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GLOBAL HEALTH SUPPLY CHAIN PROGRAM – TECHNICAL ASSISTANCE
SOUTH AFRICA

Year 4 Annual Report

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CONTENTS

ACRONYMS

AMD	Affordable Medicines Directorate
AMR	Antimicrobial Resistance
API	Application Programming Interface
ARC	Africa Resource Centre
ART	Antiretroviral Therapy
ARV	Antiretroviral
BEC	Bid Evaluation Committee
BSC	Bid Specification Committee
CHAI	Clinton Health Access Initiative
CMU	Contract Management Unit
EDP	Essential Drugs Program
EML	Essential Medicines List
ERC	Expert Review Committee
GHSC-TA	Global Health Supply Chain Program – Technical Assistance
GoSA	Government of South Africa
HOPS	Head of Pharmaceutical Services
HR	Human Resources
HTA	Health Technology Assessment
IMAT	Improved Medicine Availability Team
KPI	Key Performance Indicator
MAC	Ministerial Advisory Committee
MAC-AMR	Ministerial Advisory Committee on Antimicrobial Resistance
MEDSAS	Medical Supply Administration System
MHPL	Master Health Product List
MMDS	Medicine Master Data System
NDoH	National Department of Health
NEMLC	National Essential Medicines List Committee
NHI	National Health Insurance
NSC	National Surveillance Centre
NW	North West
PDoH	Provincial Department of Health
PHC	Primary Health Care
PPE	Personal Protective Equipment
PST	Provincial Support Team
PTC	Pharmaceutical and Therapeutics Committee
SAHPRA	South Africa Health Products Regulatory Authority
SAPC	South African Pharmacy Council
SIMA	Strategy for Improved Medicine Availability
SOP	Standard Operating Procedure
SRCC	Special Requirements and Conditions of Contract
STG	Standard Treatment Guideline
SVS	Stock Visibility System
TA	Technical Assistance
TB	Tuberculosis
TEE	Tenofovir/Emtricitabine/Efavirenz
TLD	Tenofovir/Lamivudine/Dolutegravir

TOR	Terms of Reference
USAID	United States Agency for International Development
UAT	User Acceptance Testing
WMS	Warehouse Management System

EXECUTIVE SUMMARY

INTRODUCTION

South Africa remains at the center of the global AIDS epidemic and has one of the highest burdens of tuberculosis (TB) in the world. An efficient and effective health supply chain that improves medicine availability is critical to addressing that disease burden. With this in mind, the United States Agency for International Development (USAID) launched the Global Health Supply Chain Program – Technical Assistance (GHSC-TA) in South Africa in September 2016. The program provides technical assistance to the South African government to strengthen public health systems and supply chains to advance an AIDS-free generation and contribute to the achievement of universal health coverage.

GHSC-TA provides technical assistance directly to the Affordable Medicines Directorate (AMD) of the National Department of Health (NDoH), as well as to the pharmaceutical services directorates of the provincial departments of health (PDoHs). The overall aim of the program is to assist the government in improving access to, and availability of the medicines and related commodities needed to prevent and treat HIV/AIDS, TB, and associated conditions and disorders.

PURPOSE OF THIS DOCUMENT

This Year 4 Annual Report details GHSC-TA program activities and achievements by objective and, where possible, provides results for each of the six objectives against key performance indicators (KPIs).

YEAR 4 ACTIVITIES AND ACHIEVEMENTS

Year 4 activities focused primarily on strengthening the health supply chain from a provincial and national perspective. At the provincial level, GHSC-TA initiated support through the provincial support team (PST) approach, which facilitates the implementation and institutionalization of supply chain reforms in the provinces. In addition, GHSC-TA launched efforts supporting the Government of South Africa (GoSA) to strengthen the medicine supply chain in response to the spread of COVID-19 in the country. Program activities are segmented into eleven main projects, representing capacity-building interventions across multiple functional areas. These activities align with the six program objectives. A high-level overview of activities and accomplishments for each objective follows.

OBJECTIVE 1: IMPROVE SELECTION AND USE OF MEDICINES

GHSC-TA assisted the NDoH with finalizing the National Guideline for the Establishment and Functioning of Pharmaceutical and Therapeutics Committee (PTCs) in South Africa; developing formulary reports for the Northern Cape and Free State following a review of procurement data against the existing formularies; finalizing the National Essential Medicines List Committee (NEMLC) Appeals Policy; developing ministerial submissions for appointment and extension of the term of office of the NEMLC and its expert review committees (ERCs); developing databases and updating terms of reference (TOR) for health technology assessment (HTA) work; finalizing a stakeholder database for the Essential Drugs Program (EDP) which can be used by AMD; and drafting an Antimicrobial Resistance (AMR) Awareness Strategy. GHSC-TA also assisted with key governance structures established during the COVID-19 outbreak by developing TOR for the Ministerial Advisory Committee (MAC) on COVID-19, and providing secretariat support to this committee; developing TOR for the NEMLC Therapeutics Sub-committee on COVID-19; and developing a conflict of interest policy which can be applied to all committees which operate under the remit of AMD.

OBJECTIVE 2: SUPPORT OPTIMIZATION OF THE SUPPLY CHAIN

GHSC-TA continued to institutionalize demand planning with implementation in four provinces and initiated this activity in a further two provinces. This work includes establishing the demand review committees where future demand volumes are reviewed, agreed upon, and signed-off by the provinces. The forecast is at facility/item level per month for the next three years. Further, bottom-up forecasts were generated for all provinces as part of the ring-fenced medicine budget planning process. In-contract demand forecasts have been compiled to support the Contract Management Unit (CMU) to review actual and projected volumes against the original contract volumes, enabling robust discussions with suppliers. Support was provided to NDoH in the recruitment process for a centralized demand planning team.

The Supply Planning team, building on the successful proof of concept in North West, expanded the informed push implementation to five sites in the Free State. Setting minimum and maximum (min-max) stock levels is a key input to the informed push implementation, and GHSC-TA is working with the PDoHs to establish the use of the standard methodology for calculating these stock levels.

For COVID-19, the GHSC-TA supported the NDoH in generating a COVID-19 demand forecast, which was updated weekly in the initial phases, and is now updated once every two weeks. This included identifying the medicines required and the number of units per patient, working with the National COVID-19 EPI modelling team to identify the number of patients projected to require treatment. This forecast lift was then added to the baseline forecast to provide a final COVID-19 forecast per province per month.

OBJECTIVE 3: STRENGTHEN GOVERNANCE

GHSC-TA assisted AMD with development of guidelines for issuing and management of Section 22A(15) permits, and commenced work on developing a guideline for Section 56(6)(d) designations, both of which assist in improving access to medicines. The team also developed the policy principles for supply planning and continued identifying and addressing governance gaps related to contracting and contract management. GHSC-TA supported AMD and provincial pharmaceutical services with the response to the COVID-19 pandemic. The support included managing the meeting proceedings, and tracking activities and risks. Two guidelines were developed in response to COVID-19, namely the guideline for monitoring and reporting medicine availability and a guideline for the inter-provincial transfer of medicines.

OBJECTIVE 4: IMPROVE WORKFORCE MANAGEMENT

GHSC-TA continued providing workforce management support to strengthen North West Provincial Pharmaceutical Services' human resources (HR), to support the development of an effective structure to facilitate pharmaceutical service delivery in the province. The Member of the Executive Committee for Health approved the structure and presented the interventions in his Budget Policy Speech for the PDoH for the financial year 2019/2020.

OBJECTIVE 5: STRENGTHEN INFORMATION SYSTEMS AND INFORMATION MANAGEMENT

GHSC-TA supported the online Master Health Products List (MHPL) development, a key component of the Medicine Master Data System (MMDS), which is aimed at standardizing medicine master data used throughout the public sector medicine supply chain. GHSC-TA facilitated improvements to the National Surveillance Centre (NSC) by migrating the NSC to an improved server and hosting environment and rationalizing the NSC data workbooks (reduced from 46 to 16) and the total number of dashboard views on the new server from 856 to 154. The rationalizing was achieved by consolidating all provincial

dashboard views and workbooks into a single integrated workbook with drill-down capability for all provinces. In addition, in Year 4, GHSC-TA observed an increase in NSC reporting compliance, improving from 80 percent in November 2019 to 93 percent in September 2020. This improvement included the addition of 3,195 sites reporting personal protective equipment (PPE) to the NSC by September 2020. Enhanced utilization of the NSC was one of the unexpected outcomes of the COVID-19 outbreak, with stakeholders embracing the ability to use the NSC to monitor the availability of medicines used in the management of COVID-19, as well as those used in the treatment of chronic conditions, while also providing data to support supply chain planning.

OBJECTIVE 6: IMPROVE FINANCIAL MANAGEMENT

GHSC-TA assisted with the development of the pharmaceutical budgets for all nine provinces for the 2020–2021 budget cycle with drill-down capability to health establishment level. To support the sustainability of budget planning processes, GHSC-TA developed the Budget Planning and Monitoring Guideline. This document clarifies the processes, assumptions, methodology, and principles for the budget-setting process. This document was workshopped and adopted by the AMD and provincial stakeholders. The GHSC-TA team also developed an interactive dashboard tool for AMD and the provinces to track and manage actual-versus-budget expenditure. This tool allows for proactive monitoring of expenditure against budget to health establishment level and will enable AMD and provinces to take corrective action as needed.

INTRODUCTION

South Africa remains at the center of the worldwide AIDS epidemic, with an estimated 7.9 million[1] people living with the disease. In addition, the country has the third-highest burden of tuberculosis (TB) internationally.[2] An efficient and effective health supply chain that improves medicine availability is critical to addressing that disease burden. With this in mind, USAID launched GHSC-TA in South Africa in September 2016. The program provides technical assistance to the South African government to strengthen public health systems and supply chains to advance an AIDS-free generation and contribute to the achievement of universal health coverage.

The availability of medicine has a direct impact on improving health outcomes for the South African people. Sometimes, health establishments do not have adequate medicine stock on hand to meet patient needs. When this happens, not only is the health of patients jeopardized, but patients must return to the health establishment, at considerable personal expense and inconvenience, to collect their medicines at a future date. In response, addressing constraints and improving medicine availability is a core objective of South Africa's NDoH. GHSC-TA works with the NDoH to design and implement innovative solutions to transform the South African public health supply chain. Simultaneously, the program is working with PDoHs to increase medicine availability countrywide. By improving health supply chain visibility, the program also supports public health establishments' efforts to anticipate patients' needs more accurately and position enough stocks of medicines where and when they are needed.

GHSC-TA provides technical assistance directly to the AMD of the NDoH, as well as to the pharmaceutical services directorates of the provinces. The program's overall aim is to assist the government in improving access to, and availability of the medicines and related commodities needed to prevent and treat HIV/AIDS, TB, and associated conditions and disorders.

The GHSC-TA implementing team is led by Guidehouse LLP and includes PwC South Africa, Resolve Solution Partners, 4Africa Abaluleki (Pty) Ltd, and Banyan Global.

PROGRAM OBJECTIVES

To this end, the program is tasked with the following six objectives:

- Objective 1: Improve Selection and Use of Medicines
- Objective 2: Support Optimization of the Supply Chain
- Objective 3: Strengthen Governance
- Objective 4: Improve Workforce Management
- Objective 5: Strengthen Information Systems and Information Management
- Objective 6: Improve Financial Management

1 *South African National AIDS Council, Annual Performance Plan 2019-2020.* August 2019. Available at https://sanac.org.za/wp-content/uploads/2019/08/Annual-Performance-Plan-201920.pdf.

2 *USAID Where We Work, South Africa, Global Health*. October 19, 2020. Available at https://www.usaid.gov/south-africa/global-health.

GHSC-TA activities in support of the six objectives outlined above are segmented into 11 main projects, representing capacity-building interventions across multiple functional areas that are shown in Table 1.

Table 1: Project Descriptions

Activity	Description
1. Medicine Master Data	Assist AMD in defining the MMDS in collaboration with the contracted service provider responsible for development. This system incorporates the MHPL, location hierarchy, and formulary management tool.
2. National Surveillance Center	Support the operationalization and optimization of the NSC at a national and provincial level to improve visibility of the performance of the supply chain and strengthen analytics to inform decision-making.
3. Supply Chain Systems	Design, implement, transition, and promote the provincial, district, and health establishment utilization of supply chain systems and applications.
3.1 Stock Visibility System (SVS) Development	Provide technical assistance with the design and implementation of enhancements to the SVS.
3.2 RxSolution Maintenance and Re-platform	Provide technical assistance related to the functionality and architecture of RxSolution being undertaken by the Council for Scientific and Industrial Research, and the roll-out of the application programming interface (API) to automate RxSolution reporting from health establishments to the NSC.
3.3 Warehouse Management Systems (WMSs)	Provide technical assistance to develop norms and standards for WMSs and develop provincial risk-mitigation plans to manage or avoid operational interruptions.
4. Demand and Supply Planning	Develop and implement appropriate processes and human resources capabilities at the national, provincial, and district levels and assist with the use of appropriate technologies to support demand and supply planning.
5. Workforce Management	Strengthen, improve, and equip the AMD to effectively and efficiently respond to demands imposed by the roll-out of strategic interventions.
6. Strengthening Medicine Selection and Use	Develop and implement policies, guidelines, tools, and approaches to support evidence-based selection and rational use of medicine.
7. Governance	Provide technical assistance to support the institutionalization of good governance with the implementation or strengthening of relevant structures within the AMD and PDoHs (supported by the necessary TOR) as well as the development and/or review of legislation, policies, guidelines, processes, and procedures.
8. Tenofovir/lamivudine/dolutegravir (TLD) Transition	Provide supply chain-related support for the transition of eligible first-line patients living with HIV from tenofovir/emtricitabine/efavirenz (TEE) to a new, more effective, and affordable treatment option, TLD.

Activity	Description
9. Contracting and Contract Management	Provide technical assistance to AMD relating to contracting with suppliers to supply medicines and post-award associated contract management functions.
10. Budgeting and Financial Management	Strengthen both national and provincial structures and processes for budgeting and financial reporting for medicines.
11. Provincial Support	Support supply chain optimization at the provincial level through implementing and institutionalizing supply chain reforms in the provinces.

The technical assistance provided by GHSC-TA assists the AMD in implementing the Strategy for Improved Medicine Availability (SIMA) (2016—2021), which encompasses five core functions: selection of medicine and technologies, contracting of suppliers, management of the supply chain, contract management per the applicable requirements and conditions of the contract, and the promotion of rational medicine use.

These functions are supported by five enabling functions: governance, workforce management, information systems and management, financial management, and education, and research. Interventions are aimed at strengthening both core and enabling functions with a view to continuous improvement.

This work directly supports the USAID/South Africa Country Development Cooperation Strategy results framework by supporting Development Objective 1 - Health outcomes for South Africans improved, as well as the NDoH SIMA and the NDoH annual performance plans.

YEAR 4 OVERVIEW

GHSC-TA activities in Year 4 were primarily focused on strengthening the health supply chain from a national as well as from a provincial perspective through the support provided by the PST. In addition, starting in March 2020, GHSC-TA supported the GoSA in managing the outbreak of COVID-19. Please refer to the *Special Report: Supporting the Government of South Africa in the Response to COVID-19*, which details GHSC-TA technical assistance and capacity-strengthening activities in managing the pandemic in South Africa.

The response to COVID-19 has required intensification of the supply chain activities of GHSC-TA. It has allowed the program, AMD, and the provinces to test the robustness of processes and tools developed previously. Lessons learned from the pandemic have provided opportunities to strengthen processes further and in particular enhance the NSC. Requests to support the supply chain of other health-related commodities enabled GHSC-TA to replicate supply chain activities and create similar governance structures to facilitate PPE availability.

Despite COVID-19, GHSC-TA has managed to maintain planned activities with minimal interruptions or delays. Only activities that required significant time from provincial officials were impacted, and, in these instances, timelines were adjusted and resources reallocated to focus on other key deliverables.

Overall, the COVID-19 pandemic has provided an opportunity to showcase the program's successes while providing valuable inputs to enrich processes and strengthen the medicine supply chain as a whole.

YEAR 4 ACHIEVEMENTS

Table 2 provides a high-level overview of Year 4 projects and their key achievements.

