



South Africa End-of-Project Report

December 2016



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SLAPS 
Systems for Improved Access
to Pharmaceuticals and Services

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About SIAPS

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

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Key Words

Rx Solution, Rx Provincial Medicine Procurement Unit Pharmaceutical Leadership and Development Program, Pharmaceutical Leadership and Governance Initiative

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CONTENTS

Acronyms and Abbreviations.....	iv
Background.....	1
Key Interventions.....	2
Key Achievements	4
Lessons Learned.....	13
Sustainability.....	13
Future of Pharmaceutical Systems Strengthening	14
References.....	15
Annex 1. Table of Implementation Partners	16
Annex 2. List of Stakeholders that SIAPS has Collaborated with from PY1 to PY5.....	17

ACRONYMS AND ABBREVIATIONS

AMR	antimicrobial resistance
ART	antiretroviral therapy
ARV	antiretroviral
CCMDD	Central Chronic Medicine Dispensing and Distribution
CHC	community health center
EDP	Essential Drugs Programme
EML	essential medicines list
FS	Free State
KESS	Khayelitsha Eastern Sub-structure
KZN	KwaZulu-Natal
LDP	Leadership Development Program
M&E	monitoring & evaluation
MPC	master procurement catalog
MSH	Management Sciences for Health
MUE	medicine use evaluation
NDOH	National Department of Health
NHI	national health insurance
NMMU	Nelson Mandela Metropolitan University
NTSS	Northern Tygerberg Substructure (NTSS)
PHC	primary health care
PLDP	Pharmaceutical Leadership and Development Program
PLGI	Pharmaceutical Leadership and Governance Initiative
PMPU	Provincial Medicine Procurement Unit
PTC	Pharmaceutical and Therapeutics Committees
RMU	rational medicine use
SIAPS	Systems for Improved Access to Pharmaceuticals and Services
SMU	Sefako Makgatho Medical University
SOP	standard operating procedure
SPS	Strengthening Pharmaceutical Systems
STG	standard treatment guideline
TB	tuberculosis
TORs	terms of reference
UWC	University of Western Cape

BACKGROUND

South Africa, which is implementing the largest antiretroviral therapy (ART) program in the world, has more than two million patients on ART. In 2013, nearly 1% of the country's 50 million residents, (roughly 450,000 people [TBFacts]) developed active tuberculosis (TB). TB remains the leading cause of death in the HIV-positive population and issues around multidrug-resistant TB further complicates treating patients with TB. An additional challenge is the incidence of communicable diseases, which are the leading cause of death for children under five (Statistics Mortality). Access to medication is a factor in some of these deaths, as patients do not always receive the required medication or receive it inconsistently, leading to non-adherence to treatment (Brown 2011). More than 70% of the population receives their care from public health care facilities (Statistics Use), which puts pressure on the government to ensure the uninterrupted availability of essential medicines, including antiretrovirals (ARVs) and vaccines. In this context, suboptimal stock management and irrational use of medicines have serious public health implications with the potential to undermine all progress made against HIV and AIDS, TB, and in reducing mother and child mortality. Furthermore, limited leadership and management at the provincial, district, and facility levels have compounded the challenges surrounding access to essential medicines.

The overall goal of South Africa's Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program, funded by the US Agency on International Development, has been to strengthen the capacity of pharmaceutical systems at all levels to support the government's priority health programs and initiatives to improve health outcomes. The program aims to include strengthening pharmaceutical sector governance, enhancing capacity for pharmaceutical supply management and services, improving use of information for decision making for pharmaceutical services, improving access to and availability of medical products, and enhancing rational use of medicine and patient safety.



Map with geographical coverage of SIAPS interventions, PY1-PY5

Key Interventions

SIAPS worked closely with the National Department of Health (NDOH) and government counterparts at the provincial, district, and facility levels to address challenges through the following interventions.

