This was largely attributed to the directorate's decision to allot 67% of its insulin device requirements to cartridges rather than non-disposable pens. SIAPS also developed a template to standardize price data research and price comparison to inform the bid evaluation committee's decisions for awarding tenders. The matrix was created to produce a price report using local and international price data; SIAPS also helped the committee incorporate monitoring and evaluation and supply chain information and evidence.

- » **Supply Management:** SIAPS continues to provide support to provincial departments of health in developing capacity for medicine supply management. Direct mentorship is provided at facility level as well as through other mechanisms such as the 'Adopt-a-Clinic' project implemented in Limpopo. The later initiative, which utilizes community service pharmacists to improve medicine supply management at clinics, yielded results with a marked improvement in the accuracy of stock cards in clinics in Vhembe and Waterberg district - 43% in March to 71% in October 2013. This initiative also contributed to 364 clinics being able to maintain medicine availability in the range of 70% to 73% in the same period.
- » **Pharmacovigilance:** SIAPS continued to support South Africa's National Pharmacovigilance Centre to implement the decentralized patient-focused pharmacovigilance system in Mpumalanga, which comprises 24 "clusters."

The pharmaceutical depot in Limpopo reported 81% medicine availability at the end of the September 2014), up from 50% in March 2013. This improvement is the culmination of several interventions implemented with support from SIAPS, which included improving access to inventory management information at depot and facility levels and better management of supplier performance.

Pharmaceutical and Therapeutics Committees (PTCs)

In South Africa, functional PTCs at provincial, district, and facility levels are a cornerstone of the South African National Drug Policy (NDP). A PTC is a multidisciplinary forum established to promote the safe, efficacious, and cost-effective use of medicines. Despite this, there were no clear policies or guidelines to facilitate the implementation of PTCs. Recognizing this need, SIAPS worked with the Gauteng Provincial PTC to develop Guidelines for the implementation of PTCs. SIAPS subsequently commenced working with the NDoH to develop a National Policy for the Establishment and Functioning of Pharmacy and Therapeutics Committees. This policy details that PTCs will focus on three core components: a formulary system, rational medicine use including safety and quality, and procurement and financial management.

Apart from these efforts, SIAPS also provided support directly to provincial PTCs:

- In Gauteng Province, SIAPS assisted the provincial PTC to review emergency trolley lists after the committee identified a lack of harmonization in items available for medical emergencies at the primary care level.
- SIAPS provided technical assistance to the Rational Medicines Utilization sub-committee of the Gauteng PTC to design and carry out interventions to improve the use of antibiotics.
- In Eastern Cape Province, SIAPS helped the provincial PTC finalize the review of the provincial medicine formulary. The formulary was finalized for publication in August 2014.
- The provincial PTC in KwaZulu-Natal was launched in the second quarter of 2014 following the revitalization of the committee with SIAPS support.

This new approach entails the analysis of adverse drug reaction (ADR) reports within clusters of hospitals and surrounding clinics which facilitates a faster feedback loop for improving patient care. The approach, which was initially piloted in Mpumalanga province in 2010, is being scaled up to North West province. To date, 3073 ADR reports have been received in Mpumalanga and a further 422 in the North West.

- » **Compliance with Standard Treatment Guidelines:** SIAPS supported the launch of the smartphone application for the Adult Hospital Level Standard Treatment Guidelines and Essential Medicines List (EML) in January 2014. The application, which can now be downloaded from the NDoH website (www.health.gov.za), is expected to contribute to improving compliance with the Adult Hospital Essential Medicines List by increasing access to the guidelines.
- » **Pharmaceutical management information systems:** The availability of pharmaceutical management information is critical to the effectiveness of the health system as a whole. SIAPS implements the electronic inventory management software - RxSolution which is currently used in 350 public health facilities across the country. SIAPS continued work on expanding use of the system. During the course of 2014, SIAPS enhanced the functionality of the system by incorporating bar coding and biometric modules. These are set to facilitate easier identification of inventory and patients respectively. The year 2014 also saw an unprecedented increase in demand for the implementation of RxSolution beyond the existing 350 health facilities. SIAPS is working closely with NDoH, PDoH, and USAID to expand the RxSolution coverage.

Pharmaceutical and Therapeutics Committees (PTCs)

SIAPS supports the implementation of strategies to ensure that competent pharmacists and pharmacy support personnel are available in healthcare facilities; these strategies include pre- and in-service trainings.

SIAPS supported the development and use of the medicine supply management module for the pharmacy technician certificate provided by the Nelson Mandela Metropolitan University in the Eastern Cape Province. SIAPS staff facilitated lectures and practical sessions and set mid-term and final examinations. A practical session at Dora Nginza Hospital exposed students to the public sector pharmacy working environment where they reviewed stock cards and calculated average monthly consumption to determine maximum stock levels and whether there was potential for overstocking or items at risk of expiry.

SIAPS continued to build leadership and management knowledge and skills through the Pharmaceutical Leadership Development Program (PLDP) in which teams use the "challenge model" to systematically address challenges in their work environments using a participatory and continuous performance improvement approach. Since the inception of the PLDP, 120 pharmacists and 12 facility managers from seven of the nine provinces have completed the PLDP. Through the efforts of these teams, by June 2014, 40 quality improvement initiatives (QIs) have been implemented across over 170 health facilities. Some notable achievements included a reduction in average patient waiting time at the pharmacy at Kraaifontein community health centre in the Western Cape from 41 to 19 minutes over a 6 month period. In KwaZulu-Natal, prescription compliance with standard treatment guidelines on non-steroidal anti-inflammatory agents was improved from 57 to 94% and 60 to 68% at two hospitals and from 37 to 67% at a community healthcare center.

Evidence of Success

	2013	2014
# of pharmaceutical management guidelines, lists, and SOPs developed (or updated) and submitted for adoption	5	8
# of health facilities applying an approach for participatory and continuous performance improvement	122	580
# of new health care workers who graduated from a pre-service program	55	189
# HFs that have implemented electronic or mobile technology systems to document and report on specific component(s) of the pharmaceutical system	280	350
# of trainings or technical assistance assignments completed by local partners (including PDoH Staff)	0	5
# of persons trained in pharmaceutical management	565	1048
% of SIAPS-assisted structures that have documented evidence-based improvement in medicine use (disaggregated for HIV/TB)	0	19%
# of facilities with a system for the management of ADRs (SA)	- ¹	290

¹Data was initially reported per cluster (28 clusters in September 2014). A change was made mid-year to counting facilities instead.

SOUTH SUDAN

FUNDING FOR FY14

\$950,000 Malaria

\$1,000,000 MNCH

\$350,000 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS South Sudan is focusing support on critical functions at the state and county level health supply chain including supply management and services in the current emergency medicines fund supplies and distribution, as well as building human resource capacity to perform key pharmaceutical functions.

Background

The majority of the South Sudanese population does not have access to modern health services. It has one of the highest maternal and infant mortality rates in the world, and its citizens suffer from a variety of infectious and non-communicable diseases. There is little infrastructure and few trained personnel, which are compounded by weak planning and coordinating mechanisms at the state and county levels. In the pharmaceutical sector, significant challenges include multiple vertical supply chains supported by different donors; a complex pharmaceutical supply management system, due to uncoordinated parallel procurement systems and/or poor donation practices; a push system that results in over- and under-supply of some items; a weak information management system that does not provide timely and reliable medicine consumption/morbidity data; poor storage facilities; lack of transport and communication systems; a shortage of qualified pharmaceutical personnel at all levels; and a lack of adequate legislation and enforcement mechanisms to regulate the practice of pharmacy and assure safety and effectiveness of pharmaceuticals and medical devices.

Partners

SIAPS works closely with the National Ministry of Health (MOH) as well as the state MOHs (SMOHs) and the county health departments (CHDs) in the USAID-supported states of Central (CES) and Western Equatoria (WES). SIAPS also supports the Health Pool Fund (HPF), Jhpeigo, IMA, and the Integrated Service Delivery Project (ISDP) to roll out pharmaceutical management support in the other states of South Sudan.

Progress up to Year 2

Over the past four years, SIAPS and its predecessor program, SPS, has been supporting MOH to rebuild the institutional, technical, and organizational capacity of the health sector and public health programs. These programs utilized an embedment approach whereby full-time technical advisors are placed in supported program areas to work with and mentor their national counterparts on a day-to-day basis. This approach has been applauded by MOH and adopted by many partners. The SIAPS Program is continuing to use the embedment approach, focusing on technical support to the SMOHs for CES and WES to improve management of medicines at hospitals, primary health care centers, primary health care units, and county medical stores.

SIAPS has supported MOH and USAID in selecting and quantifying essential medicines under the Emergency Medicines Fund (EMF) and MOH-funded procurements to avert any stock-out of essential medicines in the country. Through the Pharmaceutical Technical Working Group (TWG), SIAPS conducted a mapping exercise to identify partners and roles in the supply chain area. This has resulted in better coordination and planning, helping avoid duplication and increasing the leveraging of resources. SIAPS has developed a training manual for pharmaceutical management in the public sector, which will be finalized

with MOH and disseminated at the state and county levels. SIAPS supported the National Malaria Control Program (NMCP) in training trainers for the management of uncomplicated and severe malaria, malaria in pregnancy, and laboratory quality assurance. SIAPS then coordinated the NMCP roll out of in-service training to health workers with leveraged resources from the Global Fund.