Table 2: Key Year 4 Achievements

OBJECTIVE 1: IMPROVE SELECTION AND USE OF MEDICINES
1. Finalized National Guideline for the Establishment and Functioning of PTCs in South Africa
2. Assisted with the development of formulary reports for the Northern Cape and Free State
3. Finalized a stakeholder database for all EDP stakeholders
4. Developed TOR for the MAC on COVID-19 and NEMLC Therapeutic Sub-committee on COVID-19
5. Provided secretariat support to the MAC on COVID-19
6. Finalized the NEMLC Appeals Policy
OBJECTIVE 2: SUPPORT OPTIMIZATION OF THE SUPPLY CHAIN
7. Expanded the demand planning implementation to be entrenched in four provinces and initiated in a further two provinces
8. Developed bottom-up forecasts for all provinces as part of the ring-fenced medicine budget planning process
9. Expanded the implementation of informed push to the Free State
10. Used the approved demand forecasting processes to develop medicine forecasts in response to COVID-19
OBJECTIVE 3: STRENGTHEN GOVERNANCE
11. Developed the guideline for issuing and management of Section 22A(15) permits
12. Collaborated with Africa Resource Centre (ARC) to review the SIMA and develop a revised strategy framework for pharmaceutical services
13. Worked with AMD to review and revise the Special Requirements and Conditions of Contract (SRCC) template
OBJECTIVE 4: IMPROVE WORKFORCE MANAGEMENT
14. Began implementation of the approved North West pharmaceutical services organizational structure
15. Completed the assessment to measure the existing and required qualifications for each position and transferred the mapping to the approved North West pharmaceutical structure
16. Aligned and finalized 42 job descriptions and Key Performance Areas with each individual's performance agreements, verified with senior North West pharmaceutical management
17. Supported provincial human resources in the North West to address continuous renewal of contractual workers in the depot, the creation of permanent positions, and advertising of these posts
OBJECTIVE 5: STRENGTHEN INFORMATION SYSTEMS AND INFORMATION MANAGEMENT
18. Provided technical assistance (TA) to the enhancement of the online MHPL, improving standardization of captured medicine data appearing on national contracts to standardize medicine master data elements used across all systems

19. Provided TA to test and enhance the MMDS location module and specify and test the MMDS formulary module

20. Created standard operating procedures (SOPs) for medicine and contract data management on the MMDS

21. Increased connections to the RxSolution reporting API to 291 sites across seven provinces, including Mpumalanga, Limpopo, Gauteng, Eastern Cape, North West, KwaZulu-Natal, and Free State provinces

22. Improved data visualization through the creation of eight new dashboards: medicine availability integrated view, demand planning dashboard, medicine availability trend dashboard, mobile view dashboards, TEE/TLD transition dashboard, APP target dashboard, user activity dashboard, and on-shelf availability dashboard

23. Supported the COVID-19 response by creating and updating 12 new views for the NSC to provide visibility of availability of medicines on the priority list and support supply planning

24. Developed the PPE availability and forecast dashboards with a combined total of 24 new views; also created and updated navigation guides for the integrated medicine availability dashboard, COVID-19 dashboard, and PPE dashboards for NSC users

25. Observed an increase in the reporting compliance of sites reporting to the NSC from 80 percent in November 2019 to 93 percent in September 2020

26. Observed an increase in sites reporting PPE items to the NSC from 0 in April 2020 to 3,195 in September 2020

27. Observed more than 3,300 clinics and 379 hospitals nationwide reporting to the NSC

OBJECTIVE 6: IMPROVE FINANCIAL MANAGEMENT

28. Assisted with the development of pharmaceutical forecasts and budgets for all nine provinces for the 2020–-2021 cycle down to the health establishment level for over 4,000 health establishments

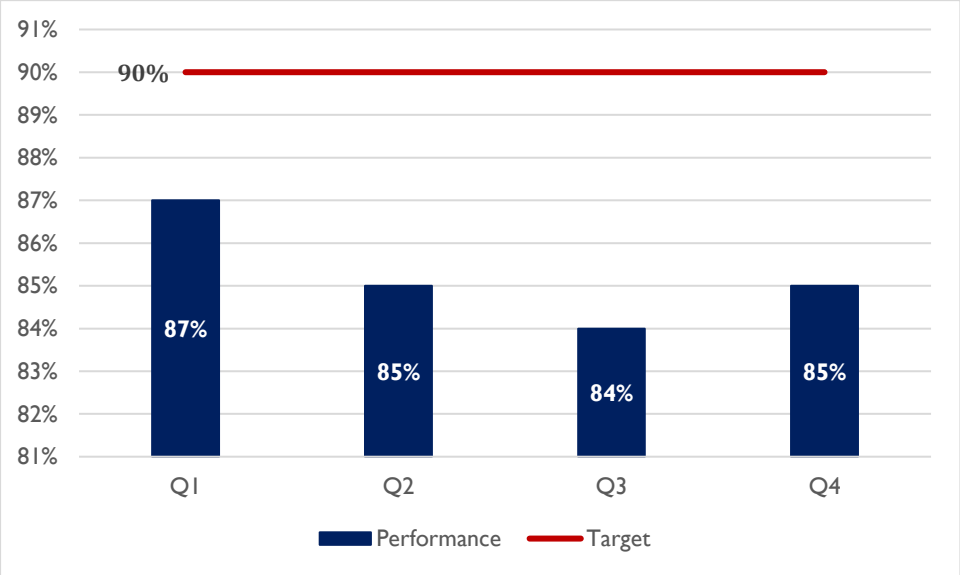
29. Developed budget guidelines that provide a common set of business rules for the management of medicine budget processes, including outlining key stakeholders in the processes, escalating issues, and related KPIs and reporting

30. Developed the interactive dashboard tool to allow the AMD and provincial stakeholders to monitor, and manage expenditure versus budget enabling transparency, and supporting pro-active decision making

PROGRESS TOWARDS GOAL – INCREASED MEDICINE AVAILABILITY

At the end of Year 4, overall medicine availability was 85 percent (Figure 1) across all commodities, against the NDoH target of 90 percent. The KPIs performance was steady throughout the year, ranging between 84 and 87 percent, with performance higher at the beginning of the period.

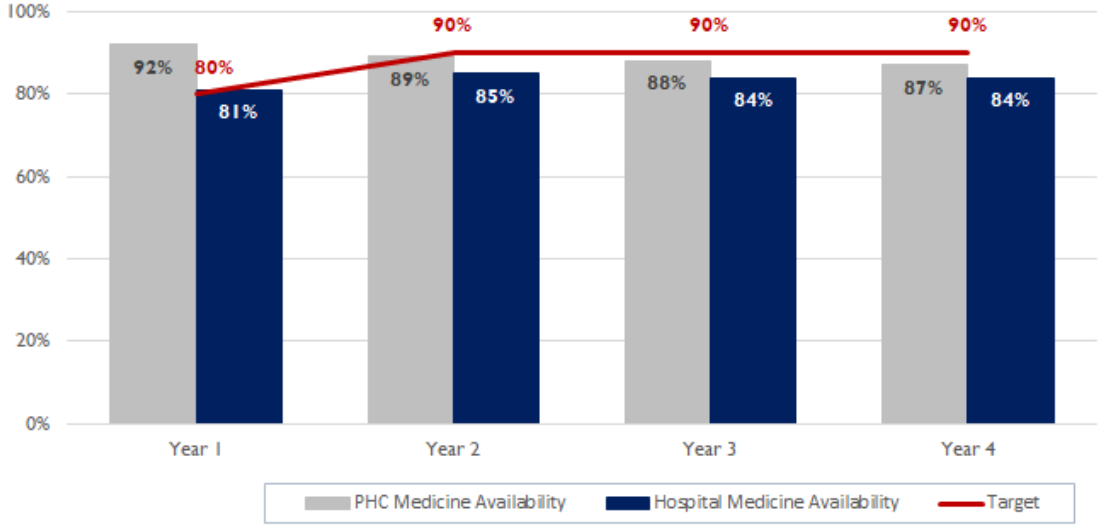
Figure 1: Overall Percentage Medicine Availability in Year 4



The main factors impeding medicine availability included supplier-related constraints ranging from manufacturing constraints, higher than projected uptake (orders exceeding forecasted demand), delays in shipments from supplying countries as a result of the COVID-19 lockdown, and regulatory issues. The medicine categories most impacted included anti-TB medicines, contraceptives, psychotropic agents, and anti-epileptic medicines. Many of these supply constraints were in play from the beginning of the year and led to the gradual decline in medicine availability observed towards year end.

At health establishment level, the performance of primary health care (PHC) clinics was 87 percent at the end of Year 4, with hospital performance at 84 percent. Performance was stable throughout the year in both types of establishments and comparable to Year 3, as shown in Figure 2. With the ongoing COVID-19 pandemic, it is essential that patients most at risk of complications due to HIV and TB, as well as other chronic conditions, receive the treatment they need. During the period under review, the availability of antiretroviral (ARV) medicines and commodities was 90 percent, meeting the NDoH target of 90 percent. For medicines used in the management of TB, availability was 83 percent.

. Figure 2: Percentage Availability of Master Procurement Catalogue Items at Health Establishments



The CMU within AMD with support from GHSC-TA and other implementing partners initiated specific interventions to address the challenges outlined above. At a provincial level, GHSC-TA, through the PST, provided tailored assistance to provincial pharmaceutical services to flag and address issues identified in a province. In the Eastern Cape for example, GHSC-TA continues to support improvement in data quality and accuracy of information through the customisation of formularies at sites utilising RxSolution. An example of the results of this work is the increase in medicine availability at Jamestown Hospital, Majorie Parrish TB Hospital, and Fort Beaufort Hospital, over the month of May. From the beginning to the end of that month GHSC-TA contributed to medicine availability increases from 75 to 91 percent, 78 to 89 percent, and 74 to 95 percent, respectively. In some provinces, low medicine availability can be attributed to delayed or non-payment of suppliers due to the lack of funds. GHSC-TA expects that technical assistance to improve the budgeting process for medicines, as well as monitoring of expenditure against budget will assist to overcome this challenge. In other provinces medicine availability challenges were caused by operational issues as a result of the impact of COVID-19 on provincial personnel and operations.

IMPROVE SELECTION AND USE OF MEDICINES

South Africa's unique disease burden shapes its national health priorities, health system design, and health funding structures. As with most health care systems globally, the country has limited funds available for servicing the population's health care needs, including medicines and medical-related health technologies. Limited funds must be allocated according to an evidence-based approach to provide the best quality health care to all South Africans.

In addition, South Africa's public health care system must be able to match the medicine available to patients' needs. Many South Africans who require care and treatment for HIV/AIDS, TB, and other diseases look to public health establishments to provide the medicines they need. Through the relevant governance bodies, the AMD is responsible for supporting the selection of medicines for patients nationally and making sure these medicines are accessible and available when and where they are required.

ACTIVITIES AND ACHIEVEMENTS

STRENGTHEN MEDICINE SELECTION AND USE

GHSC-TA is working with the AMD to strengthen medicine selection and rational medicine use to provide an accountable mechanism to support decision making related to the funding, cost, and use of medicines and health technologies in South Africa. In Year 4, GHSC-TA continued assisting the NDoH to strengthen

the selection and use of medicines to support the attainment of universal health coverage. During the current COVID-19 pandemic, the GHSC-TA medicine selection and use team also supported the AMD through the establishment of governance structures and technical assistance in the NDoH's response to the pandemic.

PTC Guideline Development and Implementation. To enable cascading of improved selection and use of medicine in provinces, districts, and health establishments, GHSC-TA during Year 4 continued facilitating the National PTC Guideline's development and implementation. The guideline assists in promoting good governance in the functioning of these bodies, with standardized functions, roles, and objectives, and supporting an outcomes-based approach to the selection and use of medicines.

- The **National PTC Guideline** was approved by the National Health Council Sub-committee for Pharmaceutical Services (NHC-SC-PS) in November 2019 and published in December 2019.

- GHSC-TA assisted the NDoH to develop a **PTC Guideline Implementation Plan** to assist in the National PTC Guideline roll-out. The implementation plan includes training, mentorship, and assistance with formulary development and a proposed list of priority PTCs. Training materials were developed for use during implementation.

- To assist GHSC-TA and, subsequently, the NDoH in understanding the levels of operational capacity across the PTCs and the extent to which PTCs function per the National PTC Guideline, GHSC-TA developed a **baseline self-assessment tool** informed by the series of indicators outlined in the PTC Guideline. The results of the assessment are used to inform the focus of implementation within each province.

- GHSC-TA assisted with the development of the **Northern Cape** and **Free State Provincial Formulary Reports**, based on an analysis of the formulary against three-year provincial procurement data. These reports provide recommendations for amendments to the current provincial formularies. In addition, the program provided training to the newly convened North West PTC on the principles contained in the PTC Guideline.

Health Technology Assessments. In South Africa, the Essential Medicines List (EML) and Standard Treatment Guidelines (STGs) are developed and maintained by the ministerially-appointed NEMLC supported by the AMD EDP. This process requires the performance of medicine reviews and costing analyses to support decisions about which medicines will be included in the EML. The purpose of establishing an HTA framework is to strengthen the medicine selection process and enable the expansion of NDoH's STGs, which will be used to inform health service benefits funded under National Health Insurance (NHI).

- GHSC-TA expanded preparation efforts to establish an HTA framework by supporting the call for nominations and development of a **clinical societies database** that includes persons nominated by clinical societies to assist in expanding the STGs to incorporate additional elements such as diagnostic tests and surgical interventions.

- GHSC-TA also provided support to AMD with the development of the **HTA Project Plan** to lay the foundation for an HTA framework. The HTA Project Plan details the roadmap of activities and outlines the required financial inputs, including providing and integrating demand planning inputs and resources required to conduct HTAs. A **budget submission** was developed by the

Quality Improvement Program to the National Treasury to detail the funding necessary to conduct medicine selection and use activities.

- The program supported amendments to the **HTA stakeholder database** to identify a diverse range of individuals and organizations to strengthen communication, create awareness of upcoming HTA activities, and create a collaborative environment leveraging existing resources.

- GHSC-TA amended the **TOR for services to be contracted** to provide the scope and requirements of discrete services related to strengthening the current medicine selection process and incorporating medical devices and other health technologies into the selection process. The TOR included purpose, scope, key activities, key outputs, and timelines for:

    - Restructuring the STGs to create efficiencies in the review process, including standardization of the format and rearranging disorders across levels of care; and

    - Drafting an HTA Methods Guide to provide a standardized, structured method and tools for conducting and appraising an HTA within the current resource setting.

- **NEMLC Appeals Policy**. Following multiple rounds of stakeholder engagement and review, the national policy for lodging an appeal against a medicine-related decision of the NEMLC, developed with assistance from GHSC-TA, has been approved and published. The NEMLC is mandated by the Minister of Health to select essential medicines for the country, and the policy provides a mechanism whereby stakeholders can lodge appeals against decisions made.

- GHSC-TA provided assistance to extend the term of office of the NEMLC and tertiary ERC, to avoid an interruption in the development and management of the STGs and EML during the COVID-19 pandemic.

- GHSC-TA also provided assistance with the appointment of a new combined primary health care and hospital-level ERC. The project developed a **ministerial submission and appointment letters** for appointed members and **rejection letters** to applicants who did not meet the criteria for selection.

- GHSC-TA supported updates to the **NEMLC TOR** to include the constitution of sub-committees and allow for ratification of decisions where necessary by these sub-committees. These updates were based on the requirements for the NEMLC Therapeutics Sub-committee on COVID-19, which is required to make decisions rapidly. GHSC-TA also drafted a **memorandum of understanding** to outline the provisions for collaboration between the NDoH and SA GRADE Network for conducting medicine reviews.

- GHSC-TA provided assistance for activities related to the current STGs and the EML, including developing the foreword, introduction, and therapeutic class database of the Adult Hospital Level STGs. Following the Minister of Health's approval, these documents will be published and disseminated to stakeholders. In addition, GHSC-TA provided technical assistance in strengthening governance, including processes to manage actual and potential conflicts of interest, with the **declaration of interest form** for the conflict of interest policy finalized.

Medicine Selection and Governance During COVID-19. In addition to providing secretariat and governance support to the MAC on COVID-19 and its sub-committees, GHSC-TA assisted with the

governance of the selection and use of medicines and other health technologies during the COVID-19 pandemic.

- The GHSC-TA team assisted with the governance of the NEMLC Therapeutics Sub-committee on COVID-19, which provides specific patient-focused evidence-based recommendations for therapeutic and preventative therapies for COVID-19. It further provides supportive agents for the management of comorbid diseases, for inclusion in the Clinical Management of Suspected or Confirmed COVID-19 Disease Guideline. GHSC-TA assisted with **developing TOR** for the sub-committee. The GHSC-TA team designed a **rapid review template** to allow for summaries of rapid reviews conducted by the sub-committee to be published on the NDoH's website for public consumption.

- A **conflict of interest policy** was developed for the MAC on COVID-19 Vaccines, based on the AMD Conflict of Interest Policy.

Antimicrobial Resistance. As in other countries, AMR, and its linkages to irrational use of medicines, are a growing public health concern in South Africa. GHSC-TA continued to support the MAC-AMR, which focuses on developing and strengthening systems that curb the spread of AMR among humans, animals, and within the environment.

- GHSC-TA drafted TOR of two sub-committees of the MAC-AMR:
    - The One Health Technical Working Group, which focuses on an approach to tackle AMR that includes the human health, animal health, and environmental sectors.
    - The Educational Technical Working Group, which aims to provide recommendations on the incorporation of AMR strategies into medical, veterinary, agriculture, and environmental health curricula and in continuing professional development programs.

- GHSC-TA developed content for a continuing professional development AMR awareness module aimed at institutionalizing the AMR strategy in clinical practice.

- Additionally, GHSC-TA assisted with various activities to enhance the systems for detecting and eradicating AMR, including development of the **Antimicrobial Use Surveillance Report** for 2019. Together with the consolidation and analysis of data obtained from the South African Revenue Service relating to the importation of active pharmaceutical ingredients for the manufacture of antibiotics (2017 and 2018), GHSC-TA authored the surveillance report's methods section. An antimicrobial use analysis was performed on provincial depot data, including defined daily dose as the medicine utilization tool.

- An **AMR Awareness Strategy** was drafted and is currently under review to increase awareness among community and health care professionals on infection prevention and appropriate antibiotic use in both the human and animal health sectors.

- Furthermore, GHSC-TA provided assistance in recruiting a new MAC-AMR, as the term of office of the current committee had come to an end.

Other Rational Medicine Use Support. Effective communication initiatives and knowledge sharing are critical elements to ensure that key stakeholders across all relevant sectors in South Africa are engaged in, and educated on the importance of providing quality pharmaceutical services under NHI. The practice

of rational medicine use ensures that patients receive medicines appropriate to their clinical needs, in doses that meet their requirements, for an adequate period, and at the lowest cost to them and their community.

- In order to ensure effective communication with relevant stakeholders and implementation of policies and procedures developed at a national level, the **EDP stakeholder database** was created. A **standard operating procedure (SOP)** was drafted for the addition, amendment, and deletion of stakeholder information on the database. Although only the details of key stakeholders of the EDP have been captured at this stage, the intention is to include all AMD stakeholders and expand use of the database to the whole directorate.

- GHSC-TA supported the AMD to develop communication materials tailored to the audiences at four conferences, attended three conferences and workshops alongside the AMD, and presented at one event. Of strategic importance, GHSC-TA attended the 3rd National South African Pharmacy Conference and supported AMD engagement with stakeholders on the pharmacist's role in NHI.

- During the period under review, GHSC-TA supported AMD with processing applications for access to **third-line antiretrovirals** and strengthening the framework for assessing these applications, thus ensuring that patients have access to lifesaving medicines.

- **Pharmacy Month** is a rational medicine use intervention that takes place in September each year, with GHSC-TA providing technical support in developing the topic, content, and material. Due to the current COVID-19 pandemic, the 2020 campaign was postponed. GHSC-TA created a **media statement** to this effect, including information regarding pharmacists' role as key health care providers working on the frontline in the fight against COVID-19.