Governance

SIAPS and NDOH worked to strengthen pharmaceutical systems governance by developing policies, guidelines, norms, and contractual documents to support increased access to and availability of medicines in South Africa. Norms and standards were developed and included on the pharmaceutical services dashboard. Technical assistance was provided to develop revised criteria for the licensing of pharmacies and contractual documents for the Central Chronic Medicine Dispensing and Distribution (CCMDD) program. Standardized job descriptions were developed for district and other level pharmacists, as well as for the Directorate: Affordable Medicine personnel in the NDOH. In addition, SIAPS assisted with developing or reviewing the terms of reference (TORs) of various national pharmaceutical sector committees. Support was also provided to the Department of Correctional Services to develop a pharmaceutical services policy.

Pharmaceutical Leadership and Development Program

SIAPS' Pharmaceutical Leadership and Development Program (PLDP) presented a novel approach by combining technical pharmaceutical knowledge with sound leadership and management practices to better equip pharmacy managers to respond to challenges in their work environment and improve service delivery. As depicted in the SIAPS framework for pharmaceutical system strengthening, targeted support to providers is critical to improve the performance of the health system. Most providers are, however, trained mainly on clinical components of the provision of health care as opposed to the interrelated areas of governance, human resources, information, and service delivery. SIAPS identified this gap and developed the PLDP to support pharmaceutical service providers in acquiring the skills and knowledge required in the leadership and management of pharmaceutical service delivery.

The Strengthening Pharmaceutical Systems (SPS) program launched the PLDP as a pilot project in Gauteng Province in 2011. It was expanded under SIAPS from 2012 through 2015. In just four years, the PLDP or the Leadership Development Program (LDP which does not include the additional modules relating to pharmaceutical service delivery) was scaled up and offered in seven of South Africa's nine provinces (Northern Cape, Free State [FS], Eastern Cape, North West, Western Cape, KwaZulu-Natal [KZN], and Limpopo). Workplace-based teams use information gained during the workshops to address real challenges faced in facilities and produce measurable results. In the FS province, PLDP was adapted to the Pharmaceutical Leadership and Governance Initiative (PLGI). Aspects of the PLDP were incorporated into the university curriculum for masters of pharmacy students at the Sefako Makgatho Medical University (SMU). Through the PLDP/LDP and PLGI, leadership and management capacity have been strengthened, and pharmaceutical service delivery in the provinces has improved.

Information for Decision Making

Strengthening structures and systems that ensure the availability of pharmaceutical information for decision making is central to SIAPS' goal. The South African government identified the need to optimise pharmaceutical management at the facility level by implementing an electronic pharmaceutical management system that would support informed decision making at all levels. To that effect, SIAPS/South Africa has continued to support the implementation of RxSolution, an electronic management system used to manage inventory, down referral, and dispensing medicine. The system, which was introduced in South Africa under the Rational Pharmaceutical Management Plus Program (2000–2007), allows electronic management of pharmaceutical inventory while enabling users easy access to information, including trends on inventory held, stock levels, medicine at risk of expiring, expenditures, and medicine consumption. Using RxSolution contributes to improved service delivery by supporting effective stock management and control with reduced wastage, the availability of information to support decision making, improved financial management, and enhanced accountability.

In 2015–2016, SIAPS conducted a study in the North West on antibiotic prescribing practices using data sourced from RxSolution. The findings of this study will assist pharmaceutical services in using RxSolution dispensing data to monitor the use of antibiotics and develop quality improvement plans to address challenges encountered.

SIAPS has also developed two dashboards—the Pharmaceutical Services Management Dashboard and the Hospital Dashboard—to facilitate access to usable data on current pharmaceutical service delivery.

Selection of Essential Medicines

The Essential Drugs Programme (EDP) of South Africa was established shortly after the publication of the national drug policy in 1996 (National Department of Health). The aim of the national drug policy is to promote access to medicines for all South Africans through the EDP, which includes the selection of essential medicines for primary, secondary, and tertiary levels. SIAPS supported the selection of essential medicines for South Africa by assisting the National Essential Medicine List Committee with technical medicine reviews and the incorporation of pharmacoeconomic concepts and costing analyses in decision making during the review of the essential medicine list (EML) and standard treatment guidelines (STGs). In 2015, SIAPS supported recruiting Expert Review Committees to select essential medicines, promoting a structured approach in seeking required skills for the committee, and promoting improved governance in the selection process. Previously, the appointment of committee members was through a peer nomination process and the call for nominations was not disseminated widely. SIAPS helped develop an electronic nomination form, a points system for the review of candidates, and a standard operating procedure (SOP) to assist in reviewing applications and selecting members. The TORs were used as a guidance document with regard to the skills members required. In addition, SIAPS assisted the EDP with developing the EML tool, which will help in improving transparency and efficiency in the selection process.