Key Achievements in Year 3

During year 3, SIAPS/South Sudan has focused support on the critical functions at the state and county levels and has made significant achievements toward improving supply management and services and building human resource capacity in pharmaceutical management:

- » **Coordination and Distribution:** To ensure access for life-saving essential medicines, SIAPS played a critical role at the national level with coordination of the pharmaceutical management activities involved in the roll out of the EMF procurements. SIAPS facilitated the EMF national TWG meetings, which resulted in a close working relationship with MOH, USAID, and the other implementing partners (USAID | DELIVER, ISDP, HPF, and IMA). Building on these relationships, SIAPS facilitated the management and distribution of EMF kits by coordinating all technical assistance with the partners and their county implementing partners to undertake distribution to the health facilities.
- » **Storage Management:** To improve storage management and make space available for EMF supplies, SIAPS de-junked all 16 county health depots in WES and CES. Because of this exercise, the first consignments of EMF supplies reached counties and facilities with minimal storage challenges. In addition, SIAPS advocated for other partners to conduct similar campaigns with other state and community health depots and health facilities.
- » **PMIS Tools:** To ensure the effective management of EMF commodities, critical tools for inventory management are necessary. SIAPS adapted, reviewed, and printed PMIS tools (stock cards, prescription forms, dispensing registers, issue and request vouchers, and monthly report vouchers) to help manage the EMF commodities. These tools have been distributed to all counties in WES and CES. It is expected that the tools will minimize stock outs and avoid expiries.
- » **Quantification of Essential Commodities:** To ensure continuous availability of essential commodities and supplies, SIAPS supported MOH in a national quantification for medicines and supplies that will be needed when the EMF supplies have been exhausted. The total cost of the procurement was approximately USD 30 million, and the procured commodities will be distributed to all counties in the 10 states of South Sudan.
- » **Medicine Quality:** To ensure the availability of efficacious medicines, SIAPS supported the Drug and Foods Control Authority by establishing an office at the Juba airport for quality control of pharmaceuticals entering the country. SIAPS provided furniture, a quality control minilab, and a register for the documentation of daily quality control work, as well as developed standard operating procedures. SIAPS procured minilab reagents and reference drugs

for Juba and Kaya (a border post in CES) which enabled quality control of imported medicines to guard against importation of substandard or counterfeit drugs, especially in the private sector.

- » **Policies and Governance:** To strengthen the NMCP and ensure that the malaria strategy is rolled out to the state and county levels, SIAPS supported the NMCP to develop the Strategic Plan 2014-2020 and the Malaria Indicator Survey (MIS) report.

Evidence of Success

	2013	2014
# of county stores that have been de-junked and stock cards updated (out of a total of 16)	12	16
Quantification report and bidding documents for procurement of essential medicines	1	1
# of policy documents developed and updated	0	1 ^a
#TOT pharmaceutical management trainings conducted	1	2 ^b

^a*National Malaria Strategic Plan*

^b*WES and CES (46 participants)*

SWAZILAND

Background

With support from PEPFAR, Swaziland has made progress towards improving access to quality health products, particularly in the HIV and AIDS sector. However, the recent shift from acute care to chronic care of HIV and AIDS has resulted in a whole new set of challenges to the health sector. These include, but are not limited to, increasing patient loads, lack of adequate waiting areas, deteriorating health facility infrastructure, inadequate numbers of health care providers, as well as the complexity of providing chronic HIV care. These issues have strained the Government's capacity to decentralize and improve the quality of health care. The country relies on imports for medicines, medical supplies, and laboratory commodities as there is no local production capacity. The national warehousing system is challenged by a shortage of space, making it difficult for the country to maintain the recommended six months of stock at the central level. In addition, the country was faced with serious fiscal challenges in the past few years, which in turn constrained the availability of medicines and medical products. Swaziland is one of only three countries in the Southern Africa Development Community (SADC) region that does not have a medicines regulatory authority to regulate the use, sale, importation, manufacturing, and exportation of medicines. The country's inadequate regulatory framework poses a threat to neighboring countries as prohibited medicines could be smuggled through Swaziland into these countries.

Partners

SIAPS works with a variety of Government partners in Swaziland: The Ministry of Health (MoH), MoH Procurement Unit, National Emergency Response Council for HIV and AIDS (NERCHA), The National TB Control Program (NTCP), the Central Medical Stores (CMS), the Swaziland Public Health Laboratory, National AIDS Program (SNAP), Sexual and Reproductive Health (SRH) Unit, and the Ministry of Finance. In addition, SIAPS works with the Southern Africa Nazarene University (SANU), WHO-Afro (Swaziland office), United Nations Population Fund (UNFPA), Clinton Health Access Initiative (CHAI), Medecins Sans Frontieres (MSF), the SADC Secretariat (Health and Pharmaceuticals portfolio), and the FDA-South Africa office, plus a number of other international and local implementing partners.

Progress up to Year 2

The MoH, with support from SIAPS, drafted the Pharmacy Bill and the Medicines and Related Substances Control Bill. The pharmacy bill seeks to regulate the practice of the pharmacy profession and license premises and the Medicines and Related Substances Control Bill will establish the medicines regulatory authority (MRA) to control local manufacturing, use, sale, import, and export of ARVs and TB and reproductive health commodities. Both bills were approved by the House of Assembly in July 2013. Subsequently, SIAPS facilitated establishment of an MRA interim desk which performs certain medicines regulatory functions pending the enactment of the Medicines and Related Substances Control Bill.

FUNDING FOR FY14

\$1,500,000 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS supports interventions that lead to an uninterrupted availability of quality health products for the HIV and TB programs with a focus will be on improving treatment outcomes and contributing to reducing treatment and drug costs in the procurement system.

SIAPS worked with WHO-Afro and other partners to finalize the Swaziland Pharmaceutical Strategic Plan (SPSP) 2012–2016 which guides and coordinates pharmaceutical sector interventions for a direct and holistic approach to strengthening pharmaceutical systems and services and addressing the gaps in the sector’s approaches toward fighting HIV and AIDS and the control of TB. SIAPS has assisted with establishing and implementing both a certificate and diploma in pharmacy curriculum at the Southern Africa Nazarene University (SANU). SIAPS has set up three LMIS systems in the country: RxSolution for stock inventory management, Pipeline for forecasting of products (ARV, TB, laboratory, and reproductive health), and Quantimed for quantification (ARV, TB 2nd line medicines,). SIAPS has also implemented the Sentinel Site-Based Active Surveillance for safety of antiretroviral and anti-TB medicines (SSASSA) and the Data Collection and Analysis Tool (DCAT) for the systematic collection and analysis of patient safety data for ART and anti-TB medicines.

Key Achievements in Year 3

During Year 3, SIAPS/Swaziland has had significant achievements in supporting the uninterrupted availability of health commodities for the HIV and TB programs by focusing on improving treatment outcomes:

SIAPS helped establish the National Essential Medicines Committee, which helps to improve transparency and accountability in the coordination, supply, and rational use of essential medicines.

- » **Pharmaceutical registration:** SIAPS assisted with developing and finalizing guidelines for listing medicines and registration of importers. Based on this, SIAPS recorded all medicines available in the health sector based on the EML. Furthermore, SIAPS worked with the MoH to alert importers of pharmaceutical commodities to register. As a result all five targeted importers registered and provided the lists of over 6,700 medicines they import into the country.
- » **Pharmacovigilance and Rational Use:** To improve treatment outcomes, SIAPS works closely with the Pharmacovigilance Unit to support HIV/TB active surveillance in six health facilities. To date, 1,691 clients have been enrolled in the pilot and 905 adverse events have been recorded, the most common of which are peripheral neuropathy (10%), rash (9%), and vomiting and dizziness (7% each). SIAPS also participated in the development of Swaziland’s national treatment guidelines for HIV, pediatric HIV, and prevention of mother to child transmission (PMTCT).
- » **Pre-Service Training:** SIAPS is working with stakeholders to reform pre-service health professional training curricula to address pharmaceutical management topics and ensure that it is accredited by a relevant governing body. SIAPS developed the three-year Diploma in Pharmacy curriculum for the Southern Africa Nazarene University (SANU) which was approved by the University Senate. There are currently 22 students enrolled in the diploma program and 22 students enrolled in the Certificate in Pharmacy program. In FY14, 15 students graduated and received their certificates in pharmacy through the SIAPS supported Pharmacy Program.
- » **Supply Planning:** To achieve an uninterrupted supply of health commodities, SIAPS helped conduct single- and multi-year supply plans for HIV and AIDS, TB, laboratory, and family planning commodities. The supply planning exercise results were used to generate purchase requests and orders. In addition, SIAPS tracked the availability of highly consumed HIV and AIDS

products at the Central Medical Stores and with no stock-outs recorded during this program year. These results illustrate the continuous effort to strengthen supply planning, logistics information use, and rational medicine use. The country also did not record any stock-outs of essential PMTCT products.