OUTCOME LEVEL RESULTS

The program's theory of change hypothesizes that by supporting AMD efforts to perform HTAs and leverage their outputs, the GoSA will demonstrate improvements in the selection and use of medicines. In efforts to test these assumptions, GHSC-TA monitored two KPIs. This section provides an overview of the progress and results observed against these KPIs through the end of Year 4.

KPI 2. NUMBER OF MEDICINE SELECTION DECISIONS MADE UTILIZING HTA PROCESSES

GHSC-TA uses this KPI to measure the number of decisions made by the NEMLC and other relevant committees to understand the extent to which HTA processes inform decision-making and the support in this regard provided by GHSC-TA. Improved decision making is key to determining the medicines and other health technologies funded under NHI.

During Year 4, no medicine selection decisions were made utilizing HTAs, and the life of program performance remains at four. Early in the year, AMD placed HTA strengthening activities on hold pending discussions with the Acting Director-General regarding the future of HTA in light of the NHI Bill's publication in July 2019. During this reporting period, additional HTA work was completed in preparation for the implementation of NHI, as outlined above.

KPI 3. PERCENTAGE OF ASSISTED PHARMACEUTICAL AND THERAPEUTICS COMMITTEES WITH IMPROVED OPERATIONAL CAPACITY

KPI 3 measures the total number of assisted PTCs that demonstrate improved operational capacity levels compared to the total number of assisted PTCs. It must be noted that this is an endline KPI, as a number of interventions must be completed before the final measurement is done.

GHSC-TA has supported the development of a PTC guideline, which provides guidance and tools for use by PTCs, with details about the functions, roles, and objectives of PTCs at different levels of care. Self-assessments have been completed for four provinces (Free State, KwaZulu-Natal, Northern Cape, and Eastern Cape). Although activities that contribute towards this KPI were deprioritized because of COVID-19, engagements with provinces resumed in Quarter 3. By the end of Year 4, GHSC-TA had assisted the AMD to produce formulary reports for Northern Cape and Free State, based on an analysis of procurement data over three years compared to the current provincial formularies. These reports also provide recommendations for amendments to current provincial formularies. In addition, training was provided to the newly convened North West PTC on the PTC Guideline principles. Compilation of baseline assessments, interventions informed by the completed assessments, and post-intervention assessment will continue in priority provinces in Year 5.

SUPPORT OPTIMIZATION OF THE SUPPLY CHAIN

The South African health supply chain, specifically the planning, procurement, and distribution of medicines, mostly relies on outdated and inefficient systems and processes. Planning, procurement, and distribution of medicine are often challenged by limited linkages and coordination of efforts between the national and provincial levels. Given the current and expected medicine expenditures and 95-95-95 targets, it is increasingly important to generate efficiencies and savings within the supply chain's planning, procurement, and distribution functions. Through strengthening the capabilities of the NDoH and introducing efficient and uniform processes across all levels of the medicine supply chain, GHSC-TA supports supply chain optimization, improved planning processes, and end-to-end visibility, thus enabling better oversight and decision-making.

ACTIVITIES AND ACHIEVEMENTS

DEMAND AND SUPPLY PLANNING

GHSC-TA worked with the NDoH to produce innovative processes, tools, and workforce training that result in more accurate demand forecasts. Concurrently, GHSC-TA collaborates with PDoHs to improve their demand and supply planning to increase medicine availability countrywide.

Tender Forecasting. GHSC-TA has worked with the NDoH to establish a tender forecasting process. During Year 4, the transition was made from utilizing supplier data to provincial issues and order data as a basis for future projections. This is aligned with the demand planning process that takes place in Eastern Cape, North West, KwaZulu-Natal, and Gauteng provinces monthly. For other provinces, a quarterly or bi-annual update of the forecast is used as the basis for the tender forecast. This forecast is shared with the provinces for further review and adjustment to produce a consolidated consensus forecast for tender purposes.

In-contract Demand Planning. GHSC-TA is supporting the CMU in the establishment of in-contract demand planning where actual and forecasted volumes are compared to the originally contracted volumes. A model was developed to be updated monthly to empower CMU to discuss variances with suppliers and take appropriate actions.

In Year 4, GHSC-TA split the in-contract demand plan down to the supplier and provincial level. This improvement enables further in-depth analysis of the root causes for items that have excess or shortfalls when compared to contracted volumes. The enhanced level of detail assists in determining areas for intervention at a product or province level. Further work has been initiated to strengthen interactions with contracted suppliers in this regard.

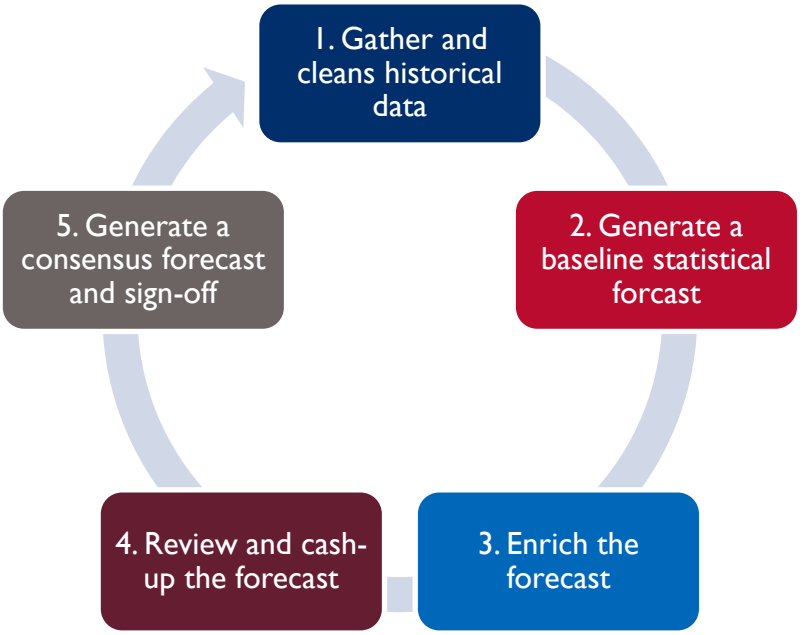
Design of Centralized Demand Planning Unit. GHSC-TA assisted in designing a centralized demand planning unit at the national level. Support has been provided with the development of job specifications and the advertisement used by the department to recruit demand planners. To support the recruitment of suitable candidates, an interview guide was compiled with a case study and an exercise to test applicants' technical skills. GHSC-TA also provided support during the interview process with the evaluation of candidates' skills. GHSC-TA compiled the roles and responsibilities for the centralized demand planners as compared to those of provincial demand coordinators. The outcome of this effort will result in the appointment of the new centralized demand planners. The appointment of successful candidates is still pending.

Provincial Demand Planning. Demand planning involves combining statistical forecasting techniques and judgment to construct demand estimates for medicines to fulfil forecasted patient needs. Accurate demand forecasts become the basis for an effective and efficient supply chain, improving medicine availability, and reducing costs. In South Africa, demand planning will also improve the availability of medicines used to fight HIV/AIDS and TB and provide a good base for supply chain planning to ensure medicine availability during pandemics such as COVID-19.

GHSC-TA has supported provinces in establishing a demand planning process, as depicted in Figure 3. The process has been implemented in Eastern Cape, North West, KwaZulu-Natal, and Gauteng. A monthly demand planning cycle has been established where the latest demand forecast is signed-off in a demand review meeting. Expansion of the provincial demand planning has been initiated in the Western Cape and the Free State. Progress was delayed due to the COVID-19 pandemic, but activity in the Western Cape

has resumed. GHSC-TA played the central demand planning team's role in gathering the data, generating baseline forecasts, and enriching the forecasts with national and provincial inputs. The GHSC-TA demand planning team worked together with the provincial counterparts to review the forecast and prepare for the provincial demand review meetings.

Figure 3: High-level Demand Planning Process Steps



One of the significant deliverables of the demand planning process was the medicine budget plan for GoSA financial year 2020-2021. The demand forecast was cashed up for all products at a health establishment level, providing a budget projection for the province down to this level. This process was done for all nine provinces and presented to the provincial teams for review and sign-off. As part of the budgets' sign-off, the concept of ring-fencing the budget was introduced to try and ensure that funds allocated for medicine are spent on medicines, with pharmaceutical services units being accountable for providing feedback on how those funds are managed. The National Health Council approved the concept of ring-fencing of the medicine budget, although the implementation of this principle is each province's responsibility.

As mentioned above, the demand planning process was extended to the Western Cape and Free State provinces, although the onset of COVID-19 hampered full implementation. Using the budget approach, the forecast for the remaining three provinces, where demand planning has not been initiated, was used to arrive at a national forecast for purposes of tender forecasting, in-contract demand planning, supply planning, and *ad hoc* forecast projections, including the COVID-19 related forecasts.

Supply Planning. Following the development of an established and approved demand plan, supply planning seeks to satisfy the demand forecast so that the right commodities are available at the right time for patients. For PDoHs, supply planning is essential as it aims to replenish inventory levels by delivering optimal stock to meet patient needs. Currently, many health establishments create, and submit orders using a manual, paper-based process, which is cumbersome, introduces opportunities for error, creates duplication of effort, and is not standard within a province or across provinces.

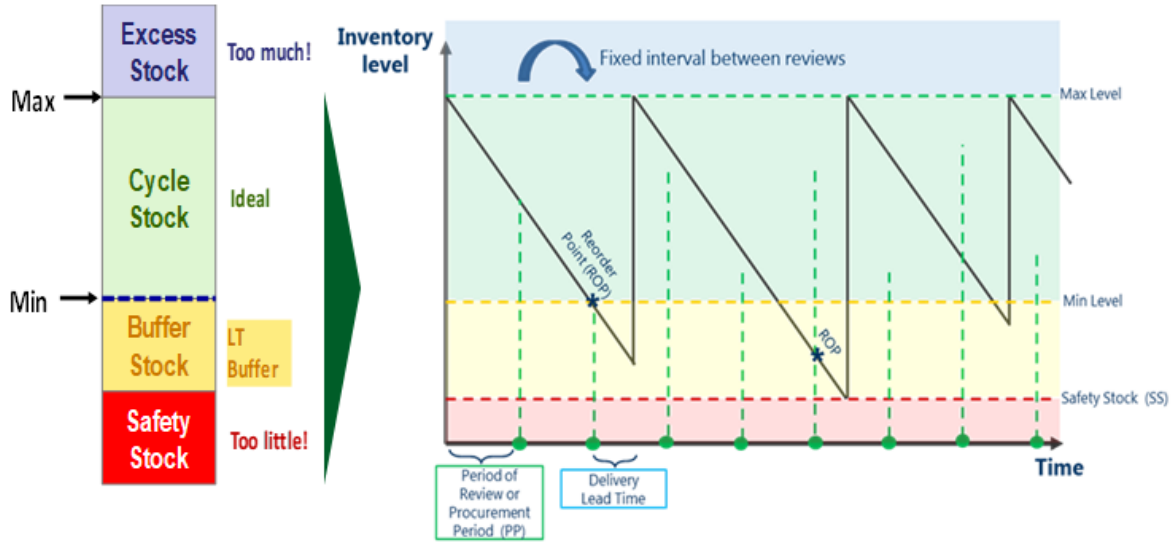
The informed push process, being implemented by GHSC-TA, creates a standard approach to replenishment planning. This process includes a standard min-max stock level calculation applied to the formulary of a health establishment following a review and revision thereof. The informed push process

automates replenishment planning where facilities capture their current stock on hand and receive, using a system such as RxSolution or SVS, an automatically generated recommended order.

In Year 4, GHSC-TA expanded the informed push implementation in North West, where the initial proof of concept was completed. The phase 1 deployment in this province is planned to broaden the informed push across five eligible facilities using RxSolution and ten facilities using SVS. COVID-19 delayed this implementation, but preparation has been completed, and implementation will follow in Year 5. The approach has further been expanded to the Free State, where a proof of concept is in progress for four facilities in the Fezile Dabi district. Two facilities using SVS to automate ordering have been implemented, and preparation is complete for two facilities that will be implemented using RxSolution. A further implementation has been initiated in Mpumalanga, and an implementation plan drafted for four facilities in the Ehlanzeni District.

Minimum and Maximum Stock Levels. The GHSC-TA team proposed a standard approach to calculating the min-max stock levels, in line with the method used in RxSolution. The methodology presented and accepted by the NDoH will be workshopped and agreed with provinces for implementation. The calculation takes the lead time, procurement period, and average monthly consumption into account to calculate the safety stock, minimum stock (reorder point), and maximum stock levels, as shown in Figure 4. The replenishment stock levels are calculated per item for each facility, given the facility's unique parameters and usage of the specific item.

Figure 4: Minimum and Maximum Replenishment Calculation



The min-max stock calculation was initially introduced in four provinces - North West, Free State, Gauteng, and Mpumalanga. Engagements with the provincial management team and district management team have been completed for three of the four provinces (North West, Free State, Mpumalanga), to obtain buy-in and support of the methodology and implementation thereof. A detailed implementation plan has been prepared to roll out the calculation at facilities across these provinces. The min-max calculator has been developed and requires the input information from the province. A key enabler to effective implementation is that formularies for each facility are aligned with provincial formularies and the level of health services provided.

TLD TRANSITION

TLD is a new and innovative ARV therapy used to treat HIV. The GoSA has identified eligible "first line" patients to transition from TEE to TLD. The National ARV Treatment Guideline was signed off on October 25, 2019, and TLD was launched in the Ugu district in KwaZulu-Natal in November 2019 by the Minister of Health, Dr. Zweli Mkhize.

GHSC-TA, in collaboration with ARC, is working closely with the NDoH, the HIV Program, and other implementing partners to support the transition to TLD in South Africa. GHSC-TA designed and implemented a **national and provincial demand** model to inform the supply of ARVs and related products throughout the transition. Monthly, each province is updating and submitting the provincial demand forecast with patient transition data (TLD KPIs implemented for tracking) to the monthly TLD steering committee meetings. The data is used to inform the transition's pace provincially and assist the TLD project team in monitoring progress nationally. The transition plan is updated quarterly and shared with all stakeholders.

The updated forecast data informs the National and Provincial Supply Plan to facilitate the availability of TLD, TEE, and other items related to the transition and provide information regarding the quantity required during the transition period. GHSC-TA reviews and updates provincial demand forecasts monthly to allow ARC to develop the supply plan and share it with suppliers. GHSC-TA is, in collaboration with ARC, working closely with suppliers to avoid stock-outs of TEE and TLD and following up on outstanding orders for provinces.

Weekly sales and operational (S&OP) meetings were held with Pharmaceutical Services and the Strategic Health Program. The meetings address the development and implementation of the provincial ART catch-up plan, the district mentorship program to increase the rate of transition, stock, and supply-related issues, and implementation of the National Health Laboratory Service viral suppression list. These meetings aim to enable program and district support partners to identify patients eligible for switching.

GHSC-TA also provided ongoing support to the provincial depots to improve the availability of TLD and TEE and avoid potential stock-outs at health establishment level. There are continued engagements with the CMU team to discuss supply challenges on selected contraceptives, TEE, TLD, and PrEP.

GHSC-TA developed a **TLD dashboard** to track medicine availability of items related to the transition at national, provincial, district, and health establishment levels. The dashboard includes data relating to the number of patients on ART and allows users to track selected items and support medicine availability at all levels. To date, GHSC-TA, with the provincial TLD champions' assistance, managed to increase reporting compliance on TEE/TLD on the NSC dashboard.

Data analysis indicated that at the start of the transition, the pace of the rollout of TLD was much slower than expected. The low transition of patients was due mainly to clinicians' unwillingness to prescribe the new medicine and patients having to sign a consent form relating to the potential risk of neural tube defects. After consultation between NDoH and the South African Health Products Regulatory Authority (SAHPRA), this requirement was withdrawn at the end of February 2020. NDoH sent a circular to provinces informing them of the withdrawal and an implementation guide on switching patients to TLD. Another contributing factor was challenges relating to the low availability of contraceptive agents in the provinces. Female patients initiated on a dolutegravir-based regimen are advised to use contraception and folic acid supplements, as there are concerns regarding the risk of neural tube defects if a woman should fall pregnant. GHSC-TA is working closely with the CMU to help ensure the availability of reliable

contraception. It must also be noted that there was a significant drop-off in attendance at clinics due to the COVID-19 lockdown. In addition, training gaps for practitioners were identified. A combination of these factors affected the rate of transition. GHSC-TA worked closely with other stakeholders to address the challenges outlined above. This work included the following activities:

- As part of the **national training and implementation plan for the ART clinical guidelines**, GHSC-TA worked in collaboration with CHAI and the regional training centers in the provinces to identify and address gaps around implementing the guidelines. Refresher training was rolled out provincially, and GHSC-TA helped the HIV Program develop a quick reference guide to assist clinicians when transitioning patients. Training material and transition guides were uploaded onto the NDoH Knowledge Hub, and desktop guides distributed to health establishments. In addition, GHSC-TA supported implementation of provincial mentorship programs.

- In efforts to guide the roll-out of TLD transition activities to the provinces, GHSC-TA developed the **provincial project plans**. The plans assist the 16 provincial TLD champions with implementing and completing TLD transition activities. The project plans also assist with risk identification and time/resource management.

- To assist in the transition, GHSC-TA, as part of the TLD task team, is supporting **change management and stakeholder engagement** designed to drive efficient use of resources, measure, and track performance. The change activities are identified at the national level and were updated in the provincial project plans.

- Provincial support is shared between ARC and GHSC-TA. During this period, the program supported **provincial TLD steering committee meetings** in KwaZulu-Natal, Limpopo, North West, and Mpumalanga. During these meetings, provinces provide updates on the number of patients transitioned to TLD, as well as on the availability of TEE and TLD in the province**.**

- Following a request by the provincial HOPs that communication between the NDoH and the PDoHs be improved, GHSC-TA collaborated with ARC on the preparation of an AMD newsletter - AMD Connect. The newsletter initially served as a communication platform related to TLD transition but evolved to share information with stakeholders on all AMD initiatives. The team assisted provincial stakeholders with developing **provincial communication plans** to inform internal stakeholders, support partners, and patients of any changes or updates on the TLD transition. GHSC-TA assisted the HIV Program with the drafting and communication of provincial implementation circulars, requesting clinicians to accelerate the rate of transition to TLD.