SIAPS encouraged dissemination and implementation of the guidelines by developing the first smart phone application for the adult hospital-level STGs and EML. SIAPS also supported the implementation of the primary health care (PHC) STGs and EML and mobile application by reviewing chapters to develop the application and a strategy for provincial implementation. This strategy will be used to implement future guidelines.

Rational Medicine Use

Pharmaceutical and Therapeutics Committees (PTCs) are designed to promote the safe and effective use of medicines in health facilities. A report, *Promoting the Rational Use of Medicines through Pharmaceutical and Therapeutics Committees in South Africa: Results, Challenges, and Way Forward*, published in 2012 under the SPS program, noted marked differences in the functions performed, levels of functionality, and how communication took place between PTCs at the provincial, district, and hospital levels (Strengthening Pharmaceutical Systems 2012). Since 2012, SIAPS/South Africa has supported establishing and standardizing the functions of PTCs by providing technical assistance to develop guidelines, standards, and policies to harmonise the structure, functionality, and communication strategies of these bodies. SIAPS strengthened the role of PTCs in monitoring and analysing pharmaceutical expenditures and conducting medicine use evaluations (MUEs) to support evidence-based decision making and enable cost saving interventions. In addition, SIAPS built capacity on rational medicine use (RMU) at the pre- and in-service levels through mentoring and training, and also reforming university curricula.

At a national level, SIAPS worked with the EDP to develop the National Antimicrobial Resistance (AMR) Strategy, National Implementation plan, and TORs of the Ministerial Advisory Committee on AMR. Antibiotic consumption analyses will provide baseline information to facilitate informed decision making by the committee.

Key Achievements

Governance

SIAPS has facilitated or contributed to the development, review, revision, and finalization of 17 policy documents to support good governance. SIAPS provided technical assistance for guidelines on national contraception clinical services, pharmacoeconomic submissions, PTCs, as well as national policies on procurement, AMR, and issuing authorization to professional nurses to perform certain functions.* SIAPS provided technical assistance with the review of the *Adult Hospital Standard Treatment Guidelines and EML*.

SIAPS has provided technical assistance in developing the National Strategy for Improved Availability of Health Products that outlines the strategy for achieving improved, sustained availability of and equitable access to health products for the people of South Africa for the next three to five years. Various supporting concept notes were also developed.

SIAPS also supported the development of 21 pharmaceutical management guidelines, lists, and SOPs, and five monitoring and evaluation (M&E) plans. In particular, SIAPS helped strengthen the contractual agreements between the provincial warehouses (depots) in South Africa and their respective clients. SIAPS has supported the implementation of the CCMDD program, for which an M&E framework was developed in collaboration with a local non-profit organization, Health Systems Trust, as well as a guideline document for medicine pick-up points for patients.

Working with NDOH, SIAPS helped implement a new method of pharmaceutical tender management that reduces manual data capture and improves management of bid information as well as new criteria for the evaluation of bids. This work included the development of the tender management module and master procurement catalogue (MPC). The interface enables the seamless flow of MPC updates to various systems, including RxSolution.

A notable achievement of SIAPS' technical assistance to strengthen pharmaceutical sector governance was to develop a guidance document that can be used to prepare or review the TORs of any committee responsible for making decisions or providing oversight in the sector. The standardized template was used to revise the TORs of the committee responsible for the evaluation of bids for items on tenders for pharmaceutical and medical-related items, the National Essential Medicines List Committee, the CCMDD task team, and the forum to promote transparency and multi-stakeholder engagement regarding medicine availability.