Evidence of Success

	2013	2014
Cumulative pharmaceutical management guidelines, lists, and SOPs developed and submitted for adoption	8	14
ART facilities provided mentorship and supported in pharmaceutical management	110	133
ART facilities using consumption data to inform ordering to the Central stores	110	133
Health facilities receiving feedback on previously reported data for improved ownership and use of data	37	39
Cumulative health care workers trained in pharmaceutical management cumulatively since 2012	556	728
Pre-service training through the SANU certificate/ diploma training programs	Year 1 students: 22	15 students graduating
	Year 2 students: 22	

SIAPS and UNFPA launched a five-year family planning commodities quantification report. The results of the quantification exercise projected an increase in the use of female and male condoms as well as implants, resulting in a \$7,387,531 procurement over the five-year period and projected the prevention of an estimated 2,654 maternal deaths.

TAJIKISTAN

FUNDING FOR FY14

\$377,000 TB

KEY PROGRAM STRATEGIES

SIAPS will strengthen the TB control system by improving information systems and enabling strategic use of information for decision making to address the threat of TB and MDR-TB.

Background

Tajikistan is one of 27 high MDR-TB burden countries; it has an estimated 16.5% MDR-TB rate among new TB cases and a 62% rate among retreatment cases (WHO 2010). The high rates of MDR-TB likely results from a number of underlying causes, including improper prescribing practices, misuse of medicines, and inadequate procurement and distribution practices resulting in stock-outs of anti-TB medicines.

An initial assessment in Tajikistan showed that the central unit leadership of the National TB Program (NTP) needs strengthening as well as improved technical and coordination skills in TB pharmaceutical management to provide better national TB program management. In addition, there is a need to improve human resource capacity, specifically the existing in-service (continuing education) training curriculum for health care professionals on topics relating to TB pharmaceutical management. Tajikistan has a paper-based logistics management information system (LMIS). The system works well at the facility level as it allows the staff to manage the stocks, monitor drug dispensing, and monitor and manage avoidance of expiration of drugs. However, the system does not allow for up-to-date quality information on TB drugs at the central level, which is necessary for effective management, decision making, accurate forecasting, and quantification of anti-TB drugs.

Partners

SIAPS primary counterparts in Tajikistan are the Ministry of Health (MOH) and the NTP. In addition, SIAPS works very closely with the WHO country office and TB CARE I project led by KNCV.

Progress up to Year 2

SIAPS has been working in the Central Asian region since 2011 collaborating with other regional TB projects funded by USAID and WHO and supporting implementation of Stop TB strategy. In mid-2013, SIAPS was provided TB funding to implement activities in Tajikistan. In May 2013, the MoH invited a SIAPS team to visit Tajikistan. The team met with national and international partners and conducted a primary assessment of the TB pharmaceutical management system and gathered information for developing the work plan for 2013/2014.

Key Achievements in Year 3

SIAPS/Tajikistan began implementing activities towards improving information systems that enable the strategic use of information to address TB and MDR-TB during Year 3.

- » **Pharmaceutical Management Information System (PMIS):** To improve the information systems for TB control, SIAPS has prepared a TB PMIS assessment report. This report maps the current TB-related information flows (both electronic and paper-based), describes the existing tools and data captured, defines the existing gaps for data capture, identifies requirements for the TB PMIS, and proposes future steps/actions.
- » **Technical Assistance and Capacity Development:** SIAPS is helping strengthen the NTP by building the capacity of its staff in TB pharmaceutical management. At the NTP's request, SIAPS also supported the development of the pharmaceutical management component of the new TB Control Strategic Plan (2015–2017). SIAPS worked with national counterparts to plan the pharmaceutical management curriculum reform for post-diploma education of TB specialists and nurses. It was agreed that out of 156 hours in-service training of TB doctors and nurses (which is required for all TB doctors and nurses every five years), six hours would be dedicated to TB pharmaceutical management. The training materials are currently being developed. SIAPS also supports the NTP in leading a drug management working group consisting of all international and national stakeholders.
- » **Supply Management:** SIAPS worked with the NTP to respond to Global Drug Facility (GDF) concerns, assess stock and problems in the supply of anti-TB pediatric medicines, and quantify needs for ordering from GDF. This resulted in a grant agreement between NTP and GDF to supply first-line fixed-dose combinations (FDCs) of pediatric anti-TB medicines covering the needs of the country (540 pediatric cases), worth about 48,000 US dollars. SIAPS also assisted NTP to uncover and avert a potential stock-out of injectable second-line anti-TB medicines.
- » **Supply Planning:** To address the supply problems of anti-TB medicines (poor planning, mistakes in quantification, etc.) SIAPS is working with the NTP to strengthen its supply planning system and create a mechanism for early warning to help avoid stock-outs and overstocks of anti-TB medicines. SIAPS conducted a workshop in the country with the national and regional TB pharmaceutical management coordinators to set up a system for quantification and early warning. SIAPS introduced QuanTB—a quantification and early warning tool and also developed an excel-based data collection tool specifically for Tajikistan. Drug management coordinators were trained on the use of these tools. Currently, data is collected and analyzed on a monthly basis countywide. Although the system has just recently been introduced, it has already helped to predict potential problems in the supply of anti-TB medicines.

Evidence of Success

	2013	2014
System for quantification and early warning of supply of anti-TB medicines has been implemented	No	Yes

TURKMENISTAN

FUNDING FOR FY14

\$77,000 TB

KEY PROGRAM STRATEGIES

SIAPS will strengthen the National TB Program of Turkmenistan by improving the TB management information system countrywide.

BACKGROUND

Turkmenistan has a tuberculosis (TB) incidence rate is 75 per 100,000 population, resulting in 3,900 new and relapse TB cases annually (WHO 2012). The country also faces 3.8 percent rate of multidrug-resistant (MDR)-TB rate among new TB cases and for retreatment cases (WHO 2010). The high rates of MDR-TB are the likely result of such underlying causes, such as improper prescribing practices, misuse of medicines, and inadequate procurement and distribution practices resulting in stock-outs of anti-TB medicines.

PARTNERS

SIAPS primary counterparts in Turkmenistan are the MOH and the National TB Program (NTP). In addition, SIAPS works very closely with the WHO country office.

PROGRESS UP TO YEAR 2

SIAPS has been working in the Central Asian region since 2011 collaborating with other TB projects in the region funded by USAID and WHO and supporting implementation of Stop TB strategy. In the latter part of FY 2012, SIAPS was provided TB funding to implement e-TB Manager activities in Turkmenistan.

KEY ACHIEVEMENTS IN YEAR 3

SIAPS/Turkmenistan began implementing activities towards improving the TB management information system during Year 3:

- » **TB Management Information System:** To strengthen the NTP, SIAPS, in collaboration with WHO/Euro, introduced e-TB Manager to the program and other counterparts. The NTP supported the idea of piloting e-TB Manager in Ashgabat City and Mary Oblast. SIAPS trained 22 users within the NTP, and set up a customized e-TB Manager administrative module on Turkmenistan workspace, while WHO procured the IT equipment for the pilot. The NTP has not yet started entering data in the system and has provided no clear explanation of the reasons for the delay. Since information system strengthening will improve transparency of TB data, it is possible that this is not of interest to some NTP or MoH officials. WHO and SIAPS continue to work with the NTP and MoH to start piloting the system as soon as possible. Once the e-TB Manager pilot is complete, SIAPS will be able to assess the feasibility of countrywide implementation of e-TB Manager and provide recommendations for optimal ways for strengthening the TB information system (including pharmaceutical management).

EVIDENCE OF SUCCESS

	2013	2014
The TB information system is fully operational for piloting purposes	No	Yes

UKRAINE

Background

The Government of Ukraine (GOU) has initiated a number of health system, policy, and legal reform efforts, including some to harmonize health policies and regulations with those in the European Union (EU), such as increased participation of civil society and medicines regulation. Some progress has been made in making ART and treatment for TB more available, but implementing best-practices for pharmaceutical management has not kept pace with the growing need for pharmaceuticals and health care services. Governance, political, human, financing, and infrastructure problems continue to present barriers to a sustainable, efficient health care system. Challenges to consistent availability of medicines include procurement delays and unpredictable distribution schedules; quantification processes are long and unclear, resulting in inappropriate quantities ordered. Other problems include inadequate storage conditions, ad hoc transportation of commodities without temperature control, lack of SOPs, and low rates of reporting adverse drug reactions (ADRs).

The existing electronic and paper-based systems at the regional and facility levels limit the capacity of ART centers to efficiently manage the increasing volume of products, patients, and reporting requirements. As a result, the Ukrainian Center for Disease Control (UCDC) and partners lack information and evidence to support budget proposals and advocacy efforts to justify funding increases for ART procurement, yet alone make accurate quantification and distribution plans.