From May 2020, the TLD project team noted a significant increase in the number of patients transitioned to TLD, with a growth of more than 1.3 million patients in the last four months. The total number of patients on TLD as of the end of September 2020 is estimated to be 1.49 million. The above interventions played an important role in the scale-up of the transition at the end of the period.

WAREHOUSE MANAGEMENT SYSTEMS

During this period, GHSC-TA completed the research to establish a landscape of the existing legal and regulatory environment relevant to WMSs. The program created a draft document, which will be introduced to the provinces once the focus on COVID-19 is over. Risk management activities initiated in KwaZulu-Natal and Free State in Quarter 2 are still on hold as requested by the two provinces due to the limited availability of provincial resources due to the COVID-19 pandemic.

OUTCOME LEVEL RESULTS

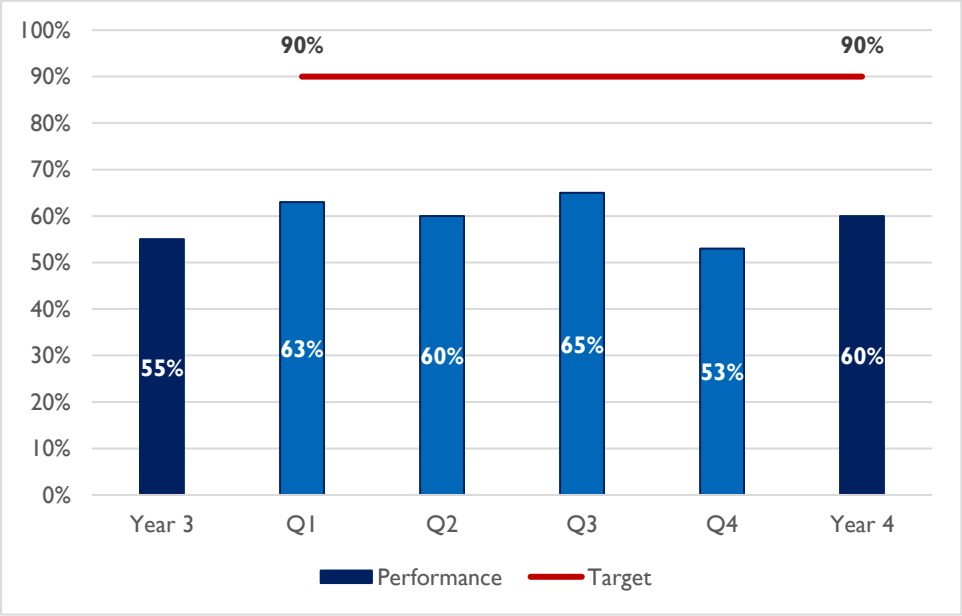
GHSC-TA hypothesizes that by supporting activities to improve the security of medicine supply and strengthen demand and supply planning, inventory management, and working with the AMD to improve visibility and analytics to strengthen planning processes, the GoSA will demonstrate improvements. In efforts to test these underlying assumptions, GHSC-TA identified and routinely monitored eight performance indicators. This section provides an overview of the progress and results observed against these KPIs through the end of Year 4.

KPI 4. PERCENTAGE OF ANTIRETROVIRAL UNITS DELIVERED BY SUPPLIERS WITHIN CONTRACTUAL LEAD-TIME (SUPPLIER PERFORMANCE RELIABILITY – ON TIME)

At the end of Year 4, 53 percent of ARVs were delivered by suppliers within the contractual lead time of 14 days. The performance demonstrated a slight decline from the 55 percent reported at the end of Year 3 and remained below the target of 90 percent, as shown in Figure 5. Year 4 performance peaked in Quarter 3 at 65 percent and declined by the end of the year. Although there was an improvement in suppliers delivering within the lead time at the beginning of the reporting period, setbacks due to supplier constraints, including disruptions in the global supply chain related to the COVID-19 pandemic, were experienced throughout the period. The medicine most impacted was TEE due to the slow transition from TEE to TLD, with TEE suppliers unable to fulfil all demand. The average lead time was 28 days for all provinces.

The Improved Medicine Availability Team (IMAT) governance structure and the COVID-19 response team established by AMD monitored the situation and recommended appropriate actions. These included engaging with suppliers regularly to improve performance and sourcing from alternative suppliers where contract holders were unable to provide the stock required.

Figure 5: Percentage of Antiretroviral Units Delivered by Suppliers within Contractual Lead-time (Supplier Performance Reliability – On-Time) in Year 4

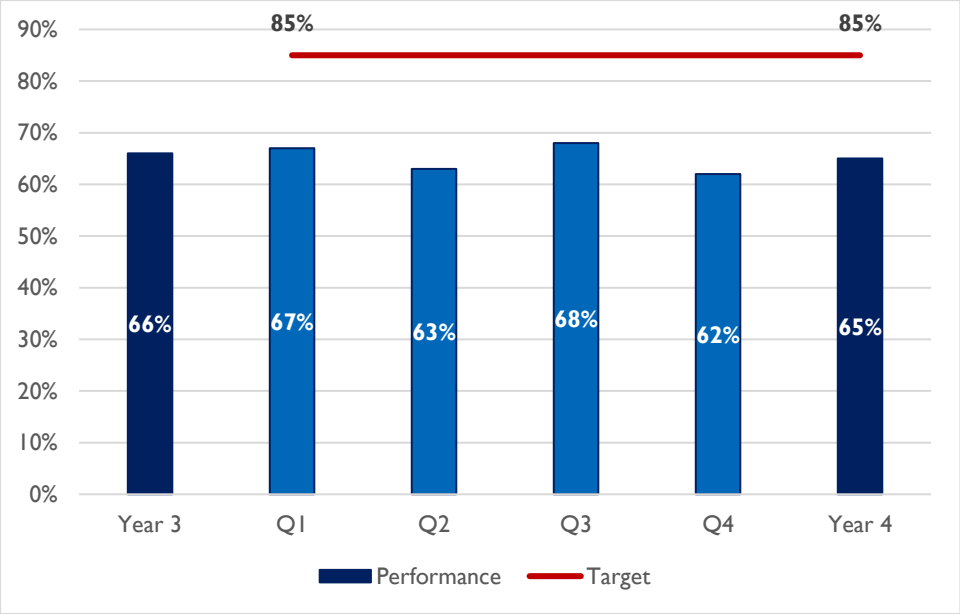


KPI 5. PERCENTAGE OF MASTER HEALTH PRODUCT LIST ITEMS ON TRANSVERSAL CONTRACTS (EXCLUDING ANTIRETROVIRAL) UNITS DELIVERED BY SUPPLIERS

WITHIN CONTRACTUAL LEAD-TIME (SUPPLIER PERFORMANCE RELIABILITY – ON TIME)

At the end of Year 4, the delivery of items on transversal contracts (excluding ARVs) by suppliers within contractual lead-time was reported at 62 percent, a slight decline from the 66 percent reported at the end of Year 3. Moreover, performance remained below the established target of 85 percent as shown in Figure 6. KPI 4 performance was highest in Quarter 3 (68 percent) and declined again towards the end of the year. The average lead time was 33 days at the end of Year 4, which was above the contractual 14-day lead time. The performance was affected by the COVID-19 pandemic with challenges reported, including API shortages for certain items. Health establishments were, however, in most cases, able to maintain sufficient availability of these medicines. Notably, the reduced performance in Quarter 2 was associated with the bi-annual stock take conducted at some depots with deliveries from suppliers not being accepted, impacting the reported lead time for both KPI 4 and KPI 5. The supply challenges continued until the end of the year, with suppliers experiencing constraints for some categories of medicines, including psychotropic agents and contraceptives.

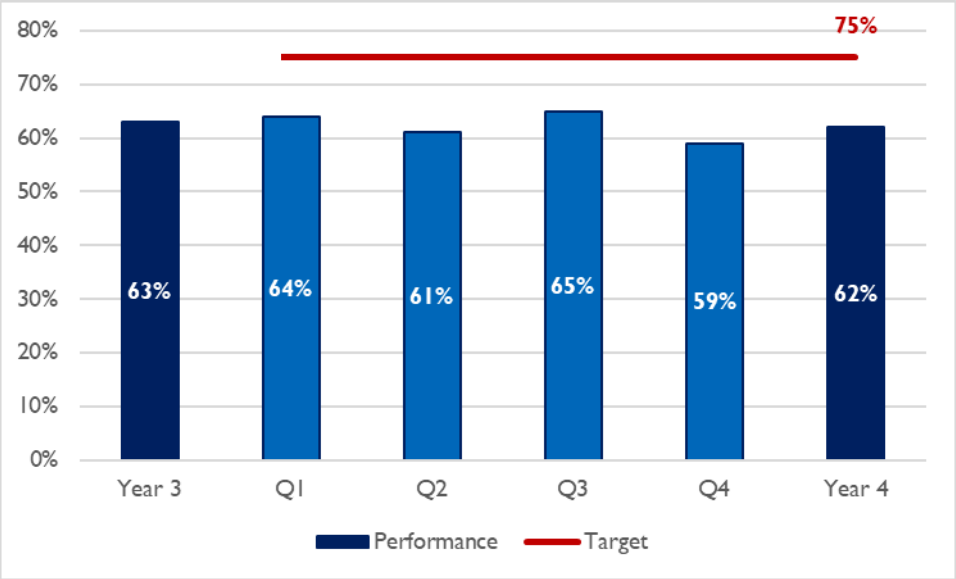
Figure 6: Percentage of Master Health Product List Items on Transversal Contracts Excluding Antiretroviral Units Delivered by Suppliers within Contractual Lead-time (Supplier Performance Reliability – On-Time) in Year 4



KPI 6. SUPPLIER PERFORMANCE RELIABILITY – PERFECT ORDER FULFILMENT FOR ORDERS PLACED ON SUPPLIERS (ON-TIME AND IN-FULL)

At the end of Year 4, supplier performance reliability was reported at 59 percent, which demonstrates a decline from the baseline of 63 percent reported in Year 3. Performance remained below the Year 4 target of 75 percent as in Figure 7. As per KPI 5, multiple suppliers experienced manufacturing constraints and API shortages due to the COVID-19 pandemic, creating ripple effects across provinces. In some cases, the available stock was rationed to help maintain supply to provinces. Availability challenges were monitored through the IMAT and the COVID-19 response team, and remedial actions such as procuring from alternate suppliers implemented to mitigate potential stockouts. The CMU with support with GHSC-TA continues to engage suppliers on a frequent basis.

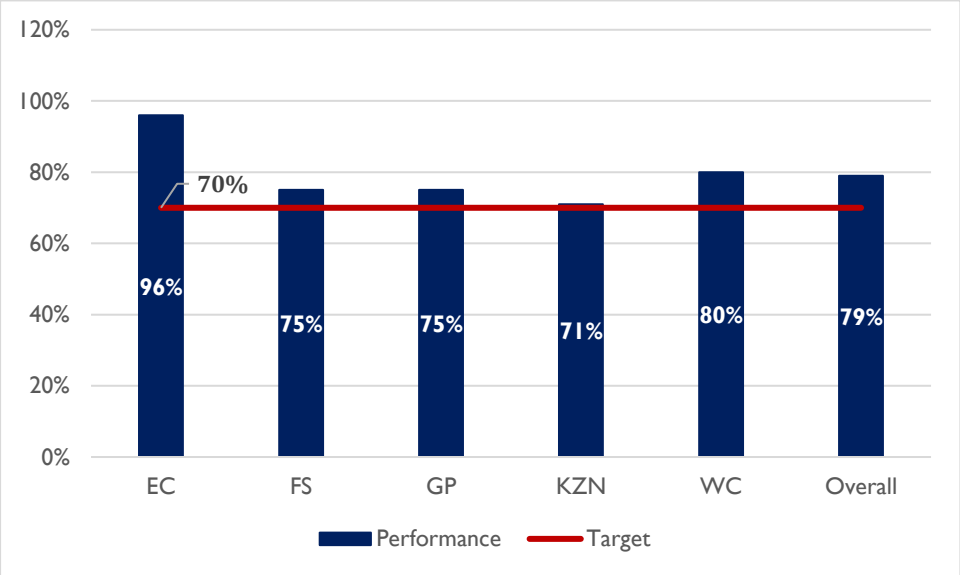
Figure 7: Supplier Performance Reliability – Perfect Order Fulfilment for Orders Placed on Suppliers (On-Time and In-Full)



KPI 7: PERCENTAGE OF MASTER HEALTH PRODUCT LIST ITEMS ON TRANSVERSAL CONTRACT DELIVERED VIA DIRECT DELIVERY TO THE HOSPITALS DESIGNATED BY THE PROVINCE TO RECEIVE DIRECT DELIVERY ORDERS

This indicator measures the percentage of MHPL items on transversal contracts delivered directly to hospitals designated by the province to receive stock by direct delivery. As a result of challenges in accessing the required data, GHSC-TA only started reporting on this KPI at the end of Year 4. Data was obtained from the WMS - Medical Supply Administration System (MEDSAS) used in six warehouses in five provinces (Eastern Cape, Free State, Gauteng, Western Cape, and KwaZulu-Natal). The data received indicates those MHPL items designated for direct delivery as a percentage of the total number of MHPL items. At the end of Year 4, the percentage of MHPL items on transversal contracts designated by the province for delivery via direct delivery to hospitals was reported at 79 percent – above the target of 70 percent. Importantly, all provinces were above the target of 70 percent, with Eastern Cape highest at 96 percent and KwaZulu-Natal lowest at 71 percent, as shown in Figure 8. It must be noted that this measures the number of items on transversal contracts identified by the province as eligible for direct delivery and is not an indication of the volume of items delivered via direct delivery.

Figure 8: Percentage of Master Health Product List Items on Transversal Contract Delivered via Direct Delivery to the Hospitals Designated by the Province to Receive Direct Delivery Orders

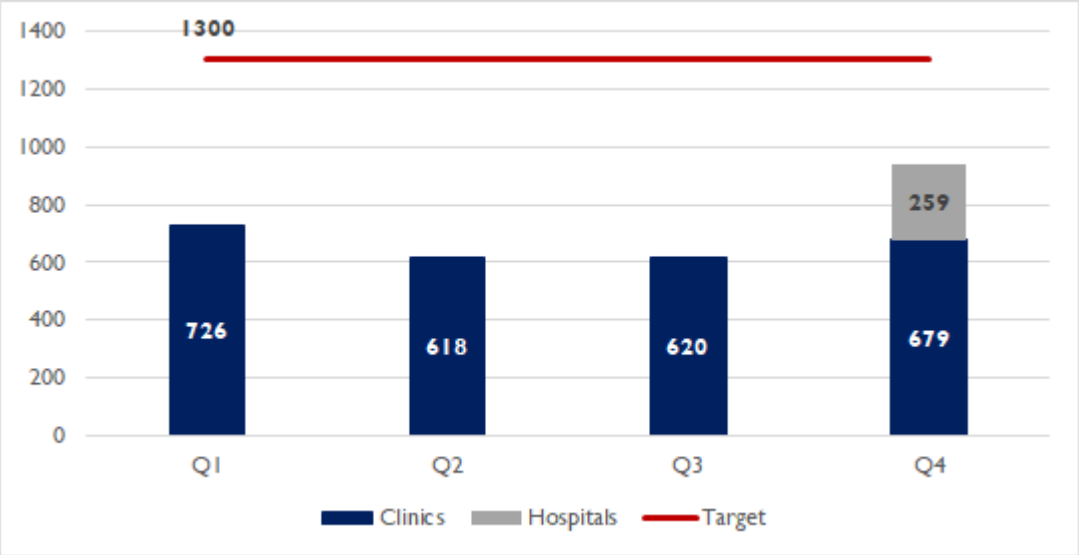


KPI 8. NUMBER OF HEALTH ESTABLISHMENTS AND WAREHOUSES WITH CONFIGURED MINIMUM AND MAXIMUM (MIN-MAX) STOCK LEVELS FOR STOCKED MEDICINES BEING REPORTED TO THE NSC

At the end of Year 4, 679 clinics and 259 hospitals were reported as having configured min-max stock levels on the SVS and RxSolution systems, respectively, bringing the total to 938, against a target of 1,300. It must be noted that performance was high at 726 in Quarter 1, due to a measurement error (double counting), with the problem being addressed by Quarter 2. Performance was stable during Quarter 2 and Quarter 3 but improved by the end of the year due to hospitals reporting to the NSC through the reporting API. Previously, only data from clinics was included, as there was a challenge in accessing the required data from hospitals. In Quarter 4, the team could access the min-max data via the API established to automate hospital reporting to the NSC. The provinces with the highest number of clinics with min-max levels include KwaZulu-Natal (219), Limpopo (171), and North West (149).

As reported above, GHSC-TA began presenting a recommended min-max level calculation methodology to provinces (Gauteng, Mpumalanga, and Free State) during Quarter 4. Once approved by provinces, this methodology will be used to determine the min-max values, followed by verification and uploading on the relevant electronic systems. Further improvement in this indicator's performance is expected by the end of Year 5 in line with the informed push project.