In PY5, SIAPS used lessons learned from implementing the MS Excel-based version of the Pharmaceutical Services Management dashboard to support the design of a web-based platform to support data collection and analysis. The dashboard gives the NDOH a mechanism to assess the provision of pharmaceutical services across the provinces, thus promoting transparency and accountability. Governance, financial management, and supply chain management are being strengthened and accountability improved through routine reporting to the National Health Council. Reporting on the dashboard is divided into four domains, which cut across the WHO health system building blocks and have a key role in supporting service delivery—RMU and patient safety, financial management, medicine supply management, and human resource management. The domains include 40 norms and standards, with supporting indicators at input, process, output, and outcome levels.

Capacity Building

Since the inception of SIAPS, six pre-service and three in-service health professional training curricula were developed or reformed to address pharmaceutical management topics. A total of 1,206 were people trained on pharmaceutical management, 274 completed the PLDP or LDP which is conducted in-service, and 340 graduated from a pre-service training institution.

Examples of success in this area were the institutionalisation of RMU and medicine supply management in undergraduate and post-graduate curricula. Under the SPS Program, an elective module on PTC was developed for fourth-year pharmacy students at Nelson Mandela Metropolitan University (NMMU). In 2015, the PTC module was integrated in the core curriculum of the Bachelor of Pharmacy curriculum for third-year students. SIAPS also worked with the University of Western Cape (UWC) School of Public Health and School of Pharmacy on

the development and implementation of online courses on RMU and medicine supply management. The RMU course is an elective module in the Master of Public Health program but can also be taken as a stand-alone course and is targeted at health care professionals with the intention of strengthening their skills to promote RMU in their workplace. The courses have been entirely handed over to the UWC.

Pharmaceutical Leadership and Development Program

The PLDP has not only built individual capacity of health care providers, but strengthened institutional capacity at the health service delivery level. The interventions implemented under SIAPS have resulted in a wide range of individual, organizational, and health service delivery outcomes, including improved quality of service provision, medicine availability and accessibility, patient safety and adherence, and patient experience; increased RMU; and enhanced organizational capacity. By the end of September 2016, 274 health care professionals and 76 teams had participated in PLDP/LDP. These participants, who came from 467 facilities and offices, implemented 87 quality improvement projects.

A striking example of a health service delivery achievement is found in the KZN Provincial Pharmaceutical Supply Depot. In 2013, it took an average of 27 days for the main medicines order from a facility to be processed and provided to the courier for dispatch. After the PLDP team intervention, this time was reduced to 13 days. By sustaining the effort, the time taken was reduced further to 10 days in 2015 (table 1).

Table 1. CNP Examples of Quality Improvement Activities Implemented and Results Achieved

Priority Areas	Province	Year result achieved	Facility/District	Results Achieved
Improving patient experience	Western Cape	2013	Kraaifontein Community Health Centre (CHC), Northern Tygerberg Substructure (NTSS)	Reduced average patient waiting time at the pharmacy from 41 to 19 minutes
	Western Cape	2014	Hanover Park CHC, Klipfontein Mitchells Plain substructure	Median waiting time for patients at Hanover Park Pharmacy was reduced from 157 minutes to 75 minutes
	Western Cape	2015	Strand CHC, Khayelitsha Eastern Substructure (KESS)	Increased the percentage of patients consulted by a clinical nurse practitioner from 7% to 29%
Ensuring medicine accessibility	KZN	2013	PHC facilities, Ugu district	Reduced the defaulter rate of patients collecting pre-dispensed chronic medicine from 28% to 23%
	KZN	2013	Multiple clinics, Sisonke district	Reduced the value of expired stock from 3.4% to less than 0.5% of stock holdings
	Limpopo	2014	10 PHC facilities in Sekhukhune district	Improved compliance for National Core Standards extreme measure scores from an average of 78% to 83%
	Western Cape	2015	Elsies Rivier CHC, NTSS	Improved off-site supply of chronic medicines by increasing the number of community-based collection sites
	Limpopo	2015	Mokopane and Warmbath hospitals, Waterberg district	Facilitated the use of RxSolution—an electronic inventory management system—at two of the hospitals in the Waterberg district
	Western Cape	2015	Khayelitsha CDC (Site B), KESS	Reduced the proportion of prescriptions rejected for medico-legal and clinical reasons from 7% to 3.2% over a six-month period
	FS	2016	Parys, Mafube, Fezi Ngubentombi, Tokollo district hospitals and Boitumelo regional hospital, Fezile Dabi district	Improved stock availability of antibiotics and parenteral products by 10% by reviewing and updating reorder levels at Fezile Dabi hospitals
Ensuring RMU	North West	2013	Joe Morolong Memorial Hospital, Dr Ruth Segomotsi Mompati Health district	Average number of patients initiated on isoniazid preventive therapy for the treatment of latent TB increased from three to eight per month
	KZN	2013	Imbalenhle CHC, Umgungundlovu district	Reduced inappropriate prescriptions by 53% over a five-month period
	KZN	2014	Stanger, Montebello Hospitals and Sundumbili CHC, Ilembe district	Improved compliance with STGs for prescribing non-steroidal anti-inflammatory agents from 57% to 94%, 60% to 68%, and 37% to 67% at each respective facility