Ukraine also faces serious challenges in the rational use of medicines. Incorrect use of medicines and prescribing practices that do not conform to STGs have contributed to morbidity and mortality as well as increased cases of drug resistance, especially for TB. The MOH has enacted many regulations that govern how medicines are selected, distributed, stored, and issued. Some existing regulations are outdated or incongruent, leading to uneven implementation or constraints to improving pharmaceutical management practices. Overall, the system is bureaucratic, and, even though much legislation has been based on European Union standards, implementation lags behind and there is a lack of emphasis on conflict of interest.

Partners

SIAPS works closely with the UCDC, the State Service, the State Expert Center (SEC), the International HIV/AIDS Alliance, and the All-Ukrainian Network of People Living with HIV and AIDS (the Network). In addition, SIAPS coordinates closely with the i-TECH, LMG, and ACCESS projects.

Progress up to Year 2

SIAPS and its predecessor programs, Strengthening Pharmaceutical Systems (SPS) and the SPS Associate Award, have been working with the GOU to improve pharmaceutical management for the HIV and TB programs since 2010. Technical assistance provided to MOH helped the GOU obtain two Global Drug Facility

FUNDING FOR FY14

\$2,215,000 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS will strengthen supply chain and pharmaceutical systems to ensure the continuous availability and the rational use of quality HIV and AIDS and TB-related medicines and commodities, and will strengthen the pharmaceutical management information systems (PMIS). A key component of the SIAPS strategy is active engagement of country counterparts to develop appropriate interventions, to ensure their ownership of solutions, and to result in sustainable changes.

grants for fixed-dose combination anti-TB medicines (2012, 2013). SIAPS has been supporting capacity-building activities for supply chain management personnel in all oblasts that are receiving second-line TB medicines from Global Fund. SIAPS has also incorporated pharmaceutical management elements in monitoring and supervisory approaches and tools being developed by the UCDC in collaboration with partners. In 2013, at the request of the UCDC, SIAPS and other partners contributed to developing plans for building organizational capacity of the UCDC in supply chain management, as the UCDC is starting to focus on the period of transition from international to domestic funding for these health programs. In addition, much progress has been made with MOH and other stakeholders in scaling up e-TB Manager in Ukraine since its adoption as the official TB register in 2012. As of July 2013, over 70,000 cases had been entered into e-TB Manager.

Key Achievements in Year 3

During year 3, SIAPS/Ukraine made significant progress in strengthening the supply chain and pharmaceutical systems through the active engagement of counterparts in developing and owning interventions that resulted in sustainable changes:

SIAPS continues to see increases in the percentage of TB units regularly entering data into e-TB Manager

- 21/25 oblasts entered at least 90% of new cases
- 88% of units are reporting on TB cases
- 12/15 oblasts are generating a set of standardized reports using e-TB Manager
- 99% of new TB cases were reported in e-TB Manager in conjunction with the official paper forms

- » **Data quality and reporting:** SIAPS and UCDC have been focused on advancing the scale-up of e-TB Manager and enhancing its functionality. Routine support has been provided to all regional users, resulting in all 25 oblasts entering patient data into e-TB Manager. As of September 2014, 130,000 cases had been entered. Steps were taken toward assuring e-TB Manager data-quality and its ability to support effective decision making. TB case numbers generated by e-TB Manager were cross-checked with paper based reports and there was a 99% consistency between them, a 20% improvement in data quality over the course of the project year. SIAPS continues to expand the capacity and utility of e-TB Manager through the current piloting of the new medicines module, which will allow better access to vital information about the supply of medicines for TB at both the regional and national levels.
- » **Patient tracking:** SIAPS is working with the State Penitentiary Service and National TB Institute of Yanovsky to implement e-TB Manager in the penitentiary system. Between 10-15% of TB patients are found within the penitentiary system, which also has higher rates of MDR-TB and TB/HIV co-infection. The National TB Institute, the biggest TB research hospital in the country, treats many of the referred MDR/XDR cases. Transfer of patients in and out of the penitentiary system while they are still on treatment has made tracking these patients particularly difficult. Statistical data from the penitentiary system has previously had low validity and/or quality and was provided in an unsystematic and inconsistent manner, which made following up this group of patients extremely difficult. To help address this issue, SIAPS has trained staff from the penitentiary system on e-TB Manager and is providing additional follow-up and support, while continuing to coordinate with UCDC and National TB Institute staff on the full introduction and implementation of e-TB Manager throughout the penitentiary system. Numerous steps are required to fully integrate these two services to provide TB care outside of the MOH system, so that the information system reflects

the continuity of care for specialized treatment, and between the penitentiary and civilian sectors.

- » **Pharmacovigilance:** A comprehensive pharmacovigilance (PV) system comprises more than ADR data collection and should include both active and passive surveillance methods, risk management, and effective mechanisms to communicate medicine safety information to health care professionals and the public. Spontaneous ADR reporting in the HIV and AIDS program has improved somewhat, however, there has been no PV training for TB health providers, and reporting in the TB program is still low. SIAPS, in collaboration with the SEC and program developer RGDData, is developing an automated information system to increase ADR reporting among e-TB Manager users and to expand active surveillance. The active PV protocol has been submitted for expert review and is awaiting approval. SIAPS has also provided assistance to the SEC to develop a PV national action plan for the national TB program.
- » **Rational drug use:** SIAPS in collaboration with SEC and the Kyivska Oblast TB dispensary has completed the first drug use review (DUR) piloting visit and finalized additional criteria for new medicines to be reviewed as part of the DUR data collection process. Data collection is scheduled to begin in October.

Evidence of Success

	2013	2014
# of oblasts regularly reporting at least 95% of new cases of TB/MDR-TB into e-TB Manager	0	25*
Cases entered into e-TB Manager	70,000	130,000
# of oblasts supported by SIAPS that have initiated DUR to ensure rational use of ART and anti-TB medicines	0	1

**National coverage except annexed Crimea and Sevastopol*

UZBEKISTAN

FUNDING FOR FY14

\$774,000 TB

KEY PROGRAM STRATEGIES

SIAPS works with national and international stakeholders to identify gaps, coordinate work, and build consensus to establish local buy-in for change by ensuring that national TB pharmaceutical sector development plans are strategic and evidence-based and the utilization of strategic information for decision making is increased.

Background

Uzbekistan is one of 27 high MDR-TB burden countries around the globe. It has an estimated 14% MDR-TB rate among new TB cases and a 50% rate among retreatment cases (WHO 2010). The high rates of MDR-TB likely results from a number of underlying causes, including improper prescribing practices, misuse of medicines, and inadequate procurement and distribution practices resulting in stock-outs of anti-TB medicines. Over the last several years, there have been numerous reviews of TB program management in Uzbekistan (for example Global Drug Facility, Green Light Committee, and WHO have done some assessments). However, there have been no comprehensive assessments with the goal of providing indicator-based information to the national authorities in relation to pharmaceutical management practices.

Partners

SIAPS primary counterparts in Uzbekistan are the Ministry of Health (MoH) and the National TB Program (NTP). In addition, SIAPS collaborates closely with the WHO country office.

Progress up to Year 2

SIAPS has been working in the Central Asian region since 2011 collaborating with other TB projects in the region funded by USAID and WHO, and supporting implementation of the Stop TB strategy. SIAPS's preceding program, SPS, had worked on implementation of e-TB Manager in Uzbekistan. As a follow-on to this work, SIAPS received funding for Uzbekistan toward the latter part of FY12. Prior to SIAPS return to Uzbekistan, e-TB Manager was adapted to the requirements of the NTP and was installed on the local server. It was successfully piloted in Tashkent, Tashkent Oblast, and some facilities of Kara-Kalpakstan. The Government of Uzbekistan included implementation of e-TB Manager in the National TB Control Program of Uzbekistan (2011–2015). The Global Fund helped implement e-TB Manager by developing the information technology infrastructure. A laboratory module was also developed for the e-TB Manager in collaboration with WHO. In addition, a set of documents for approving e-TB Manager's use as an information system according to the Uzbekistan standards were prepared and submitted.

Key Achievements in Year 3

SIAPS/Uzbekistan began implementing activities ensuring the development of strategic national TB pharmaceutical plans and the utilization of information for decision making during Year 3.

Strategic Planning: SIAPS promoted creating a TB pharmaceutical management technical working group within the MoH, and now collaborates closely with the group. The TB pharmaceutical management working group, consisting of seven members representing MoH, NTP, Republican DOTS, and Directorate of Quality

Control of Medicines and Medical Equipment, became the main national partner for SIAPS. In collaboration with the working group and WHO Country Office, SIAPS conducted an indicator-based assessment of the TB pharmaceutical management system to provide evidence for planning interventions to strengthen the TB pharmaceutical management system.

SIAPS helped develop a comprehensive protocol for the assessment, which included methodology, indicators, data collection forms, and a detailed action plan. SIAPS conducted a training-of-trainers for the data collection team leaders, who subsequently trained 20 health professionals on the assessment methodology and data collection. The trained health professionals collected data in five geographically different regions (oblasts). They interviewed 714 TB patients and more than 100 TB health care workers, reviewed more than 1,000 patient treatment cards, and assessed 65 pharmacies and drug stores in medical facilities. SIAPS provided technical assistance to analyze the data and develop an assessment report with the recommendations for action. Furthermore, SIAPS will lead an options analysis workshop at which the working group will present the findings and recommendations for interventions. All national and international stakeholders will contribute to the workshop and strategy development, with a goal of developing a national strategic plan.