Figure 9: Min-Max Level Reporting – Number of Health Establishments and Warehouses with Configured Min and Max (Min-Max) Stock Levels for Stocked Medicines Being Reported

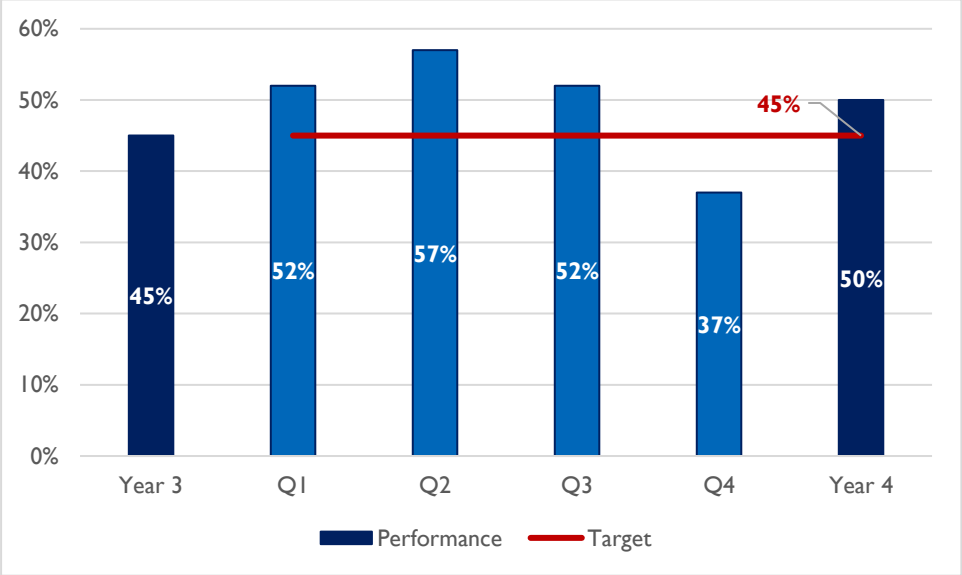


KPI 9. DEMAND FORECAST ACCURACY FOR PROVINCES USING THE DEMAND FORECASTING PROCESS

This KPI measures forecasted demand accuracy relative to actual demand for provinces where the demand forecasting process has been implemented, and for all 15 contracts. It is critical to have high forecast accuracy to avoid stock-outs and maintain appropriate levels of inventory. Forecast accuracy is measured based on mean absolute percentage error, which is an absolute variance between forecasted demand and actuals expressed as a percentage of actuals. Data was available across all four provinces, where the demand planning process has been implemented: Eastern Cape, North West, Gauteng, and KwaZulu-Natal.

By the end of Year 4, the overall forecast accuracy was reported at 37 percent, below the target of 45 percent. The performance was above the target throughout the year and declined below target towards the end of the year, as shown in Figure 10. The decline was driven by the COVID-19 outbreak, with the impact of the national lockdown becoming visible in May on TB and vaccines. The impact continued through the end of Year 4, impacting HIV and TB contracts. GHSC-TA also observed larger TLD volumes issued to health establishments throughout Q4. At the same time, TEE dropped lower than forecasted in all provinces because of stock availability and significant provincial efforts to transition patients from TEE to TLD. GHSC-TA expects the impact of COVID-19 to continue in the coming months as patients start returning to health establishments for treatment. The utilization of vaccines has also been low in the COVID-19 period as patients have stayed away from clinics. Additionally, the COVID-19-specific forecast has also seen significant adjustments to, for example, the vaccine forecast, as the Expanded Program on Immunization adjusted projections in response to COVID-19 related challenges.

Figure 10: Demand Forecast Accuracy for Provinces in Year 4



ARV adjustments were made, and GHSC-TA continues to monitor the forecasts. The program will also continue to monitor the COVID-19 forecast, tracking volume spikes on various COVID-19-related items and drops on some non-COVID-19-related items. The vaccine forecast has been reviewed in detail and the catch-up volume projected until the end of 2020.

KPI 10. FORECAST BIAS FOR PHARMACEUTICAL FORECASTS IN PROVINCES

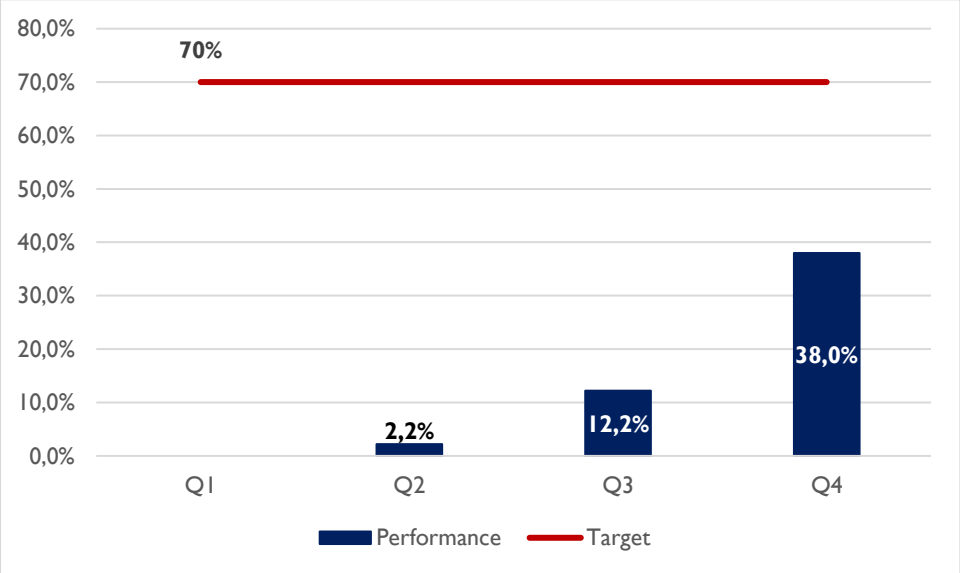
Forecast bias measures the tendency for actuals to be over or under forecast on a consistent basis. The presence of a tendency in either direction requires root-cause investigation and corrective action. Forecast bias is measured as a variance between forecast demand and actuals, either positive or negative, expressed as a percentage of actuals over a series of consecutive periods. By the end of Year 4, the forecast bias was 5 percent, within the target of less than 10 percent. Similar to KPI 9, performance improved throughout the year but dropped off at the end. Performance was lowest at the beginning of the year, at 9.6 percent in Quarter 1, 8.6% in Quarter 2, -5.9 (5.9% under forecast) in Quarter 3 and improved by the end of the year at 5%. Uncertainty surrounding the launch of TLD and the ability to forecast seasonal variances affected performance in Quarter 1.

KPI 11. PERCENTAGE OF ELIGIBLE PATIENTS TRANSITIONED FROM TENOFOVIR/ EMTRICITABINE/EFAVIRENZ TO TENOFOVIR/ LAMIVUDINE/ DOLUTEGRAVIR

This indicator measures GHSC-TA's ability to support the transition of eligible patients from TEE to TLD. At the end of Year 4, 38 percent of patients were transitioned from TEE to TLD, below the planned target of 70 percent. Notably, the primary source of the indicator, TIER.net, experienced a system error that was identified in July. TIER.net is designed as a primary health care (PHC) facility-based application to digitize information on ARV and TB patients and is currently used to track the transition on a provincial basis. When the system experienced challenges, ARC developed a proxy measure - the implied dispensing - to deduce the volume supplied using stock-on-hand information and quantities receipted. In the absence of any other information, this data has been used to enable reporting on the KPI until the TIER.net issue is resolved.

Performance against this indicator was low early in the year, but picking up by the end of the year as outlined above. The transition of patients from TEE to TLD was officially launched in KwaZulu-Natal in November 2019. On December 1, three additional provinces (Mpumalanga, North West, and Gauteng) launched the transition to TLD in celebration of World AIDS Day. The remaining five provinces delayed the TLD launch to February 2020. The implementation of roll-out activities was largely hindered by the delayed approval and sign-off of guidelines. However, reporting on the KPI started in Quarter 2 (2.2 percent) as reflected in Figure 11. Only two provinces, KwaZulu-Natal and the Western Cape, had established electronic monitoring systems to track patients' transition by the end of Quarter 2. All provinces were reporting by the end of the Year 4, hence the spike in performance by the end of the year.

Figure 11: Percentage of Eligible Patients Transitioned from TEE to TLD



STRENGTHEN GOVERNANCE

One of the AMD functions is to provide oversight and set policy with respect to pharmaceutical services provided in South Africa. Support provided by GHSC-TA includes assisting the AMD and provincial pharmaceutical services in improving governance by strengthening the policy and legislative framework, establishing appropriate governance structures, and building capacity to provide the necessary oversight. As policies are the mechanism by which the SIMA is translated into action and reforms institutionalized, a key role of GHSC-TA is to provide TA in the development of relevant policies and legislation necessary for the implementation of strategic priorities and interventions.

ACTIVITIES AND ACHIEVEMENTS

GOVERNANCE

GHSC-TA conducted several activities in Year 4 to support the development and revision of policies and legislation as an enabler for medicine availability. Most notably, the program supported activities in the areas of licensing permits, supply planning, contracting, and contract management.

Section 22A (15) Permit. The project provided TA to AMD in addressing various concerns raised by the South African Pharmacy Council (SAPC) concerning the issuing and management of Section 22A (15)

permits, which enable nurses to supply certain medicines to patients. The task team composed of representatives of AMD, GHSC-TA, SAPC, and the Chief Nursing Officer of NDoH reviewed the revised application form and guideline. By the end of the reporting period, the guideline had been adopted by the Practice Committee of the SAPC.

Guideline for the Removal of Pharmacies Recorded in terms of the Pharmacy Act 53 of 1974. GHSC-TA supported the AMD in providing input to the SAPC on the guideline for removing pharmacies recorded on the registers of the SAPC as a result of non-compliance with Good Pharmacy Practice and other relevant legislation. The purpose of this guideline is to outline the conditions under which the council may remove a pharmacy from its records and is aligned to the legislative provisions of the Pharmacy Act, 53 of 1974, and the relevant regulations published in terms of that Act.

Section 22A (9) Permit Template. GHSC-TA provided technical assistance in creating a revised template for permits issued by the Director-General in terms of Section 22A(9) of the Medicines Act, which is issued for the acquisition, use, possession, manufacture, or supply of any Schedule 7 or 8 and specified Schedule 5 or 6 substances.

Supply Planning Policy Principles. GHSC-TA drafted the policy principles for supply planning. The purpose of the document is to define high-level policy principles for supply planning and establish an agreement with relevant stakeholders before developing the required policy.

Medicine Availability Monitoring Guideline. GHSC-TA revised the Medicine Availability Monitoring Guideline based on lessons learned from the COVID-19 pandemic. The policy's objective is to describe the process and principles for continuous review of progress towards achieving the defined KPIs for improved medicine availability.

The National RxSolution Steering Committee. GHSC-TA provided TA focused on drafting the TOR for the steering committee, constituted by AMD to oversee the implementation and support of RxSolution and define high-level principles and priorities for re-platforming RxSolution.

Free State Service Level Agreement Between the Provincial Depot and Demanders (Health Establishments). GHSC-TA organized a workshop in the Free State to finalize the review of the service level agreement, which outlines the high-level principles related to various supply chain activities, as well as the roles and responsibilities of the stakeholders involved. GHSC-TA supported the Free State in reviewing and finalizing the service level agreement to align with the approved national and provincial KPIs.

Review of the Strategy for Improved Medicine Availability. In collaboration with ARC, GHSC-TA supported AMD in facilitating two NHI/SIMA workshops attended by the HOPS and provincial representatives. The workshops' purpose was to engage provinces around the revision of the SIMA and unpack the NHI Bill and the implications thereof. The first workshop's output was a one-pager outlining the key messages around the revision of the SIMA, the progress made thus far, and the next steps. The second workshop's purpose was to engage provinces on the vision for pharmaceutical services and develop a revised framework for pharmaceutical services. Following the workshop, GHSC-TA worked with ARC in developing a draft strategy framework incorporating the input provided.

CONTRACTING AND CONTRACT MANAGEMENT

The Special Requirements and Conditions of Contract. GHSC-TA provided support to AMD with administration and management of the tendering process. The support included reviewing and updating

the SRCC, a document published with each tender detailing the legislative compliance requirements of the bid, the evaluation criteria to be applied, and the award and contract management conditions. The team assisted with bid closure activities and preparations for Bid Evaluation Committee meetings. Further, the project has worked to strengthen the SRCC based on gaps identified through the COVID-19 pandemic response, including provisions relating to sourcing alternate products when a contracted supplier cannot supply, the ceding and cancellation of contracts, and the overall approach to *force majeure* situations.

Citizen Stock-out Reporting Proposal. As part of the Minister of Health's first 100-day plan, a call center must be established to provide a mechanism for all South Africans to report medicine availability challenges encountered at public health establishments. In so doing, the NDoH intends to improve service delivery by enabling citizen reporting so that challenges experienced when accessing medicines are captured and managed until resolved. GHSC-TA was requested to support AMD in drafting the concept note, which provides an overview of the proposed citizen stock-out reporting mobile app and call center. The concept paper served as the basis to build a business case used to secure proposals from prospective service providers to provide call center services. The team provided input into the proposal prepared by the prospective service provider. The service provider developed the mobile application, and further input was provided on the demonstration application.

Bid Specification Committees (BSCs) and Bid Evaluation Committees (BECs). GHSC-TA supported AMD in facilitating a workshop with the BSC and BEC members to review various governance documents, including the tender cycle process, TOR for both committees, and the SRCC template. Following the workshop, the tendering project plan was revised and updated based on comments received. The project plan includes formulas to auto-calculate duration of each activity to enable better planning. In addition, the TOR of the BSC and BEC were revised based on comments received from members.

During the period under review, work around the development of the bid specification and evaluation SOPs commenced. In addition, work commenced to prepare a consolidated list of medical-related items (medical devices) that are on tender, as decided at the BSC/BEC workshop held in February. This consolidation aims to identify items other than medicines that are and/or should be included on the tender list. Following the consolation of the items, the criteria for inclusion on tenders will be developed.

Contracting. In efforts to promote the security of supply of essential medicines, including ARVs and medicines used in the prevention and treatment of TB, GHSC-TA supported AMD in drafting SOPs for all stages of contracting (bid specification, bid advertising, bid evaluation, and adjudication). Support was provided in developing the specifications for items to be advertised to awarding the contracts. The activities included preparing the bid to be published, evaluating bids, and preparing documents for the Departmental Bid Adjudication Committee and final award. Further support was provided with developing and implementing a process for extraordinary contract price adjustments, necessitated by the COVID-19 pandemic.

Contract Management. GHSC-TA supported the development and generation of the Hot List – a list of medicines with supply constraints. This work included the development of criteria for the inclusion of items on the list. The Hot List is reviewed by the IMAT to identify possible root causes and implement remedial actions. In collaboration with CHAI, the project is developing a matrix to measure supplier performance and accuracy of data reported by suppliers over time. GHSC-TA also provided support in developing the new version of the supplier reporting tool (RSAPharma database) to track the metrics that assist in informing decision making relating to contract management. During this reporting period, GHSC-TA continued to support AMD with managing supplier performance and mitigating stock-out challenges,

and providing technical support to the CMU in the review and development of SOPs relating to the management of supplier performance.

Standard Operating Procedures. GHSC-TA developed a step-by-step process flow, guiding the drafting and reviewing of standard operating procedures, to assist programs and provinces in standardizing and aligning their approach with best practices for developing and maintaining SOPs. This approach was designed to provide guidance in preparing and using an SOP within a quality system.

In KwaZulu-Natal, GHSC-TA provided support for reviewing and updating SOPs and aligning them to provincial standards and templates for compliance purposes. The next step will be to support implementation and re-enforcement through training and monitoring by management as the updated SOPs need to be maintained and readily accessible for reference by employees. The GHSC-TA team, through several meetings with the province, has provided insights and guidance towards advancing this process.

OUTCOME LEVEL RESULTS

GHSC-TA hypothesizes that through increasing the capacity of the AMD to develop and institutionalize effective policies and legislation and implement good governance practices in coordination and engagement with key stakeholders, the AMD will demonstrate an increased application of good governance principles embodied in policies, implementation plans, processes, and SOPs. There are no outcome level KPIs reported under this objective.

IMPROVE WORKFORCE MANAGEMENT

To strengthen the workforce and organizational structures within AMD and in the provinces to perform the functions necessary to improve medicine availability and support implementation of the SIMA, GHSC-TA continued to provide TA to the North West province.

In 2018, the GoSA invoked Section 100 of the Constitution in North West giving the national government the power to intervene when a province does not fulfil its obligations regarding legislation or the Constitution. GHSC-TA continued to support the province in addressing human resource challenges that were affecting work at the Mmabatho Medical Stores.

ACTIVITIES AND ACHIEVEMENTS

During this reporting period, GHSC-TA in collaboration with the North West team, and other partners investigated and made recommendations to solve various human resource challenges. These recommendations were made to the union, senior management, the Member of Executive Council, and

the bargaining chambers. Support provided to provincial human resources included preparing a case for compensation of 48 staff members, who were reimbursed in December 2019 for work completed, addressing the continuous renewal of 25 workers' contracts, and the creation and advertising of permanent positions.

GHSC-TA supported the alignment of employees with appropriate qualifications and years of experience to specific jobs on the newly optimized organizational structure. Performance agreements were verified with senior management and finalized in March 2020. Job advertisements for 35 vacancies were prepared in February, and 20 staff members were appointed at the Mmabatho Medical Stores. Work commenced with the implementation of the approved North West pharmaceutical services organizational structure. To date, employees have been mapped against the structure and aligned with job role and qualification requirements.

OUTCOME LEVEL RESULTS

GHSC-TA hypothesizes that by increasing the AMD and provinces' capacity to develop and implement good governance practices in coordination and engagement with key stakeholders, the AMD and provinces will demonstrate an increased application of good governance principles embodied in policies, implementation plans, processes, and standard operating procedures. There are no outcome level KPIs reported under this objective.

PIXABAY

STRENGTHEN INFORMATION SYSTEMS AND INFORMATION MANAGEMENT

Information systems are critical to support the AMD strategy to improve medicine availability. Beyond organizational governance, GHSC-TA supports data governance and management of master data elements crucial to enable interoperability of information systems. Further, the team supports and recommends enhancements to existing systems, analytical processes, and dashboards used by AMD and provincial pharmaceutical services for daily transactions and to inform decision making and continuous improvement.