Based on the success of the PLDP, an expanded team was created in eThekweni South sub-district to implement another quality improvement intervention. This was part of the PLDP sustainability initiative conducted in KZN over a year starting in August 2014. Using the PLDP tools and approach, the team identified the establishment of a district PTC as a key enabler for organizing and focusing the use of limited resources for medicine to improve health outcomes. Following the mobilizing and alignment of key stakeholders, the eThekweni South PTC was formed and its members trained on the TORs. An operational plan and communication protocol to streamline communication on out-of-stock medicines were developed, implemented, and monitored using a cooperative approach.

SIAPS worked with the Pharmaceutical Services Directorate in the FS to adapt the PLDP to the PLGI, which was designed to help address challenges related to medicine supply management identified by the auditor general. Aspects of the PLD were also adopted by SMU and incorporated into one of the modules of an existing post-graduate curriculum in public health pharmacy and management.

In 2015, the Management Sciences for Health (MSH) Leadership Management and Governance Project commissioned an external assessment of two leadership and management interventions that support institutional strengthening and team-based approaches: the LDP and the Institutional Strengthening Program. The findings related to the SIAPS PLDP work in South Africa indicated visible successes. In the MSH Assessment Report, SIAPS partners provided comments on how PLDP principles have been institutionalized. For example, the Head of Pharmaceutical Services, KZN said, “The challenges taken up by the teams are all linked to our performance... these are the issues that we report to our principals....the PLDP projects became part of our regular reports. This was not seen as something on the side. It was integrated with our work ...complemented our work ...it got positive acceptance from the principals....”

Information for Decision Making

In 2014, the NDOH endorsed RxSolution as a tool to manage pharmaceutical inventory. To date, SIAPS has implemented RxSolution in 442 sites across 8 provinces. By September 2016, 453 facilities were using RxSolution for stock management and in some facilities dispensing medicine to patients.

RxSolution is interoperable and currently interfaces with five other information systems—Patient Administration and Billing, Delta 9, Medsas, Tshwane Biometric System, and RxPMPU (Provincial Medicine Procurement Unit). It is also linked to the National Hospital Dashboard. Through these interfaces, RxSolution can keep track of medicines from ordering to dispensing to patients. Since the system can also be linked to the network of other facilities, this information can be stored on a central database.

SIAPS developed RxPMPU as an extension of RxSolution to help facilities place orders directly with suppliers. Through this intervention, SIAPS assisted the NDOH with establishing Provincial Medicine Procurement Units (PMPUs) in three provinces. The direct delivery process introduced to the PMPUs was implemented to overcome weaknesses at the level of provincial warehouses and supports the uninterrupted supply of medicines to public health facilities.