TB Management Information System: After long consideration, in January 2014, the Minister of Health of Uzbekistan decided not to implement e-TB Manager. The official reason was that they decided to develop their own general health information system inclusive of a TB information system.

Evidence of Success

	2013	2014
Information for evidence based strategic planning is available	No	Yes (Comprehensive assessment of TB pharmaceutical management system has been conducted. The results of the assessment will be used for development of the TB pharmaceutical management strategic plan)

WEST AFRICA REGIONAL

FUNDING FOR FY14

\$1,090,244 PEPFAR

KEY PROGRAM STRATEGIES

SIAPS will focus on improving the coordination among regional and national stakeholders to ensure ARV and HIV and AIDS commodity availability, increasing the use of pharmaceutical management information for decision making, enhancing access to financial resources for the procurement of ARVs to prevent stock-outs, and building capacity for pharmaceutical supply management.

Background

Globally, Sub-Saharan Africa is the most affected region by HIV and AIDS. Barriers to accessing health services remain a major constraint particularly to marginalized populations mainly due to weak health systems. A number of countries in West Africa have reported alarming stock-outs of life-saving HIV and AIDS medicines, such as antiretroviral (ARVs) and opportunistic infection drugs. For example, eight countries in the region have not only had stock-outs of critical medicines, but have also generally demonstrated a lack of capacity to identify and address underlying causes as well as to generate accurate and reliable data for making decisions on what current stock is available and what will be needed. As in many countries, the root causes likely include poor coordination among partners, the lack of pharmaceutical management data for quantification (forecasting and supply planning), poor inventory management and storage practices existing at pharmaceutical warehouses and dispensing points, and the inadequate training and supervision of dispensary staff in health facilities. There are several response mechanisms trying to address stock-out crises at the country levels, but none of the solutions are coordinated or long term. The need for more a proactive and in-depth analysis of the root causes and implementation of effective long term solutions has become essential.

Partners

SIAPS is working with national HIV and AIDS Control Programs (NACPs) to enhance the collection, analysis, and use of supply chain data to promote a more coordinated approach to HIV and AIDS commodities management in six focus countries: Benin, Burkina Faso, Cameroon, Guinea, Niger, and Togo. SIAPS is collaborating with regional partners including JURTA, SOLTHIS, ESTHER, CHAI, and UNAIDS to strengthen regional coordination with related to HIV and AIDS commodities availability.

Key Achievements in Year 3

The SIAPS/West Africa Regional Project began implementing activities during Year 3:

- » **Situational Analysis:** SIAPS conducted a situational analysis in five of the six focus countries (excluding Benin) to gain an understanding of the current capacity for HIV and AIDS commodities management and supply. The analysis showed that not all stakeholders are coordinating their responses or providing funding information, and better transparency in commodity management is needed along with better registration systems and procedures. Other conclusions were that there are quantification deficiencies due to lack of data, there are many gaps in the procurement processes, and there are numerous storage, distribution, and inventory management weaknesses. Only one country (Togo) has an SOP manual for logistics management information systems (LMIS) for ARVs and RTKs, yet the majority of people involved in

the management of ARVs and RTKs are not trained in LMIS. Based on this analysis, SIAPS held a regional workshop for representatives of the countries national AIDS control programs to officially launch the SIAPS West Africa Regional Project, and present and discuss the results of the situation analysis propose interventions to address identified gaps.

There are more than 250,000 patients receiving ARVs in all five countries.

- » **Quantification and Supply Planning:** SIAPS provided orientation to the six focus countries’ program managers on quantification and supply planning for HIV and AIDS commodities, using Quantimed® and Pipeline. In addition, SIAPS provided technical assistance to Cameroon’s HIV and AIDS program to train members of the national quantification committee in forecasting and supply planning of lab commodities using ForLab® quantification tool. In addition to capacity building, a long-term forecast of lab commodities required for the Cameroon national HIV program has been developed to cover the period from 2014 to 2017.
- » **Information Management:** SIAPS developed and introduced a web-based dashboard tool for early warning system (EWS) to collect, aggregate and track information on HIV and AIDS commodities across the six focus countries. The dashboard allows the spectrum of stakeholders—from program managers to Ministry of Health officials to donor agencies—to monitor commodity stock status, anticipate future funding gaps, respond to projected medicine shortages and expiries, and make decisions based on accurate information. The HIV regional dashboard has already been deployed in Benin, Burkina Faso, Cameroon, Niger, and Togo. The deployment in Guinea has been delayed due to Ebola epidemic.
- » **Regional Coordination:** SIAPS partnered with West African Health Organization (WAHO) to ensure availability of ARV products in West Africa region by working together to develop the HIV regional dashboard. In addition, SIAPS attended two WAHO experts’ meeting. The first meeting was held to develop the ECOWAS Regional Pharmaceutical Plan (ERPP). The expected outcome of the ERPP is for the region to achieve self-sufficiency in local pharmaceutical production; reduce over-dependence on imports and over-reliance on donations by donors and partners, and strengthen the regional pharmaceutical sector by the year 2025. The second meeting focused on developing TORs for a web portal for the Essential Medicines and Vaccines Program.

Evidence of Success

	2013	2014
# of program managers that received training on the use of dashboards and quantification of ARV commodities	0	12
# of regional EWS dashboards developed and in use	0	1
# of semi-annual JURTA meetings attended	0	4
# of technical meetings or conference calls initiated by RHO/RHO partners with donors, civil society organizations, or regional institutions	0	15
# of occasions that program data is shared with key stakeholders	0	18

KEY LESSONS IN PHARMACEUTICAL SYSTEMS STRENGTHENING



Over the past year, SIAPS has worked with local counterparts and partners in 44 countries, with field support in 21 countries, and offices in 17 countries. Using six funding streams, its activities covered all pharmaceutical management technical areas, five health program areas and multiple non-health system components and stakeholders, (Finance, Education, Audit and Law). As diverse as these interventions, contexts, stakeholders, and resources are, SIAPS had learned some



key lessons that are both consistent and cross-cutting for the implementation of systems strengthening programs. In the coming years, SIAPS will continue to apply these lessons to improve its programming and inform its technical leadership activities in pharmaceutical management.

Advocacy

Government commitment and ownership is a prerequisite to mobilizing resources, improving legislation, policies or reforms, establishing or improving new pharmaceutical systems. Advocacy has been critical to SIAPS' success in securing necessary commitment and facilitating effective and sustainable improvements in pharmaceutical systems strengthening in Angola, Bangladesh, DRC, Dominican Republic, Ethiopia, Namibia, and Swaziland. SIAPS has learned that:

- » Institutions and governments will take ownership of interventions when they see their practical value in addressing institutional mandates and accountabilities. Matching our advocacy strategies to the host government's needs is therefore critical for success.
- » Local knowledge and credible contacts as well as ongoing technical assistance during implementation are essential to sustaining advancements through advocacy.

Collaboration

To promote ownership and inclusiveness, SIAPS endeavors to enlist the various stakeholders, including civil society, that have an interest in or are affected by SIAPS-supported activities and to build the capacity of partners who will take over leadership and oversight of these efforts. Several collaboration strategies were utilized in Angola, Bangladesh, Burundi, DRC, East Africa, Ethiopia, Guinea, LAC AMI, Lesotho, Mali, Philippines, South Sudan, South Tajikistan, Uzbekistan, and the West Africa Regional Project. This approach was three-pronged: strong working relationships with government counterparts; active engagement and coordination with other donors, implementing agencies, and development partners; and involvement of the private sector. Through these, SIAPS has learned that:

- » Stakeholder identification must happen early on and a clear vision and outcome of intervention(s) established from the beginning. Additionally, mechanisms to clarify roles and scopes of different stakeholders should be integrated into the engagement processes.
- » Creating opportunities for stakeholders to come together for open discussion of progress and develop a shared view of how to address obstacles and shortcomings will improve accountability and transparency; increase ownership; and encourage stakeholders to support continuous improvement.
- » Although management and coordination of many stakeholders is challenging and may result in slower implementation, it ultimately yields returns by enabling a more successful handover of interventions to country counterparts to sustain the results achieved.

- » Although the private sector is generally viewed as focusing on business and profits, SIAPS experience of working with the existing ADDO platform to support TB case detection and treatment shows that this sector can effectively contribute to pharmaceutical services through initiatives based on public-private partnerships.