ACTIVITIES AND ACHIEVEMENTS

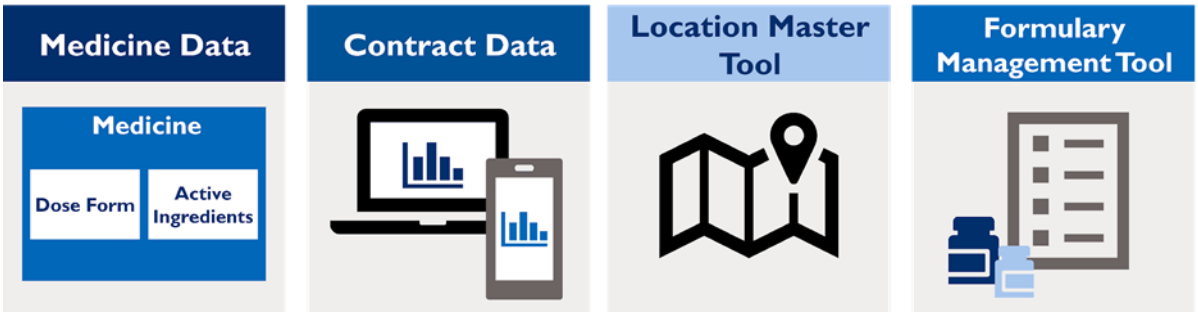
MASTER MEDICINE DATA SYSTEM

The AMD is working towards ensuring that medicine master data can be exchanged and processed between different devices and systems and across networks within the medicine supply chain. The MMDS,

which is under development, will provide a centralized, uniform set of master data relating to medicine. The goal is for information systems to read medicine master data from this central repository via system interfaces to achieve seamless interoperability. The availability of a set of uniform master data will support improved efficiencies at all levels of the health care system and facilitate visibility via the NSC, ultimately contributing to medicine availability improvements.

GHSC-TA provides support to elicit system requirements and reach agreement on definitions of master data-related elements, documenting requirements, preparing conceptual data designs, and system testing once these requirements are implemented. In Year 4, GHSC-TA continued to provide TA in the development of specifications and implementation of modules of the MMDS, which consists of four components shown in Figure 15: Medicine Data, Contract Data, a Formulary Management Tool, and a Location Master Tool.

Figure 12: Four Components of MMDS



- The **Medicine Master Tool** enables the structuring of medicines within the system by setting properties such as the international non-proprietary name, strength, and dosage form using repositories (static master data lists). The medicines created will be used to inform the MHPL, Contract Master Tool, and Formulary Management Tool.

- The **Contract Master Tool** supports processes to record summary details of contracts concluded with suppliers of medicines, including supplier details, price, and minimum order quantity.

- The **Location Master Tool** serves as a central component to the Formulary Management Tool by recording the details of organizational units (provinces, districts, or sub-districts) and health establishments' details. A formulary links a medicine to an organizational unit or establishment.

- The **Formulary Management Tool** provides the technology to operationalize the National Guideline for the Management and Use of Formularies by enabling the development, management, and use of formularies for all provinces, districts, sub-districts, and health establishments.

Development. The AMD-contracted service provider's development is taking place in phases within an agile delivery framework, with the core functionality relating to medicines and contracts, location management, and formulary management completed, tested, and live. The focus is to deploy a usable (if not mature) first version for each module, allowing processes to be supported by the system and users to interact with the initial version of the module. These interactions allow users to understand better their requirements, from which enhancements can be specified, and the system improved towards maturity.

During Year 4, GHSC-TA helped revise the requirements specification for the formulary management tool, which has now been implemented. Additionally, specifications for major changes to the user management functionality and contract data history functionality are substantially complete and will be implemented in the next year. GHSC-TA assisted with change requests for various enhancements, with most having been implemented, tested, and made live. The most significant change requests related to the addition of statuses to allow data to proceed through lifecycle stages and reporting enhancements.

Data Entry. A master data system, such as the MMDS is highly data-orientated and requires careful attention to detail with regard to the data that is loaded before the system becomes useful. The data loading process follows rigorous steps of identifying data, approval of the structuring, capturing onto the system, and final verification and approval. These steps are subject to documented business rules developed by GHSC-TA. The program also assisted by convening recurrent meetings that focus on driving data through the loading stages and potential enhancements to the system to accommodate data processes better. By the end of the period, all medicines and medical-related products relating to national transversal contracts and all contract data have been loaded, approved, and made live. Eighty percent of "non-award" data (medicines for which there has been a previous contracting attempt without a successful award) has been loaded, approved, and are live. Currently, the focus is on the Free State provincial data, where GHSC-TA is providing technical assistance to roll out the formulary tool in the Fezile Dabi district. Data work for the Free State provincial formulary, and Fezile Dabi primary health care formularies are substantially underway. GHSC-TA also supported the review of provincial formularies in Free State, Northern Cape, and KwaZulu-Natal by collecting and analyzing actual order/issue data in these provinces.

A major milestone was achieved when the Medicine Procurement Catalogue (listing all medicines available on national transversal contracts with contract parameter details) became available as a report from the MMDS. Historically, this was developed and managed manually.

Standard Operating Procedures. In efforts to ensure the success of MMDS, GHSC-TA engaged with key stakeholders and gathered information during software development to define the processes, roles, and detailed steps required to maintain the MMDS through formalized SOPs. These "living" documents will require continuous amendments as processes change while the system is being enhanced. GHSC-TA continued to update the MMDS SOPs to accommodate functional changes made during software development. In addition, master data business rules for the capturing of medicines on the system are required to ensure consistency in the way that medicines are recorded. Work on business rule development has focused on medicine structuring but will be extended to other parts of the system in Year 5 and will require ongoing review as the system is expanded and enhanced.

Integration Plan. The objective of the MMDS is to share centralized master data across the different IT systems and processes in the national health space, be that in a semi-manual fashion (by use of spreadsheets) or, preferably, via system-to-system integration. Over the reporting period, GHSC-TA focused on engagements with the SVS developers working towards medicine and formulary integration between the MMDS and SVS. This is work in progress with some planning and analysis work complete.

NATIONAL SURVEILLANCE CENTRE

In Year 4, the "results framework and key performance indicators" and "visibility, analytics, and dashboards" objectives were combined into the NSC workstream. During this reporting period, the team continued to build on optimization and enhancement of the NSC, including improvements to data quality and supporting the operationalization of the NSC at national and provincial levels to improve visibility of the performance of the supply chain and strengthen analytics to inform decision-making.

Data Enrichment and Enhancement. During Year 4, GHSC-TA focused on updating the NSC with newly available data on medicine availability and incorporating additional data sources to enhance visibility. Triangulation of medicine availability data with patient-related data was a key activity, with dashboards developed that visualize stock-on-hand information and min-max stock utilities to determine whether stock-on-hand is adequate to service the expected number of patients. GHSC-TA completed this development using data received via an API established to auto-refresh data from health establishments using RxSolution. This upgrade means that the NSC receives data daily, as opposed to weekly, and by the end of the period applied to 291 facilities connected via the API. In Year 5, the program will explore expanding and enriching the min-max stock utilities further, leveraging the supply planning work underway.

GHSC-TA developed workflows that align source system data to the data templates required to update the NSC. These workflows automate the processes of collating and refreshing the NSC data, thereby streamlining and simplifying the process for a seamless transition and handover to AMD. The workflows for medicine availability data from RxSolution, MEDSAS, gCommerce, and the Central Chronic Medicines Dispensing and Distribution service providers are run daily, allowing for the refresh of the integrated view dashboards for medicine availability.

GHSC-TA also supported the process of extracting order and stock-on-hand data from depot data sets for upload to the RSA Pharma platform. This activity assists the CMU by providing order information from the provinces.

To promote sustainability, responsibility for hosting the NSC is transitioning to the NDoH. Work to migrate the NSC server from the GHSC-TA funded Afrihost to a new server hosted by Mezzanine and funded by the NDoH was initiated on July 29, 2020, with the migration of the NSC completed at the end of September 2020. Over and above the transition of financial responsibility, this solution aims to consolidate AMD hosting solutions with the AMD contractor responsible for developing the MMDS and SVS while leveraging a server with better specifications enabling the NSC to run smoothly and reliably at an acceptable speed. A test period for the NSC by GHSC-TA and AMD staff is scheduled for the first two weeks of October 2020. A communication pack has been drafted around the move of the NSC to the new server and introduces two additional dashboard views (trend and demand planning dashboards). The go-live on the new server is planned for the end of October 2020.

GHSC-TA supported the maintenance and optimization of the existing 46 dashboards with 856 different views by rationalizing these views into a single integrated dashboard for medicine availability. This development provides the opportunity for the NSC to move away from individual provincial medicine availability views and consolidate these all under a single integrated view with drill-down capability. This functionality allows provinces to continue accessing their provincial information while also having visibility of medicine availability in other provinces. The AMD approved this move in July 2020 providing a transparent platform for all stakeholders to monitor and measure supply chain performance. The go-live for the single integrated view is combined with the NSC migration to the new server scheduled for the end of October 2020. This consolidation of views has allowed the NSC to be reduced from 46 dashboard workbooks with 856 views to 16 workbooks with 154 views. This consolidation allows for a better experience for users, as well as making maintenance more efficient.

Other enhancements included eight new medicine dashboard views (not including the COVID-19 and PPE dashboards) along with additional reports and views to ensure users have access to the most current information, including:

- The **NSC Mobile Dashboard** was developed and made available to the Minister of Health, Deputy Minister of Health, Members of the Executive Committee for Health, and the heads of the Departments of Health of all provinces.

- A dedicated **TEE/TLD Transition Dashboard**, which was created to support the TLD transition team. Enhancements to this dashboard include the integration of contraceptive products as well as the addition of dolutegravir 50mg. Additionally, GHSC-TA integrated the demand plan data into the TEE/TLD dashboard to monitor if stockholding at health establishments is sufficient to support planned transition rates.

- **Demand planning dashboard**, which shows medicine forecast volumes and values for items on contract. These views are disaggregated by national, provincial, and district levels, and users can view both historical and future forecast information using filters.

- **Medicine availability trend dashboard**, which visualizes monthly average medicine availability at a national and provincial level. Item filters include medicine, category, facility type, province, district, sub-district, and facility, with a matrix view summarising monthly average percentage over the period selected for the category of trend selected.

- **NSC User Activity Dashboard** tracks user activity, including the number of logins, reports, and views used, and the level of detail interrogated by individual users of the NSC.

- **Stock-on-Hand Versus Min-Max Stock Utilities Dashboard**, which visualizes stock on hand against the min-max stock utilities to determine if the stock is sufficient to meet the demand.

- The **Items-Out-of-Stock Report**, integrated with Pipeline Analysis Tool Status sourced from suppliers.

Enhancement of the NSC dashboards also progressed, with efforts focused on building workflows and robotic process automation to improve data feed into the NSC and generate lessons learned throughout this process. These workflows aim to automate collation and refreshing of data on the NSC, thereby simplifying and streamlining the process for transition to AMD. GHSC-TA has drafted an NSC technical, functional specifications document which details the workflow specification for the medicine availability integrated view dashboard. This document will remain a work in progress through Quarter 2 of Year 5 as new developments and enhancements are included.

Institutionalization of the National Surveillance Centre. The project's Year 4 activities promoting the NSC's institutionalization focused on the use of the NSC, the interpretation of information available, and the use thereof to inform decision-making processes to address medicine availability challenges at a national level. Activities also focused on proactively managing problematic medicine lines and implementing measures and communication strategies to address and mitigate these challenges. GHSC-TA continued to support AMD with institutionalizing the NSC by compiling and reviewing reports that monitor user activity, reporting compliance, and medicine availability at health establishments. The reports are shared with the AMD team weekly, and the medicine availability review has been included in the weekly AMD IMAT meetings as an additional input when reviewing the Hot List.

These reports are also shared with the PST, who engage with provincial counterparts to address reporting compliance and medicine availability issues. In addition, the PST team assists the provinces by confirming critical items on the list and assisting to address any issues through the escalation protocol. Medicines that

are reported as low on stock are reviewed, and mitigation actions are taken as required. Health establishments that are not adequately reporting to the NSC are engaged to determine the reasons for non-reporting, and mitigation actions are agreed upon. This ongoing engagement and support culminated in reporting compliance to the NSC, improving from 80 percent in November 2019 to 93 percent in September 2020.

GHSC-TA continued to transition responsibilities of core training functions to the AMD, with several responsibilities now managed by AMD. As of December 2019, the AMD had facilitated NSC training across eight provinces, with six provinces completing both the initial training and the follow-up session. Training follow-up sessions in the Eastern Cape and Western Cape scheduled for March 2020 were postponed due to the COVID-19 restrictions. These sessions will be rescheduled. A follow-up meeting was held in the Northern Cape on March 3, 2020, where the provincial team presented their successes and challenges while using the NSC dashboards. GHSC-TA further supported AMD by reviewing the EDP and CMU operational plans for alignment with the national KPIs and the SIMA to confirm that these operational plans' activities support the KPIs measured on the NSC.

SUPPLY CHAIN SYSTEMS

Technology and information systems are critical enablers of health supply chain performance and form a cornerstone of the successful delivery of the AMD SIMA. Key Year 4 activities performed in support of this objective include supporting the development and deployment of information systems, including RxSolution and SVS.

RxSolution Refresh and Re-Platform. This activity comprises three areas: completion and ongoing support of the reporting API, maintaining stock-related aspects of the current version of RxSolution, and assisting the AMD-appointed contractors with the rebuilding of RxSolution onto a new technology platform ("re-platforming").

The **reporting API tool** is an automated data collection and redistribution tool that GHSC-TA initially created in Year 2 to collect data from RxSolution data stores. The tool submits data to a centralized repository without any manual intervention across available data channels, such as provincial Wide Area Networks or the internet. During Year 4, GHSC-TA made further enhancements to improve the stability of the tool. GHSC-TA also assisted with the further roll-out of the tool, which is now installed across seven provinces, including Free State, Mpumalanga, North West, KwaZulu-Natal, Limpopo, Gauteng, and Eastern Cape.

Maintaining stock-related aspects of the current version of RxSolution involves harmonizing master data by **MMDS integration**. This integration improves the ability to aggregate data across reporting sites, reduces the need for data cleansing at the NSC, and improves opportunities for integration with other systems that use the MMDS as the basis for data structuring. In Year 4, GHSC-TA commenced a substantial re-development of the areas within RxSolution that manage medicine master data to accommodate integration with the MMDS. This work is ongoing.

During Year 4, GHSC-TA provided TA to the AMD and their appointed contractor for the rebuilding of RxSolution onto a new technology platform (referred to as "**re-platforming**"). The first RxSolution module selected for re-platforming is the prescribing module for which a first version (minimal viable product) has been created.

Implementation and Development of SVS. During Year 4, GHSC-TA supported the development and UAT of enhancements to existing SVS functionality. With the maintenance activities relating to the visibility functionality transitioned to and managed by the NDoH, GHSC-TA support focused on making sure that the new eOrdering and eReceiving functionality met the NDoH's user requirement specifications. Figure 13 illustrates the new SVS Phase 2.0 home screen with added functionality.

During Year 4, significant strides were made towards finalizing the system enhancements that the SVS development team began in Year 3. With the delivery of the minimum viable product, the team was able to test the new functionality in all eight SVS-deployed provinces (excluding the Western Cape), capturing valuable end-user input to inform the new functionality before finalization and expanded deployment.

Over 130 national and provincial stakeholders attended the UAT sessions, with sessions in the provinces attended by the Head of Pharmaceutical Services, district managers, district pharmacists, pharmacist's assistants, and nursing personnel (see Figure 14).

Figure 13: SVS Main Menu Screen

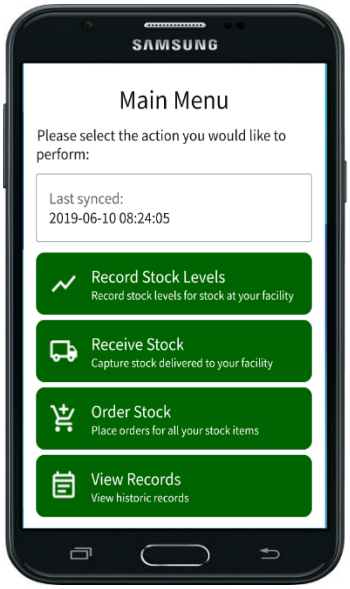


Figure 14: UAT Session at a PHC Facility in Northern Cape Province

The UAT helped validate some of the key assumptions informing the development of the eOrdering and eReceiving functionality and helped confirm that the new system is fit for purpose. Overall, the new functionality, both mobile and web versions, was well-received by end-users, who were able to follow through end-to-end with ordering and receiving processes. Minor suggestions on improving the user experience will be considered and managed by a technical steering committee.

In addition to providing technical support towards developing the new functionality, GHSC-TA produced the relevant governance documents that support the testing and deployment of the new functionality. These documents include the UAT plan, SOPs, and the proof of concept implementation plan, which includes the stakeholder communication and engagement plan.

OUTCOME LEVEL RESULTS

GHSC-TA hypothesizes that, by supporting the AMD in the design and implementation of IT systems and the NSC, the AMD will be empowered to deploy systems that support the AMD strategy and enable evidence-based decision-making, leading to improved medicine availability.

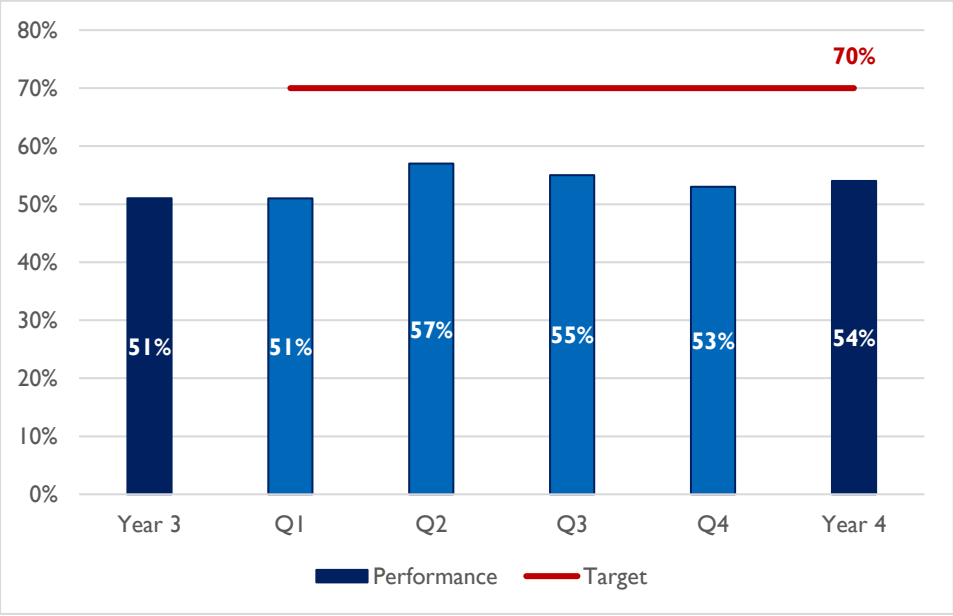
KPI 12. PERCENTAGE OF USERS UTILIZING THE NSC TO REVIEW MEDICINE AVAILABILITY TRENDS AND REPORTS

This indicator measures the frequency with which users access the data available on the NSC dashboards, including medicine availability trends and other reports. At the end of Year 4, the performance was reported at 53 percent, below the target of 70 percent. Performance peaked in Quarter 2 at 57 percent and steadily declined in the following quarters, as shown in Figure 15. This decline was partly due to the inclusion of new users in Quarter 3, specifically for monitoring PPE availability as part of the COVID-19 response. Additionally, lockdowns required many people to work from home, which created connectivity issues.