To support the sustainability of using RxSolution in public health facilities, SIAPS partnered with various institutions of higher learning and integrated training on RxSolution into the pre-service curricula for pharmacists and mid-level pharmacy personnel. RxSolution is currently incorporated into curricula at the NMMU. Trainers, including lecturers, at the University of North West were also trained on the use of RxSolution. SIAPS has trained IT officials in facilities, districts and provinces to ensure continuous support and troubleshooting during system use. By September 2016, IT officials from Mpumalanga, Limpopo, Northern Cape, KZN, Gauteng, and North West province had been trained on RxSolution.

During PY5, SIAPS worked with NDOH to develop the hospital dashboard which forms part of the National Surveillance Center. The dashboard enables facilities to report on and allows the NDOH to see what medicines are available and the capacity to track key indicators relating to inventory and expenditure at facility level. The dashboard also provides an early warning system for stock-outs. Interfaces have been developed to enable an automatic upload of data to the hospital dashboard. By September 2016, 155 hospitals, well over the NDOH's annual performance plan target of 75, were able to provide data to the dashboard. The hospital dashboard has been a critical intervention in supporting NDOH to meet the national target of establishing a National Surveillance Center for the tracking and triangulation of medicine stock out signals. SIAPS has also worked with partners to improve inventory management at hospitals reporting poor availability.

SIAPS's support to improve the use of information in decision making extended beyond RxSolution through the use of the hospital dashboards and analysis of generated data. Forty-three ABC analyses were performed to assess whether improvements in RMU or procurement had occurred.

Rational Medicine Use

As South Africa moves toward national health insurance (NHI), appropriate use of medicines is essential to achieve health outcomes and maintain financial sustainability. SIAPS built on the framework for pharmaceutical systems strengthening and the lessons learned from the SPS program to design an evidence-based strategy to support the South African government's efforts to promote RMU.

At a national level, SIAPS collaborated with NDOH on the development of policy, norms, and standards aimed at bridging the gap and overcoming differences between PTCs. The purpose of the *National Policy for the Establishment and Functioning of PTCs in South Africa* was to provide standards for the establishment of PTCs in both the public and private sectors, paving the way for their role under NHI.

The *National Strategy Framework for Antimicrobial Resistance 2014–2024* and the *National Implementation Plan for AMR 2014-2019* developed with SIAPS support emphasises the appropriate use of antibiotics as a key intervention to control the emergence and spread of AMR. At the provincial level, SIAPS has supported the establishment and strengthening of governance structures to promote RMU. In May 2013, the Gauteng Provincial PTC, with technical assistance from SIAPS, developed the *Guidelines for Implementation of PTCs* in an attempt to harmonise

the role of district and facility PTCs and promote RMU as a key function. SIAPS collaborated with KZN Pharmaceutical Services to revitalise the Provincial PTC, developing new TORs and strengthening governance processes. The new KZN PTC was launched in March 2014. SIAPS worked with the Western Cape Pharmaceutical Services on the development of TORs for the Medicine Use Evaluation Sub-committee of the Western Cape PTC responsible for the coordination and implementation of medicines use evaluations in the province.

Working with PTC members, SIAPS built capacity in analysing expenditure on medicines, identifying potential medicines use problems and designing corrective interventions. MUEs have been implemented in various provinces to assess compliance with the national STGs. The results from the evaluations were then disseminated to program managers and clinicians to foster implementation of corrective interventions (table 2).

Table 2. Examples of interventions Implemented at Service Delivery Level to Promote RMU