Capacity Building

SIAPS capacity-building efforts help countries improve their ability to manage pharmaceuticals at all levels. All SIAPS programs have been engaged in our two-pronged approach to capacity building: individual and organizational. Some of the key lessons generated from these interventions include:

- » A systematic approach to strengthening the capacity of local institutions significantly enhances country ownership and increases the health system's ability to sustain the improvements in the long run.
- » Seconding staff to government agencies is a comprehensive mechanism for institutionalizing target capacity improvements. This model has worked especially well in Bangladesh and South Sudan.
- » The availability of relevant tools and job-aids is critical for helping newly trained workers apply their skills in the workplace and facilitate transformation from individual skills to system-level practices. Capacity building activities will be ineffective if the tools for actually doing the work are not accessible.
- » Pre-service curriculum reform is a health-system strengthening, sustainable, and cost-effective intervention that results in motivated students learning the practical aspects of public health. In Namibia, collaboration between UNAM and SIAPS has shown that innovative, case-based, and self-directed learning instructional designs can be effectively integrated into the existing pharmacy curricula to stimulate students to learn RMU and AMR.
- » In-service training and task shifting is an effective strategy for increasing access to medical products and services, improving health outcomes for patients, and improving the professional morale of existing health workers. In Ethiopia, the introduction of clinical pharmacy services has substantially improved early identification and prevention of medication errors (including inadvertent changes in regimens such as ART), drug interactions, ADRs, and adherence to treatment. In Burundi, the utilization of CHWs for malaria case management has led to a more than eight-fold increase in case detection and treatment between 2013 and 2014.
- » Leadership Development Programs centered on a team-based approach to capacity building, as implemented in Lesotho, Philippines, and South Africa, can promote shared vision, reinforce leadership values and practices, and foster sustainable organizational performance.
- » Multiple, combined interventions, consisting of follow-up training, supportive supervision, and mentoring, in Angola, Burundi, Cameroon, Ethiopia, Lesotho, Namibia, and Philippines resulted in significant employee

satisfaction and improved service delivery.

Data for Decision Making

SIAPS has addressed the challenge of the lack of pharmaceutical data through revision and roll out of appropriate data collection tools (paper-based and electronic). Across SIAPS programs, information management has been “revolutionized” with health workers adopting the use of computers to manage pharmaceutical information. Data from the pharmacy has been used for monthly reports, commodity forecasts, research activities, and funding proposals, including the Global Fund proposals. With SIAPS support, countries have developed more efficient systems for collecting, collating, and processing ART data, and some are transferring from a paper-based to an electronic system. In the process, we have learned the following lessons:

- » Even in resource-constrained settings, well-organized, dispensing-based pharmacy data can provide insight into patient uptake and prescribing patterns. This information can serve as a basis for taking timely actions to rectify deviations from treatment guidelines, as well as for program monitoring and quantification for essential medicines.
- » Standardizing data collection and reporting tools improves data accuracy and provides confidence in using the information for effective decision making. However, regular participatory data quality audits are critical for assuring long-term data quality improvements and the institutionalization of a “culture of data.”
- » Once validated, the use of electronic tools can be effective in ensuring data quality. In addition, electronic tools reduce paper work and address human resource constraints by increasing efficiency and broadening access to information by using mobile and/or web-based communication approaches. However, electronic tools are not appropriate for all contexts and must be implemented with due consideration to contextual determinants.
- » Early warning systems for stock-outs/overstock based on QuanTB proved to be efficient. Properly implemented and with follow-up, the EWS provided immediate results, such as prevention of treatment interruptions, rationalization of procurement and ordering, resulting in savings, and prevention of waste due to stock-outs. The tool also shows great potential in quantification and monitoring for phasing-in new medicines and regimens.
- » Dissemination and feedback loops for collected data are critical for generating action that can help improve health systems and outcomes, as witnessed in Angola, DRC, Mali, Namibia, Swaziland, and Turkmenistan.

Integration of Systems

In line with the GHI principle, SIAPS believes that coordinating and integrating the delivery of health interventions is essential for achieving sustained improvements in health. Integration ensures that all people have access to comprehensive services that meet their health needs. From a pharmaceutical management point of view, SIAPS programs have learned that:

- » Interventions that address systems are more powerful in ensuring sustainability and bringing about longer-term impact. An integrated pharmaceutical system improves efficiency and has a positive and sustainable impact on the availability of medicines and commodities used by disease control programs, such as HIV and AIDS, TB, and malaria.
- » A holistic approach that strengthens all functional areas of health supply management and builds human resource capacity significantly contributes to the effective and reliable supply of medicines and other health commodities.
- » Strengthening the health information system in some environments can generate other challenges, as promoting and making better data available and more transparent may not be supported by all government entities.
- » The systems strengthening approach facilitates the sustainability and continuation of all implemented activities to improve access to and use of commodities for women and children.

Response to Emerging Health System Challenges

In the past year, SIAPS country programs have been exposed to emerging challenges that have affected the ability to operate as intended and deliver planned services. Wars and political unrest in South Sudan, Ukraine, and Lesotho and the Ebola outbreak that started in early 2014 and continues to spread through parts of West Africa have affected the delivery of public health services in these countries. In responding to these pressures, SIAPS programs have learned that:

- » A well-thought out program of technical assistance should be flexible and ready to quickly lend its expertise to other areas of priority in case of emergencies. Sometimes, this requires thinking out of the box in the development of interventions.
 - SIAPS Guinea has had to adjust its focus to include active participation in international and local efforts to manage the Ebola epidemic. SIAPS is now a member of the national Ebola crisis team, specifically the Logistics Committee responsible for the quantification, distribution, storage, and management of supplies.
 - In Ukraine, SIAPS staff used Skype to conduct support calls and trainings to ensure that important technical assistance could still be provided and activities in the eastern and southern regions would not grind to a halt.
 - In South Sudan, SIAPS shifted to providing emergency relief and support for the distribution of essential medicines to county warehouses and health facilities.
 - In Lesotho, SIAPS introduced and mainstreamed WhatsApp, a social media communication application to provide remote support and communication to SIAPS-supported health facilities. This intervention led to improved reporting rates of health facilities to the DHMT that continued beyond the period of unrest.

ANNEXES

SIAPS Countries and SIAPS IRs in the Year 3 Work Plan

COUNTRY/PORTFOLIO	IR1	IR2	IR3	IR4	IR5
Africa					
Angola	•	•	•		•
Burundi	•	•	•	•	•
Cameroon	•	•	•	•	•
Democratic Republic of Congo	•	•	•	•	•
East Central and Southern Africa	•		•		•
Ethiopia	•	•	•	•	•
Guinea	•	•	•		•
Lesotho	•	•	•	•	•
Mali	•	•	•		•
Mozambique	•		•	•	•
Namibia	•	•	•	•	•
South Africa	•	•	•	•	•
South Sudan	•	•	•		•
Swaziland	•	•	•	•	•
West Africa Regional		•	•	•	•
Asia and Middle East					
Bangladesh	•	•	•		•
Philippines	•	•	•		•
Europe and Eurasia					
Tajikistan		•	•		
Turkmenistan		•	•		
Ukraine	•		•		•
Uzbekistan	•		•		
Latin America and the Caribbean					
Dominican Republic	•	•	•	•	•
Amazon Malaria Initiative	•	•	•	•	•
Core Portfolios					
Cross-Bureau	•	•	•	•	•
Malaria Core			•		•
MCH Core	•	•			•
NTD Core	•	•			•
TB Core	•	•	•		•
Total Countries	24	23	26	13	25

Number of Staff by Country Portfolio

COUNTRY/PORTFOLIO	IR1
Africa	224
Angola	11
Burundi	11
Cameroon	12
Democratic Republic of Congo	23
East Central and Southern Africa	2
Ethiopia	51
Ghana (WARP)	2
Guinea	3
Lesotho	13
Mali	13
Namibia	12
South Africa	44
South Sudan	12
Swaziland	15
Asia and Middle East	45
Bangladesh	35
Philippines	10
Europe and Eurasia	9
Ukraine	9
Latin America and the Caribbean	1
Amazon Malaria Initiative	1
Total Number of Staff (non-US based)	279

Partners Engagement during Program Year 3

During 2014, SIAPS continued to engage with its core and resource partners for the implementation of program activities.

The program continued to collaborate with its partner, the **Accreditation Council for Pharmacy Education (ACPE)** for the development of an accreditation framework for low and middle income countries. The collaboration also extended to assess the pharmacy school curriculum of Kinshasa University in the Democratic Republic of Congo and the development of key recommendations towards reforming pharmacy education at this University.

SIAPS continued to collaborate with the **Harvard Pilgrim Health Care (HPHC)** to pilot the intervention guide for the management of child illnesses in Zambia. More recently, SIAPS has also been collaborating with HPHC to identify appropriate tools to support analysis of data generated from selected information systems used by SUIAPS such as the Essential Dispensing Tool (EDT) and Rx Solution. Such tools will be useful to make best use of data for decision making.

Also, SIAPS continued to collaborate with the **Harvard School of Public Health (HSPH)** on the study funded by the office of HIV/AIDS (OHA) and that is aimed at identifying key facility level behaviors influencing the performance of the upstream HIV/AIDS supply chain system.

Collaboration with the **Logistic Management Institute (LMI)** was targeted this year to support Bangladesh for the assessment of its central warehouse management operations in support to family planning and essential health commodities. Findings from the assessment are used to develop recommendations for improving central supply chain processes.