While the overall achievement was below the target, some provinces made significant improvements. At the end of the period, Free State had achieved 87 percent (up from 67 percent in Quarter 2), and Gauteng reached 58 percent (up from 47 percent). GHSC-TA played a vital role in these achievements, providing support in monitoring usage and mentoring users to address challenges identified. Moreover, in Free State and Gauteng, GHSC-TA supported the NSC's institutionalization, with both provinces abandoning in-house reporting mechanisms to rely solely on NSC dashboards and reports.

Documented challenges impacting this KPI include connectivity issues, accessibility of the necessary hardware, and clarity around user roles and expectations. Additionally, several licenses were allocated to users whose daily activities do not necessitate routine monitoring of supply chain data on the NSC. GHSC-TA is currently working with provinces to monitor and support the NSC's usage, including the reallocation of licenses from inactive users to personnel whose activities require them to use the NSC regularly.

Figure 15: Percentage of Users Utilizing the National Surveillance Centre to Review Medicine Availability Trends and Reports in Year 4



KPI 13. NUMBER OF HEALTH ESTABLISHMENTS AND WAREHOUSES UTILIZING MEDICINE MASTER DATA SYSTEM AS A SOURCE OF MASTER DATA

This indicator measures the number of health establishments, including hospitals and clinics and provincial warehouses, utilizing MMDS as a source of master data. GHSC-TA is not currently able to measure this KPI as the MMDS is still under development. GHSC-TA provides technical support to the MMDS developers to integrate MMDS data into SVS via system-to-system integration and extending RxSolution

to call medicine master data from the MMDS via system-to-system calls. This metric will be tracked when these integrations go live. The process will begin with a trial in the Fezile Dabi district in the Free State, where work is underway to finalize master data (medicine items and formularies) for the health establishments that will initially use the tool. The trial is set to go live in October 2020 and should be complete by the end of 2020.

KPI 14. NUMBER OF HEALTH ESTABLISHMENTS USING CORE SUPPLY CHAIN INFORMATION SYSTEMS TO ORDER AND/OR RECEIVE STOCK

The total number of health establishments using information systems for ordering and receiving was reported at 697 at the end of Year 4 shown in Figure 16. A total of 586 health establishments were using RxSolution, 109 were using JAC, and two were using Meditech, as shown in Figure 17. The number of facilities reporting grew steadily throughout the year.

GHSC-TA expects the number of facilities using core supply chain information systems to order and/or receive stock to increase once SVS Phase 2 is rolled out.

Figure 16: Number of Facilities Using Core Supply Chain Information Systems to Order and/or Receive Stock

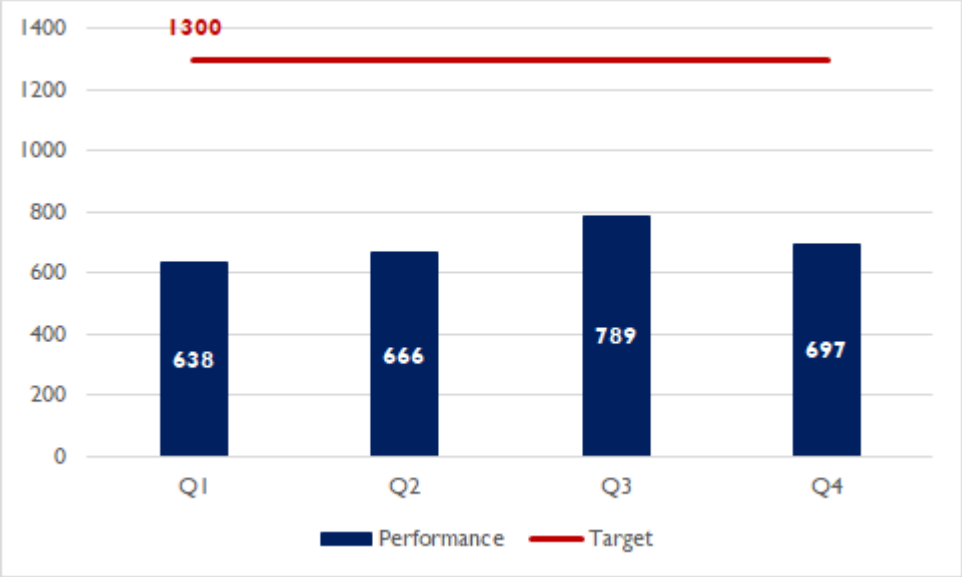
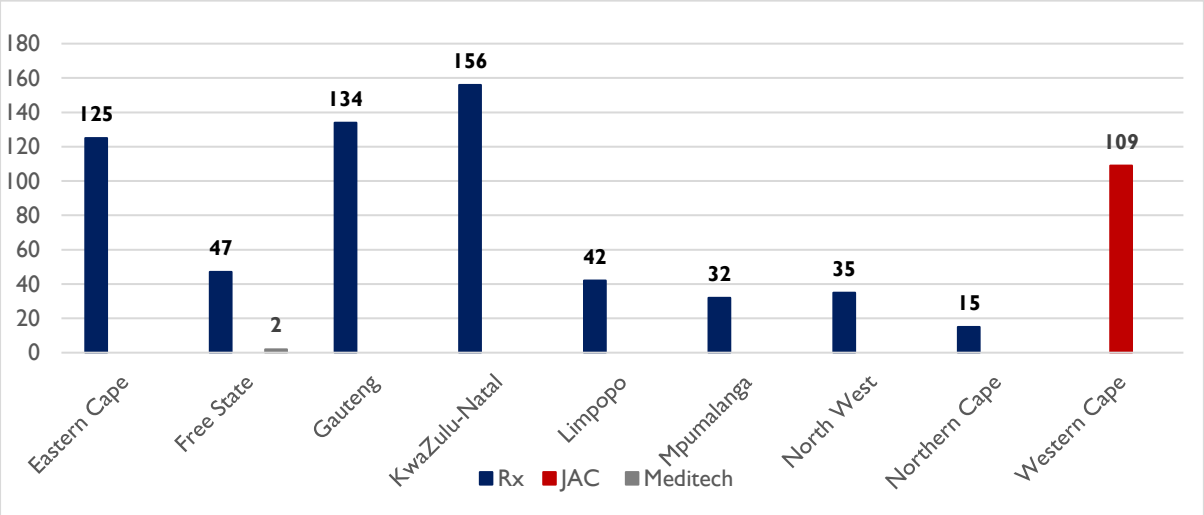


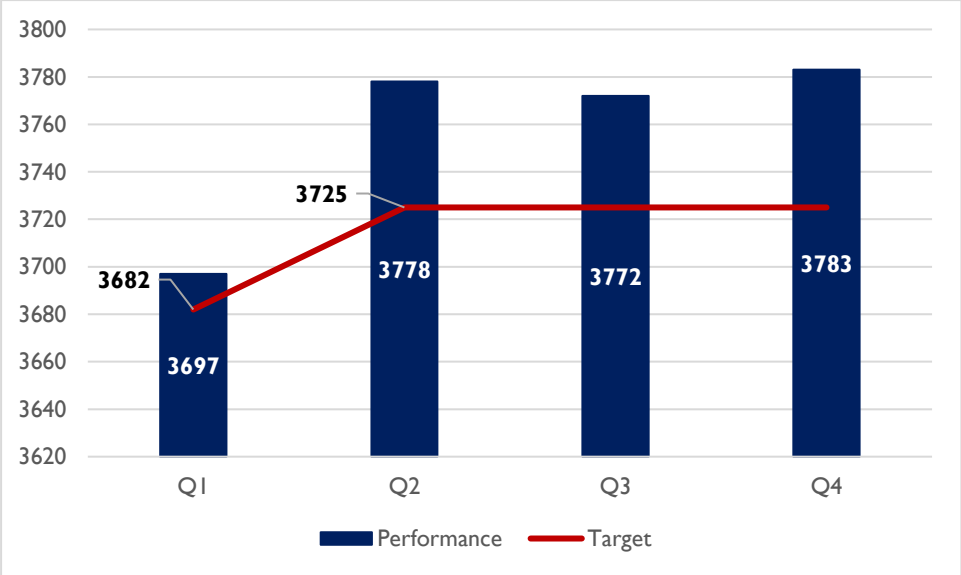
Figure 17: Number of Facilities Using Core Supply Chain Information Systems to Order and/or Receive Stock Disaggregated by Systems and Provinces



KPI 15. REPORTING COMPLIANCE – PERCENTAGE OF HEALTH ESTABLISHMENTS REPORTING STOCK AVAILABILITY TO THE NSC

The reporting compliance KPI measures the percentage of health establishments reporting stock availability to the NSC. This indicator is aligned to the NDoH's KPI tracking levels of NSC reporting, according to the APP. At the end of Year 4, a total of 3,783 facilities were reporting stock availability to the NSC dashboard against a target of 3,725 bringing the reporting compliance to 102 percent of the GHSC-TA target. Performance remained stable and above target throughout the year (refer Figure 18).

Figure 18: Number of Health Establishments Reporting Stock Availability to the National Surveillance Centre in Year 4



IMPROVE FINANCIAL MANAGEMENT

Strong financial management processes related to medicine procurement are essential for a consistent and uninterrupted supply of medicine. Through more streamlined payment tracking and financial reporting processes, the AMD and provincial pharmaceutical services can better monitor and account for medicine expenditure and manage the payment of suppliers. Improved demand forecasting and planning processes allow for a more effective manner of calculating medicine budgets and monitoring financial management.

ACTIVITIES AND ACHIEVEMENTS

BUDGETING AND FINANCIAL MANAGEMENT

GHSC-TA provided technical assistance to the NDoH in developing budgeting guidelines that standardize the approach and processes to be followed by provinces throughout the four stages of the budgeting cycle. Furthermore, the guidelines highlight the roles, responsibilities, and interactions of the various stakeholders in the budget cycle.

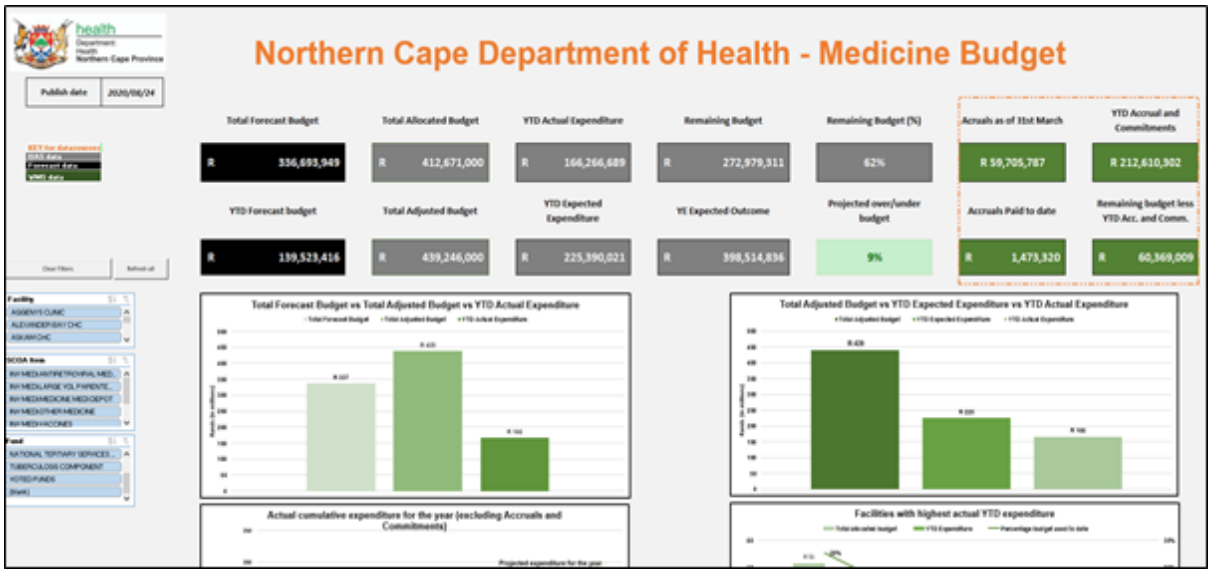
Roll Out of the Finance Dashboard. During Year 4, the GHSC-TA team provided technical assistance to the AMD by designing and developing a **finance dashboard** (based on KPIs documented in a dictionary) that assists in ongoing monitoring and reporting of the medicine budget and quality improvements in financial management. The dashboard enables relevant stakeholders to monitor and

assess medicine spending against the budget and assist management in identifying areas where expenditure has, or will exceed the budget, therefore providing a basis for timely corrective action.

In addition, GHSC-TA provided support to the AMD to implement the finance dashboard in two provinces, Northern Cape and Mpumalanga. During Year 4, GHSC-TA provided support to NDoH in the following activities:

- Development of the communication and escalation matrix to assist with early warning signs and outliers in the expected spending versus budget;
- Development of the dashboard process document that details the budget monitoring process including process flow, tasks, activities, responsible parties, and timing/frequency;
- Training material that includes the dashboard manual to support the roll-out of the dashboard and support training at the provincial level.

Figure 19: Sample Medicine Budget Dashboard



OUTCOME LEVEL RESULTS

GHSC-TA hypothesizes that building the capacity of the AMD and provincial pharmaceutical services to strengthen financial management will improve the use of forecasting and budget information, accounting processes, and financial monitoring and reporting. It is expected that prudent financial management processes will support improved medicine availability.

KPI 16. NUMBER OF PROVINCES WHO REVIEW THEIR BUDGET VS. ACTUAL AS DEFINED IN THE NEW BUDGETING PROCESS TO SUPPORT THE RING-FENCED BUDGET

This indicator measures the effectiveness of GHSC-TA technical assistance supporting the development and implementation of budgeting and financial management processes at the provincial level. At the end of Year 4, two provinces out of nine, Northern Cape and Mpumalanga reviewed their medicine expenditure against the allocated budget, achieving the target of two. Although expenditure for the current financial year 2020 —2021 started in April 2020, by the end of the reporting period, the GHSC-TA team

did not have access to expenditure data for most provinces. Access to data and facilitation of engagements with the provinces is being addressed through the NDoH. By the end of the period, three more provinces—Eastern Cape, Free State, and KwaZulu Natal—had expressed interest in having their expenditure data visualized.

KPI 17. PERCENTAGE OF EXPENDITURES ON NON-ESSENTIAL MEDICINE LIST ITEMS

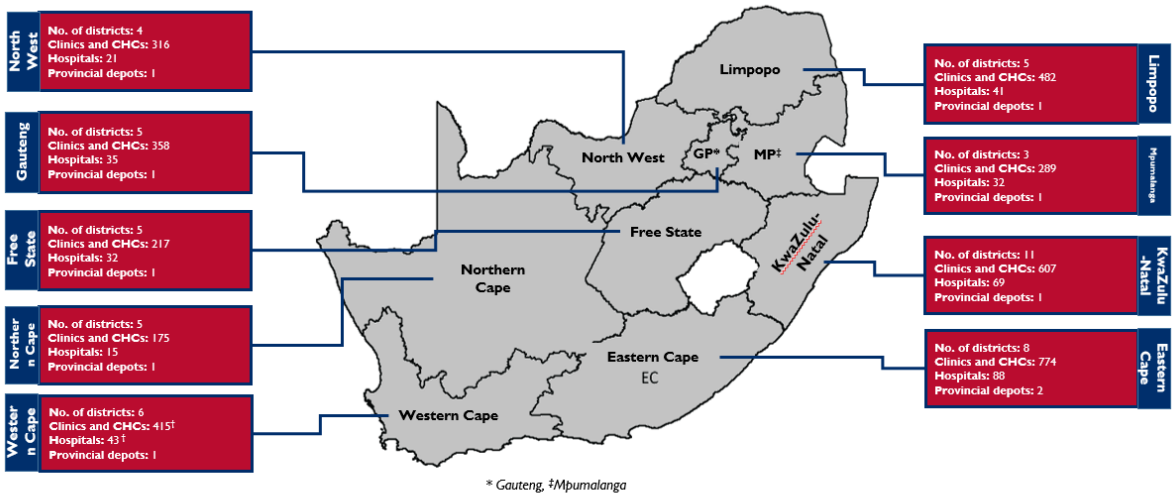
This indicator measures the percentage of expenditure on non-EML items as compared to total expenditure on medicine at the provincial level. The items that are being reviewed are all the items on the MHPL for every province. Measured monthly, the goal is to see non-EML medicines' expenditure to be less than 10 percent. At the end of Year 4, the expenditure on non-EML items was 2.8 percent, and expenditure on EML items was 97.2 percent. This achievement was within the target of 10 percent. It must be noted, however, that not all the provincial data has as yet been loaded on the MHPL. The GHSC-TA team will continue work on updating the MHPL and supporting the review of formularies.