District/ Province	Year completed	Background	Intervention	Results
Gauteng Province	2012	Following an analysis of the expenditure per medicine and per therapeutic class, the provincial PTC reviewed the available evidence and concluded that therapeutic interventions could potentially result in significant reductions in expenditure without compromising treatment safety and efficacy.	Formulary recommendations: <ul style="list-style-type: none"> • Enalapril as the preferred ACE inhibitor • Amlodipine as the preferred calcium channel blocker 	Estimated savings: <ul style="list-style-type: none"> • ZAR 6.9 million (\$843,520) per 100,000 hypertensive patients. • R 10.2 million (\$1.2 million) per 100,000 hypertensive patients.
Gauteng Province	2013	In 2011, an analysis of ARV provincial consumption data highlighted wide variations in the percentage of patients on second-line ART, ranging from 0% to 31%, at public health care facilities. These variations across facilities raised concerns about compliance with STGs, as well as the need to understand the factors contributing to the switch to second-line ART.	MUE to assess compliance with HIV clinical guidelines in 32 facilities (323 medical records)	49.4% compliance with STGs for switching patients to second-line ART
West Rand district, Gauteng Province	2015	The 2013/2014 West Rand Top 20 medication issue report indicated abacavir and abacavir combinations as one set of medicines on the list. This analysis of the pharmaceutical expenditure showed a need to determine the percentage of compliance with the STGs for the use of abacavir 300 mg in HIV-positive clients.	MUE to assess compliance with HIV clinical guidelines in 9 facilities (84 medical records) using the tool provided in the <i>Guidelines for Implementation of PTCs</i>	64.2% compliance with STGs for the use of abacavir in adult patients
Western Cape Province	2015	Aspirin ranked within the top 20 on the provincial pharmaceutical expenditure report for the period from April to September 2014. Similar expenditure and usage patterns were observed for 2013/14 and 2014/15. Based on these indicators, the Western Cape PTC requested that an MUE be conducted for aspirin.	MUE to assess compliance with PHC STGs in 254 facilities (4,500 medical records)	Less than 40% compliance with STGs for use of aspirin

District/ Province	Year completed	Background	Intervention	Results
North West Province	2016	Inappropriate use of antibiotics is a major driver in the emergence of resistant bacteria. Antibiotic consumption data and monitoring of prescribing practices are needed to support informed decision making at facility and programme levels.	Evaluation of antibiotic use in 18 hospitals using RxSolution dispensing data (307,449 patients)	39% of patients were prescribed an antibiotic. The number of antibiotics per script ranged from 1 to 8; 60% of prescriptions had only one antibiotic. Average duration of antibiotic treatment was 7 days. Amoxicillin was the most frequently prescribed antibiotic (Berrada 2016).

LESSONS LEARNED

The lessons learned from the implementation of various interventions, have illustrated the importance of stakeholders assuming ownership for the introduction and rollout of any system strengthening intervention. This is important to ensure successful transition of approaches and tools at the end of a project. In addition, it is imperative that there is a clear understanding of the current situation, as well as the desired end point, before any work commences. Quality time must be spent on the design of the approach to be used, whether it is the rollout of a tool, such as RxSolution, or conducting an MUE in a province. The identification, mobilization, and alignment of stakeholders are also essential to the success of any intervention. Roles and responsibilities must be clearly defined. SIAPS/South Africa has learned that involving counterparts in the design of interventions and co-creation of any tool or product are essential to success. Experience has also shown that technical capacity building must be supported by strong leadership and careful change management.

Sustainability

The final year of the SIAPS/South Africa program is a pivotal year for health initiatives in South Africa. In 2016, work will continue towards the establishment of NHI, the CCMDD will be scaled up and the Test and Treat program will be implemented. These interventions will be supported by the legacy of SIAPS' work on strengthening governance, leadership development and the implementation of systems to strengthen stock management and data usage. During the final year of the project, SIAPS has ensured that support provided has been strategically focussed on handover and close-out of activities.

This is done largely through facilitating ownership by the national and provincial governments and tertiary institutions. The following transition activities were implemented in consultation with the relevant stakeholders to ensure sustainability:

- Documentation of the interventions completed, including technical reports on the approach used, results, and lessons learned
- Completion and dissemination of training manuals for training courses
- Facilitation of the involvement of the NDOH and other partners in the facilitation of courses;
- Facilitation of the involvement of other partners in the implementation of activities that cannot be completed before the end of SIAPS;

Regarding electronic tools:

- Completion and dissemination of users and technical manuals for all electronic tools;

- Training of super users at national and provincial levels for all electronic tools
- Handover of the source codes of all electronic tools to the NDOH
- Facilitation of transitional solution for the hosting of electronic tools

Future of Pharmaceutical Systems Strengthening

One of the key lessons learned from the years of implementing systems strengthening activities is the critical importance of collaboration. The skills, knowledge, infrastructures and systems are out there and need to be built on. Duplication of effort needs to be limited through information sharing.