SIAPS collaborated with the **University of Washington (UW)** during this program year. Specifically, UW provided assistance to the work of the program in Namibia in the areas of pharmacovigilance and pharmaco-economics. UW also continued to be engaged in SIAPS work in Ukraine in the area of pharmacovigilance.

SIAPS worked with its partner **Results for Development (R4D)** to develop a pharmaceutical expenditure tracking approach. The approach that builds on the findings from the literature review and on MSH financing framework is expected to provide the necessary guidance for the establishment of pharmaceutical expenditure tracking tools to be adopted by the global community.

During this reporting period, collaboration with the **William Davidson Institute (WDI)** resulted in the finalization of the costing study for the distribution of antimalarials in Benin and Kenya. Building on the findings, SIAPS worked with WDI to use the findings to develop a costing extrapolative model to be adopted by low and middle income countries for similar costing exercises.

During FY14, SIAPS worked closely with **Village Reach (VR)** to conduct a study to identify the burden from gathering supply chain data at the peripheral (facility) level in Malawi and Swaziland and to develop a policy paper that provide guidance on the minimum data set to be collected. Also, during this year,

Village Reach supported the development of Promising Practices in Supply Chain in collaboration with the Supply Chain and Local Markets Technical Resource Team of the UN Commission on Life-Saving Commodities for Women and Children. Representing SIAPS, VR also contributed to the tool kit produced by the Commission for Private Sector Engagement in supply chain.

This year was also an opportunity to continue the collaboration with the **Ecumenical Pharmaceutical Network (EPN)** to initiate a pilot activity in the area of pooled procurement among selected members of EPN, in Cameroon. Experience learned from this activity will provide an opportunity to develop guidelines for the replication of the model among other members of the network.

SIAPS work in Angola during FY14 provided the opportunity to collaborate with its partner **Imperial Health Sciences (IHS)**. The experience of IHS was utilized to assess the capacity of CECOMA as the national warehouse of Angola. Findings from this assessment will allow the formulation of improvements plans to reposition CECOMA as the Central Medical Stores to support the Angola supply chain system.

In September of 2014, SIAPS held a partners' meeting to discuss one of its key program strategic activities aiming at the development of a measurement framework and metrics for pharmaceutical systems strengthening. The meeting was an opportunity for all SIAPS partners to provide inputs to the proposed definition of pharmaceutical systems strengthening and to the key components and elements of the pharmaceutical system that would need to be considered in the measurement framework. All SIAPS core and resource partners cited above, in addition to the WHO, represented by PAHO, attended the meeting. The meeting was also facilitated by a representative from Boston University.

SIAPS Publications in Program Year 3

Improving the Professional Registration Process of Pharmacy Personnel through Streamlining the Assessment Framework, Methods, and Tools in Namibia

<http://siapsprogram.org/publication/improving-the-professional-registration-process-of-pharmacy-personnel-through-streamlining-the-assessment-framework-methods-and-tools-in-namibia/>

Programming the Purchase of Medicines and Supplies in the Dominican Republic's Public Health System

<http://siapsprogram.org/publication/programming-the-purchase-of-medicines-and-supplies-in-the-dominican-republics-public-health-system/>

Policy Brief: Improving Access to Malaria Diagnosis and Treatment in Remote Areas of the Amazon Basin Countries

<http://siapsprogram.org/publication/policy-brief-improving-access-to-malaria-diagnosis-and-treatment-in-remote-areas-of-the-amazon-basin-countries/>

August 2014 Bangladesh Newsletter

<http://siapsprogram.org/publication/august-2014-bangladesh-newsletter/>

Inventory of Tools for Maternal Health Supplies

<http://siapsprogram.org/publication/inventory-of-tools-for-maternal-health-supplies/>

Review of the List of High-Cost Medicines used by the Dominican Republic's Protected Diseases Program and Planning of Purchases for 2015

<http://siapsprogram.org/publication/high-cost-medicines-dominican-republics-planning-of-purchases-2015/>

Strengthening Pre-service Pharmacy Training on Rational Medicine Use and Antimicrobial Resistance

<http://siapsprogram.org/publication/strengthening-pre-service-pharmacy-training-on-rational-medicine-use-and-antimicrobial-resistance/>

Adverse Event Reporting on Antiretroviral Medicines in KwaZulu-Natal for April 2007 to March 2012

<http://siapsprogram.org/publication/adverse-event-reporting-on-antiretroviral-medicines-in-kwazulu-natal-for-april-2007-to-march-2012/>

Subnational Procurement of Maternal Health Medicines: Results from an Assessment in Bangladesh

<http://siapsprogram.org/publication/subnational-procurement-of-maternal-health-medicines-results-from-an-assessment-in-bangladesh/>

Engaging the Private Retail Pharmaceutical Sector in TB Case Finding in Tanzania: Pilot Dissemination Meeting Report

<http://siapsprogram.org/publication/engaging-the-private-retail-pharmaceutical-sector-in-tb-case-finding-in-tanzania-pilot-dissemination-meeting-report/>

Malaria Quarterly Updates April-June 2014

<http://siapsprogram.org/publication/malaria-quarterly-updates-april-june-2014/>

Tips for Lowering Pharmacy Temperatures to Maintain Good Medicine Quality
<http://siapsprogram.org/publication/tips-for-lowering-pharmacy-temperatures-to-maintain-good-medicine-quality/>

Promising Practices in Supply Chain Management
<http://siapsprogram.org/publication/promising-practices-in-supply-chain-management/>

Rapport de l'atelier de formation des utilisateurs régionaux et de district de Mopti sur le manuel des POS pour la gestion du système d'information logistique des médicaments essentiels et intrants des programmes de santé au Mali
<http://siapsprogram.org/publication/rapport-de-latelier-de-formation-des-utilisateurs-regionaux-et-de-district-de-mopti-sur-le-manuel-des-pos-pour-la-gestion-du-systeme-dinformation-logistique-des-medicaments-essent/>

Considerations for the Integration of HMIS and LMIS
<http://siapsprogram.org/publication/considerations-for-the-integration-of-hmis-and-lmis/>

SIAPS Newsletter June 2014
<http://siapsprogram.org/publication/siaps-newsletter-june-2014/>

June 2014 SIAPS/SCMS/BLC Newsletter
<http://siapsprogram.org/publication/june-2014-siapsscmsbhc-newsletter/>

Swaziland Pharmaceutical Strategic Plan (2012-2016): Baseline Survey
<http://siapsprogram.org/publication/swaziland-pharmaceutical-strategic-plan-2012-2016-baseline-survey/>

A Phone Call for Health: Improving Patient Care and Adherence to Treatment in Ethiopia
<http://siapsprogram.org/publication/a-phone-call-for-health-improving-patient-care-and-adherence-to-treatment-in-ethiopia/>

Guide for Malaria Commodities Logistic Management System
<http://siapsprogram.org/publication/guide-for-malaria-commodities-logistic-management-system/>

Quantification of Family Planning Commodities for January 2014 to December 2018
<http://siapsprogram.org/publication/quantification-of-family-planning-commodities-for-january-2014-to-december-2018/>

Enhancing Health Outcomes for Chronic Diseases in Resource-Limited Settings by Improving the Use of Medicines: The Role of Pharmaceutical Care
<http://siapsprogram.org/publication/enhancing-health-outcomes-for-chronic-diseases-in-resource-limited-settings-by-improving-the-use-of-medicines-the-role-of-pharmaceutical-care/>

Scaling Up Integrated Community Case Management in Burundi

<http://siapsprogram.org/publication/scaling-up-cmm/>

Quantification of HIV and AIDS Commodities for April 2014 through March 2016, Swaziland

<http://siapsprogram.org/publication/quantification-of-hiv-and-aids-commodities-for-april-2014-through-march-2016-swaziland/>

Estimation of Unmet Medical Need for Essential Maternal Health Medicines

<http://siapsprogram.org/publication/estimation-of-unmet-medical-need-for-essential-maternal-health-medicines/>

April 2014 SIAPS/SCMS/BLC Newsletter

<http://siapsprogram.org/publication/april-2014-siapsscmsblc-newsletter/>

Infection Control Assessment Tool: A Standardized Approach for Improving Hospital Infection Control Practices

<http://siapsprogram.org/publication/infection-control-assessment-tool-a-standardized-approach-for-improving-hospital-infection-control-practices/>

April 2014 Bangladesh Newsletter

<http://siapsprogram.org/publication/april-2014-bangladesh-newsletter/>

SIAPS Activity and Product Status Report: Year 3, Quarter 2

<http://siapsprogram.org/publication/siaps-activity-and-product-status-report-year-3-quarter-2/>

[Report on Quantification of Needs for HIV and AIDS Commodities and the Revised PSM Plan for the CTG/NACC under the Global Fund's New Funding Model in Cameroon](http://siapsprogram.org/publication/report-on-quantification-of-needs-for-hiv-and-aids-commodities-and-the-revised-psm-plan-for-the-ctg/nacc-under-the-global-fund's-new-funding-model-in-cameroon/)

<http://siapsprogram.org/publication/report-on-quantification-of-needs-for-hiv-and-aids-commodities-and-the-revised-psm-plan-for-the-ctgnacc-under-the-global-funds-new-funding-model-in-cameroon/>