Building on the expertise and capacity of the private sector through public-private partnerships needs to be strongly encouraged and facilitated through strong governance structures and systems. The recent success of the rapid scale up of the stock visibility system implemented at primary health clinics is an example of the benefits gained from such collaboration between the NDOH and the private sector. As the country moves towards NHI, innovative public-private partnerships can assist in fast-tracking strengthening of the health system.

Similarly, institutions of higher learning are relatively untapped resources. Strengthening the collaboration with universities can benefit government, researchers and the students. Building capacity at pre-service level is a long term investment which will ultimately ensure that relevant competencies, skills and knowledge are entrenched in the human resources responsible for managing pharmaceutical systems.

Finally, the use of interoperable electronic systems will assist in automating processes enabling more time for the provision of patient care, management, and use of information for decision making.

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ANNEX 1. TABLE OF IMPLEMENTATION PARTNERS

Implementing Partners	Intervention(s)	Year(s)
<ul style="list-style-type: none"> • Maternal Adolescent and Child Health (MatCH) • Foundation for Professional Development (FPD) • BroadReach • ANOVA Health Institute 	RxSolution installation and training	PY4-PY5
<ul style="list-style-type: none"> • Supply Chain Management Systems (SCMS) 	Contract demand forecasting analysis, project planning for tenders, contract management for medical related contracts, work on NDOH National Strategy for Improved Availability and Access: Health Products and job descriptions for the Directorate: Affordable Medicines at NDOH	PY3-PY5
<ul style="list-style-type: none"> • Health System Trush and Project Last Mile 	National workshop on access to medicine and development of M&E framework for CCMDD program	PY3-PY5
<ul style="list-style-type: none"> • Aurum 	Work on pharmaceutical policy for the Department of Correctional Services	PY5

**ANNEX 2. LIST OF STAKEHOLDERS THAT SIAPS HAS COLLABORATED WITH
FROM PY1 TO PY5**

Stakeholders	Intervention(s)	Year(s)
NDOH	<ol style="list-style-type: none"> 1. Development of National Strategy for Improved Availability and Access: Health Products, policies, guidelines, norms, contractual documents and job descriptions 2. Governance for CCMDD program 3. Reporting by the Central Procurement Unit 4. RxSolution 5. Tender Management Module 6. Hospital dashboard for early detection of stock-outs of medicines 7. MPC 8. Essential Medicines List Tool (EMLT) 9. Technical support to National Essential Medicine List Committee 10. AMR 	PY1-PY5
Provincial Departments of Health	<ol style="list-style-type: none"> 1. PLDP 2. LDP 3. PLGI 4. Technical support to PTCs 5. PMPUs 6. ABC/VEN analyses and training 7. RxSolution implementation and follow-up support 8. Infomaker implementation at provincial depots 9. Governance 10. Training on pharmaceutical management 11. Operational research 	PY1-PY5
Department of Correctional Services	<ol style="list-style-type: none"> 1. Development of pharmaceutical policy 2. Technical support to PTCs 3. Assessment of the pharmaceutical management of TB 	PY3-5
University of Western Cape	<ol style="list-style-type: none"> 1. Development of course content and facilitation of post-graduate school courses on RMU and Medicine Supply Management 2. Development of online courses on RMU and Medicines Supply Management 	PY3-PY5
University of KwaZulu-Natal	<ol style="list-style-type: none"> 1. Pharmacoeconomics course content and facilitation 	PY4-PY5
NMMU	<ol style="list-style-type: none"> 1. Development of curricula and facilitation of training for pharmacy, pharmacy technician, and pharmacy technical assistant students on pharmacovigilance, medicine supply management and pharmacy law and ethics 2. Research using RxSolution data 	PY2-PY5
Sefako Makgatho Medical University	<ol style="list-style-type: none"> 1. Pharmacoeconomics course content and facilitation 2. Integration of aspects of PLDP into postgraduate master's degree program 3. Course content and facilitation of courses on Financial Management, Medicines Selection, and PTCs 	PY1-PY5