Patients at Umzinto Clinic in KwaZulu-Natal Have Better Access to Medicines for Chronic Diseases

<http://siapsprogram.org/publication/patients-at-umzinto-clinic-in-kwazulu-natal-have-better-access-to-medicines-for-chronic-diseases/>

Evaluation of the Performance of Malaria Control Strategies in Latin America, Using Adequacy Criteria

<http://siapsprogram.org/publication/evaluation-of-the-performance-of-malaria-control-strategies-in-latin-america-using-adequacy-criteria/>

SIAPS Update March 2014

<http://siapsprogram.org/publication/siaps-update-march-2014/>

Clinics in North West Improve Compliance with National Core Standards

<http://siapsprogram.org/publication/clinics-in-north-west-improve-compliance-with-national-core-standards/>

[Monitoring Tool Helps Track Availability of Medicines in Limpopo](http://siapsprogram.org/publication/monitoring-tool-helps-track-availability-of-medicines-in-limpopo/)
<http://siapsprogram.org/publication/monitoring-tool-helps-track-availability-of-medicines-in-limpopo/>

Using Medicine Carefully Saves Money
<http://siapsprogram.org/publication/using-medicine-carefully-saves-money/>

SIAPS Support with New Tool Speeds up Reporting at Pharmaceutical Depot in Limpopo
<http://siapsprogram.org/publication/siaps-support-with-new-tool-speeds-up-reporting-at-pharmaceutical-depot-in-limpopo/>

Guidelines at the Primary Level of Care Help Strengthen Antimalarial Supply Management of the Malaria Diagnosis and Treatment Network in Chocó, Colombia
<http://siapsprogram.org/publication/guidelines-at-the-primary-level-of-care-help-strengthen-antimalarial-supply-management-of-the-malaria-diagnosis-and-treatment-network-in-choco-colombia/>

February 2014 SIAPS/SCMS/BLC Newsletter
<http://siapsprogram.org/publication/february-2014-siapsscmsblc-newsletter/>

Ethiopia's Food, Medicine and Health Care Administration and Control Authority: Protecting the Public Health
<http://siapsprogram.org/publication/ethiopias-food-medicine-and-health-care-administration-and-control-authority-protecting-the-public-health/>

Shorter Queues for Patients with Chronic Diseases at Kraaifontein Community Health Centre
<http://siapsprogram.org/publication/shorter-queues-for-patients-with-chronic-diseases-at-kraaifontein-community-health-centre/>

Management of Laboratory Reagent Supplies in the Dominican Republic Ministry of Health
<http://siapsprogram.org/publication/management-of-laboratory-reagent-supplies-in-the-dominican-republic-ministry-of-health/>

Rapport de l'atelier de formation en quantification
<http://siapsprogram.org/publication/rapport-de-latelier-de-formation-en-quantification/>

Plan de contingence de l'approvisionnement des structures de santé communautaire et du secteur privé en contraceptifs
<http://siapsprogram.org/publication/plan-de-contingence-de-lapprovisionnement-des-structures-de-sante-communautaire-et-du-secteur-prive-en-contraceptifs/>

Preventing and Minimizing Risks Associated with Antituberculosis Medicines to Improve Patient Safety
<http://siapsprogram.org/publication/preventing-and-minimizing-risks-associated-with-antituberculosis-medicines-to-improve-patient-safety/>

Rapport d'élaboration du plan de distribution des antipaludiques achetés par l'US-AID

<http://siapsprogram.org/publication/rapport-delaboration-du-plan-de-distribution-des-antipaludiques-achetes-par-lusaid/>

Rapport consolidé des ateliers régionaux de dissémination du SDADME révisé

<http://siapsprogram.org/publication/rapport-consolide-des-ateliers-regionaux-de-dissemination-du-sdadme-revise/>

Les acteurs clés du système pharmaceutique malien outillés pour relever les défis

<http://siapsprogram.org/publication/les-acteurs-cles-du-systeme-pharmaceutique-malien-outilles-pour-relever-les-defis/>

Antiretroviral and Sexual and Reproductive Health Commodity Quarterly Supply Planning Technical Report: Quarter 2

<http://siapsprogram.org/publication/antiretroviral-and-sexual-and-reproductive-health-commodity-quarterly-supply-planning-technical-report-quarter-2/>

Incorporation of the Supply of Antiretrovirals into the Dominican Republic's Integrated Management System for Pharmaceuticals and Medical Supplies

<http://siapsprogram.org/publication/incorporation-of-the-supply-of-antiretrovirals-into-the-dominican-republics-integrated-management-system-for-pharmaceuticals-and-medical-supplies/>

Grassroots Leadership Improves the TB Control Program for the Urban Poor in Quezon City, Philippines

<http://siapsprogram.org/publication/grassroots-leadership-improves-the-tb-control-program-for-the-urban-poor-in-quezon-city-philippines/>

Implantação da metodologia de supervisão local dos postos de diagnóstico e tratamento de malária como reforço da estratégia de controle no Brasil

<http://siapsprogram.org/publication/implantacao-da-metodologia-de-supervisao-local-dos-postos-de-diagnostico-e-tratamento-de-malaria-como-reforco-da-estrategia-de-controle-no-brasil/>

Comparative Analysis of Pharmacovigilance Systems in Five Asian Countries

<http://siapsprogram.org/publication/comparative-analysis-of-pharmacovigilance-systems-in-five-asian-countries/>

Study on the knowledge, attitudes and practices of malaria and malaria treatment in the small-scale gold mining sector in Suriname

<http://siapsprogram.org/publication/study-on-the-knowledge-attitudes-and-practices-of-malaria-and-malaria-treatment-in-the-small-scale-gold-mining-sector-in-suriname/>

January 2014 Bangladesh Newsletter

<http://siapsprogram.org/publication/january-2013-bangladesh-newsletter-2/>

Antiretroviral and Sexual and Reproductive Health Commodity Quarterly Supply Planning Technical Report: Quarter 1

<http://siapsprogram.org/publication/antiretroviral-and-sexual-and-reproductive-health-commodity-quarterly-supply-planning-technical-report-quarter-1/>

Technical Report: Baseline Study of the Status of the Supply of Medicines and Medical Supplies in Specialized Health Care Centers in the Dominican Republic

<http://siapsprogram.org/publication/technical-report-baseline-study-of-the-status-of-the-supply-of-medicines-and-medical-supplies-in-specialized-health-care-centers-in-the-dominican-republic/>

October 2013 SIAPS/SCMS/BLC Newsletter

<http://siapsprogram.org/publication/october-2013-siapsscmsblc-newsletter-2/>

Swaziland Medicines Safety Watch

<http://siapsprogram.org/publication/swaziland-medicines-safety-watch/>

Rapport de la table ronde sur le renforcement du système pharmaceutique en Guinée, avril 2012

<http://siapsprogram.org/publication/rapport-de-la-table-ronde-sur-le-renforcement-du-systeme-pharmaceutique-en-guinee-avril-2012/>

Improving the Preservation of Medicines through Coaching

<http://siapsprogram.org/publication/improving-the-preservation-of-medicines-through-coaching/>

Improved Monitoring of Patients and ARVs with the EDT

<http://siapsprogram.org/publication/improved-monitoring-of-patients-and-arvs-with-the-edt/>

November 2013 Bangladesh Newsletter

<http://siapsprogram.org/publication/november-2013-bangladesh-newsletter/>

Évaluation de la régulation du secteur pharmaceutique en Guinée

<http://siapsprogram.org/publication/evaluation-de-la-regulation-du-secteur-pharmaceutique-en-guinee/>

October 2013 SIAPS/SCMS/BLC Newsletter

<http://siapsprogram.org/publication/october-2013-siapsscmsblc-newsletter/>

Promoting Rational Medicine Use and Preventing the Development of Antimicrobial Resistance in Namibia: Workshop and Stakeholders Forum

<http://siapsprogram.org/publication/promoting-rational-medicine-use-and-preventing-the-development-of-antimicrobial-resistance-in-namibia-workshop-and-stakeholders-forum/>

Rapport de l'enquête sur la vérification de l'utilisation finale des produits de lutte contre le paludisme au Mali (Mali End Use Verification Survey Report), mai à juin 2013

<http://siapsprogram.org/publication/rapport-de-lenquete-sur-la-verification-de-lutilisation-finale-des-produits-de-lutte-contre-le-paludisme-au-mali-mali-end-use-verification-survey-report-mai-a-juin-2013/>

Combined On- and Off-Site Training Contributes to Strengthening Unified Pharmaceutical System in the Dominican Republic

<http://siapsprogram.org/publication/combined-on-and-off-site-training-contributes-to-strengthening-unified-pharmaceutical-system-in-the-dominican-republic-2/>

SIAPS Activity and Product Status Report: Year 2, Quarter 4

<http://siapsprogram.org/publication/siaps-activity-and-product-status-report-year-2-quarter-4/>

SIAPS Annual Report: Program Year 2

<http://siapsprogram.org/publication/siaps-annual-report-program-year-2/>



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