GETTY IMAGES

PROVINCIAL SUPPORT TEAM

Over the years, there has been noticeable progress and success in the development and implementation of supply chain reforms at the national level; however, more effort is required to strengthen the implementation of these reforms at the provincial, district, and, where possible, health establishment levels. In response, GHSC-TA introduced the PST in November 2019 to support supply chain reforms within pharmaceutical services at a provincial level. In this regard, the main focus areas include the use and institutionalization of the NSC, medicine supply management at health establishments, implementation of the TLD transition, rational medicine use, and implementation of demand and supply planning.

Figure 20: Provincial Profile

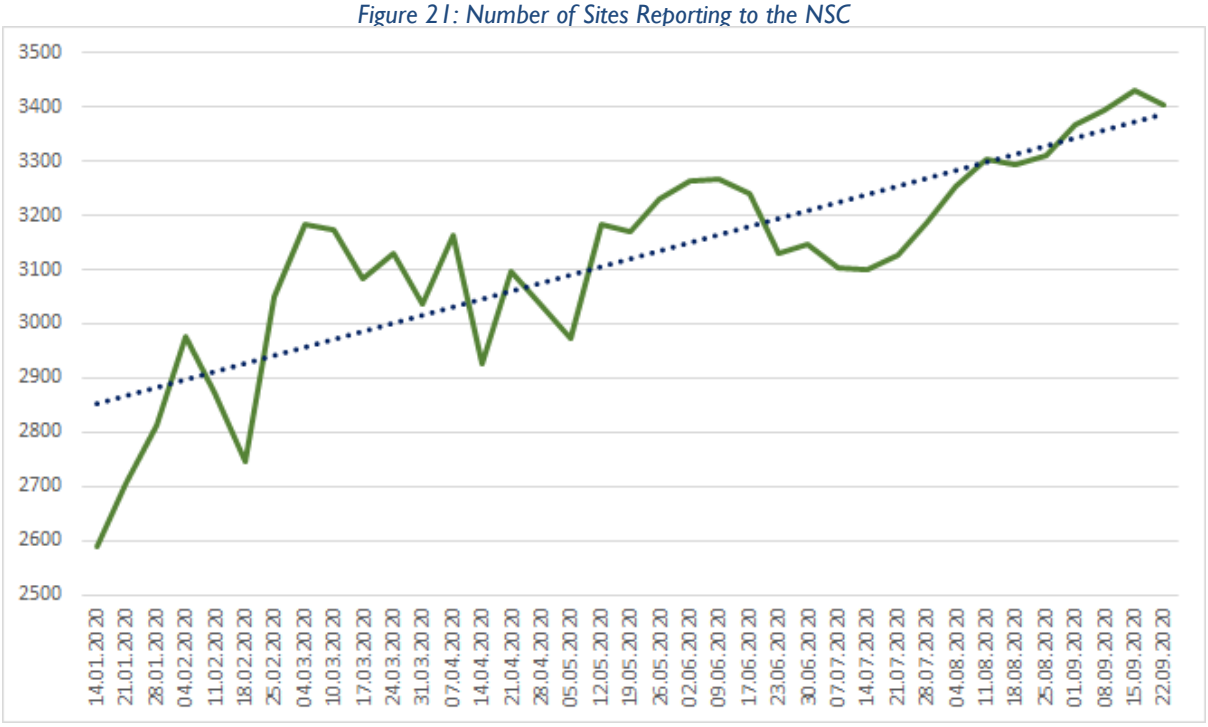


The PST members were formally introduced to all provinces, except for Limpopo, in Quarter 2. Throughout the reporting period, the PST members have made great strides in settling into their roles and building relationships with provincial counterparts. This process included Limpopo, where, despite delays in the formal introduction, the team engaged with the province and provided technical support in key areas. The PST provided tailored technical assistance in eight provinces, except for the Western Cape, where the province only requested support in the area of rational medicine use. The PST approach in determining technical assistance areas is collaborative and inclusive, taking note of the different provinces' specified support requirements. Thus, although the team's technical areas are broadly defined as above, the level of activity and exact areas of support across the different provinces is informed and driven by provincial needs, and in some cases, the deployment progress of the different GHSC-TA projects within the provinces. It is important to note that the PST activities were significantly impacted by the lockdown restrictions in response to the COVID-19 pandemic, particularly the restrictions relating to movements within, and between provinces.

INSTITUTIONALIZATION OF THE NATIONAL SURVEILLANCE CENTRE

During this reporting period, the PST took marked strides towards driving the use and institutionalization of the NSC dashboards and reports. Activities focused mainly on supporting provincial and district use of the NSC for routine monitoring of reporting compliance and medicine availability. Overall, the impact of the PST has been very evident in the area of reporting compliance, where the team's efforts aimed at improving this KPI have contributed to the increase in the number of sites reporting to the NSC, as noted in Figure 21. The reporting compliance increased overall from 80 percent in November 2019, when the PST was introduced to 93 percent in September 2020.

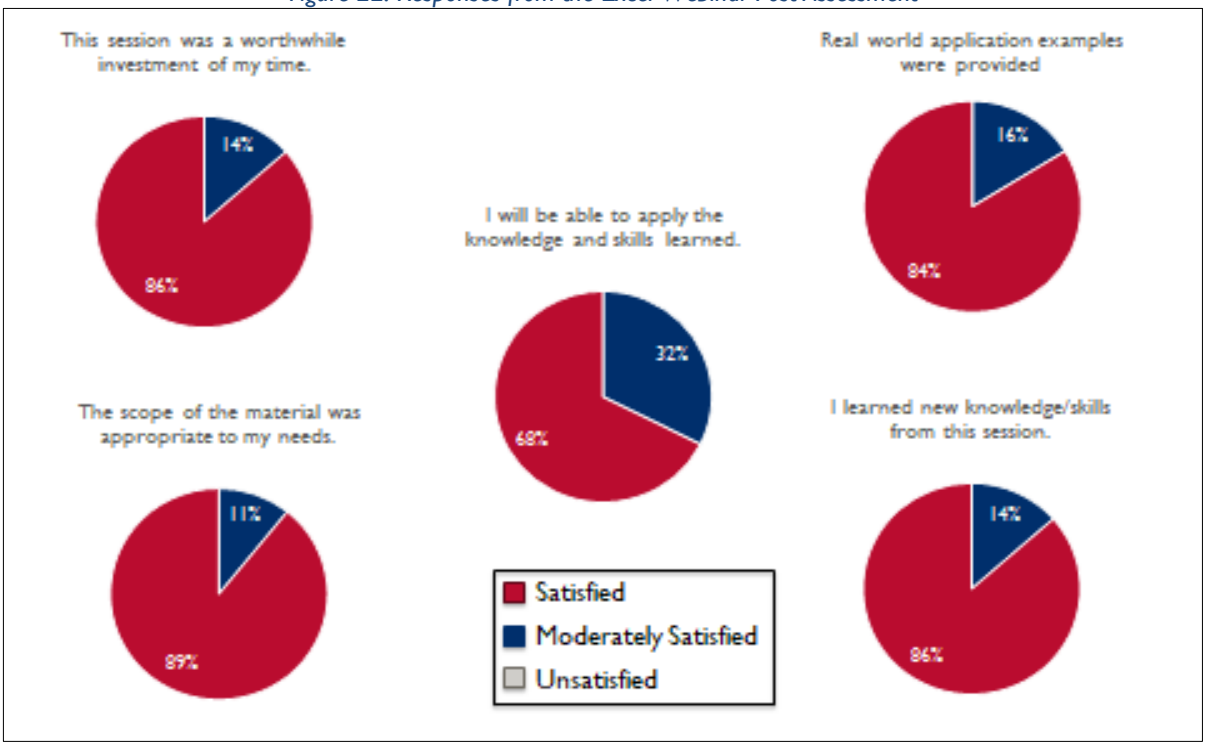
Figure 21: Number of Sites Reporting to the NSC



In **Mpumalanga**, **Free State**, **Gauteng,** and **KwaZulu-Natal**, the GHSC-TA PST worked to build capacity in reporting compliance and medicine availability reports by providing NSC users with walk-through sessions to improve understanding and use of the NSC. These sessions appear to have been effective, given that Free State and KwaZulu-Natal were among the provinces with the highest usage rates measured using KPI 12. In Free State and Gauteng, the PST support in building confidence in the NSC was instrumental in enabling these provinces to retire their previous reporting systems to rely solely on NSC reports and data.

The PST also hosted Excel webinars with NSC users across all provinces to increase user proficiency in using Excel to analyze, interpret, and use NSC data to inform practice. The project held three sessions with over 77 participants in total. All sessions were well-received as shown by some of the post-assessment feedback depicted in Figure 22.

Figure 22: Responses from the Excel Webinar Post-Assessment



During Year 4, the national supply of many essential medicines was impacted by various supplier-related constraints prevalent on a global and national level. These constraints included shortages in active pharmaceutical ingredients and reduced production capacity of manufacturing plants. Additionally, some suppliers were not paid on time by provinces, leading to the non-delivery of medicines and resultant shortages. These, among other factors, impacted the PST's ability to support significant improvements in medicine availability across the provinces.

MEDICINE SUPPLY CHAIN MANAGEMENT

Although not always well-documented, there are often challenges with medicine supply management at health establishments that negatively impact medicine availability. Issues include the lack of dedicated pharmaceutical services staff to manage stock and the dispensing of medicines, and poor replenishment management practices. During the reporting period and partly due to lockdown restrictions, PST activities relating to medicine supply management were centered around supporting the review of PHC and hospital SOPs. The PST provided technical assistance with the review of hospital SOPs in **KwaZulu-Natal** and **Mpumalanga** as well as PHC SOPs in **Gauteng** and **KwaZulu-Natal** and warehouse SOPs in **Free State** and **KwaZulu-Natal**. This work aligned with the broader SOP review process supported by the GHSC-TA linked to the Ideal Clinic workstream of the NDoH.

Additionally, the PST supported efforts around improved management of short-dated stock and understocking. In the **Eastern Cape**, PST intervention led to identifying just over R2.6 million (USD $155,000) worth of short-dated stock for redistribution to avoid wastage. In **KwaZulu-Natal**, low stock reports for ARVs, anti-TB medicines, contraceptives, psychotropic medicines, and vaccines were generated and shared with the PDoH and district pharmacy managers for action.

TLD TRANSITION

During Year 4, the PST continued to establish linkages and build relationships with stakeholders within programs in the PDoHs. These relationships went a long way towards ensuring that information relating to the availability of essential medicines required for the TLD transition was shared timeously across the provinces with the relevant stakeholders to support evidence-driven action.

During the reporting period, the PST supported the PDoHs in **Eastern Cape**, **Free State**, **Gauteng**, **KwaZulu-Natal**, **Mpumalanga**, **Northern Cape**, and **North West** by ensuring that TLD, TEE, all contraceptives, and the relevant HIV rapid diagnostic test kits were successfully loaded onto the formulary of SVS for weekly monitoring in provinces (if these items were not already included). The PST also worked closely with the provincial TLD coordinators to flag and address any supply-related issues which may have impacted implementation of the TLD transition.

RATIONAL MEDICINE USE AND DISPENSING PRACTICES

During Quarter 2, the PST supported implementing the first phase of the PTC baseline assessments in **Northern Cape**, **Eastern Cape**, **Free State**, and **KwaZulu-Natal** provinces. Due to lockdown restrictions and deprioritization of this work by the AMD, the follow-on work relating to these baseline assessments could not be completed.

DEMAND AND SUPPLY PLANNING

The PST worked with the demand planning team and supported activities to verify demander codes for all sites receiving stock from provincial (or regional) warehouses in all provinces. The team also participated in all demand planning review committee meetings held in the provinces (except for the Western Cape), aimed at ensuring the accuracy of demand forecasting.

Across all provinces (except for the Western Cape), the PST supported the supply planning team by verifying the baseline data required for the min-max data calculation and configuration. This work is closely tied to the SVS eOrdering functionality, as the min-max values will be used to inform the recommended orders on SVS, among other reports

In the **Free State** and **North West** provinces, the PST supported the supply planning team's informed push replenishment methodology. Support activities included facilitating stakeholder engagements, information dissemination, and monitoring and evaluating site performance on the NSC in terms of medicine availability and reporting compliance.

SPECIAL REPORT: SUPPORTING THE GOVERNMENT OF SOUTH AFRICA IN THE RESPONSE TO COVID-19

GHSC-TA provides technical assistance to the South African government to strengthen public health systems and supply chains to advance an AIDS-free generation, increase medicine availability, and contribute to the achievement of universal health coverage.

A consistent and uninterrupted supply of medicines to meet patient demand is key to an effective health supply chain. Supply and demand planning practices forecast potential disruptions to the supply chain to avoid negative impacts on patients. However, rapidly evolving global pandemics can be difficult to forecast, giving them the potential to negatively impact health outcomes, quality of life, and a nation's economy. The global COVID-19 pandemic may challenge the availability of medicines used to fight HIV/AIDS, TB, and other diseases in South Africa.

Over and above medicines, it is critical to limit the spread of the disease and protect both patients and health care workers. To this end, the need for a reliable supply of PPE is also of paramount importance.

OBJECTIVES

Across the globe, countries are responding to the COVID-19 pandemic by tasking their national departments of health and other relevant bodies with tracking and controlling its spread. The rapid

outbreak of COVID-19 presents a challenge to containing it, as does the lack of information on exactly how the virus spreads from person to person and how best it can be treated. South Africa detected its first case of COVID-19 on March 5, 2020. Within two weeks, there were more than one thousand confirmed cases in the country. President Ramaphosa declared a national state of disaster on March 15, followed by a national lockdown on March 27. His actions mirror those of other world leaders, acting with the understanding that the pandemic poses a serious public health risk that can also negatively impact national health outcomes. By September 30, 2020, a total of 674,339 confirmed cases of COVID-19 had been recorded in South Africa.

APPROACH AND KEY ACTIVITIES

GHSC-TA is assisting the NDoH in mitigating the impact of the COVID-19 outbreak in South Africa on the medicine and related medical products supply chain and assisting them in responding to increased demand for medicines to manage the disease. Patients who are most at-risk of complications from the virus due to comorbidities like HIV, TB, and other chronic conditions must be able to receive the treatment they need to help combat the virus. GHSC-TA has been working closely with AMD and other implementing partners, including CHAI and ARC, to develop response plans to address the COVID-19 pandemic.

In addition to working with AMD, GHSC-TA also provided support to the MAC on COVID-19 - a non-statutory advisory committee appointed by the Minister of Health to provide high-level strategic advice to the Minister and the Director-General of Health on the management of the COVID-19 outbreak in South Africa. As of March 25, 2020, GHSC-TA began providing **secretariat** support to the MAC on COVID-19 and its sub-committees (pathologists and laboratory, clinicians, and public health and research). Assistance was provided in convening **over 100 meetings**, documenting proceedings, and drafting advisories on COVID-19 decisions. GHSC-TA also assisted with the development of TOR, **appointment letters, and submissions** for the approval of the MAC on COVID-19. Working with AMD, support continued to be provided to the MAC on COVID-19 in convening meetings, providing technical support on ministerial advisories, and collaborating with other COVID-19 technical working groups.

In response to the pandemic, AMD assembled a national and provincial supply chain response team and pharmaceutical experts. The motto, "plan for the worst and hope for the best," became an early mantra that helped ensure that planning for every eventuality was considered. Daily meetings were held to start mapping the journey, and by March 25, the first demand forecast was published. This forecast was updated weekly until a steady state was reached, where after the forecast was published every two weeks. The forecast was based on three critical components – anticipated medicine requirements, patient projections, and baseline demand forecasts.

GHSC-TA supported the EDP to establish a list of items required for the management of patients presenting with COVID-19 and additional priority items for which supply security was required. Critical care specialists provided input regarding global and local trends and insight into the selection of medicines. A national COVID-19 EPI modelling team established in the country, working with a consortium of modelling experts, provided data about expected patient projections. Those two inputs were brought together by the demand planning team to add the COVID-19 lift volume to the standard baseline forecasts for all nine provinces. The forecasts were adjusted to take the provincial public sector patients into account, and the duration of stay was updated as new information became available.

By April 1, 2020, GHSC-TA had developed a **guideline for monitoring availability of priority medicines.** The purpose of the guideline is to provide information on priority medicines to be monitored

as part of the national COVID-19 response, as well as the process to be followed in the monitoring of these medicines. The guideline includes the stockholding and reporting requirements of priority medicines for the pharmaceutical depots and health establishments by level of care.

Within the first week of April, GHSC-TA began supporting AMD with the development of a **replenishment planning tool** to determine the shortfall in supply of COVID-19 priority and chronic items based on the updated demand forecasts. The team worked with ARC to expand and automate the TLD/TEE model to accommodate the 240 items on the priority list at the end of the quarter. The output from the tool is a replenishment plan at the national and provincial levels. This model has informed the CMU about the volumes that are required to be sourced to fulfil the forecasted demand, taking the current opening stock position and supplier pipeline into account. The recommended orders were shared with the provinces to help inform the orders that the provinces need to place on suppliers. GHSC-TA handed the model over to ARC to further manage the supply/replenishment planning nationally.

At the beginning of April, GHSC-TA supported the AMD in drafting a letter for exemption in terms of Section 22H(3) of the Medicines Act for the Director-General to exempt provincial depots from the provisions of Section 22H(1) to purchase medicines and medical devices from other wholesalers. An application template was also developed to enable depots to apply to the Director-General for the exemption. Furthermore, the project developed the **guideline for inter-provincial transfers** of medicines and medical devices. The purpose of this guideline is to provide guidance on the principles and processes for the interprovincial transfer of medicines and medical devices and aims to facilitate equitable distribution of commodities across the country.

GHSC-TA also developed a database and dashboard of all medicines on contract, which depicts the source of API, manufacturing, and packaging sites worldwide. This exercise aimed to map the supply network per medicine. In the event of a country lockdown, AMD can quickly identify which products would be impacted by these actions and allow proactive measures to be implemented to mitigate supply issues.

In April, GHSC-TA began supporting the development of the technical content of the **AMD newsletter.** The newsletter is a communication tool used by the AMD to update stakeholders on the progress and development of the work done in relation to COVID-19, as well as other activities of AMD and the provinces. Through the newsletter, stakeholders are also kept informed of the latest updates and developments regarding policies and regulations related to medicines, pharmacists, and pharmaceutical services.

GHSC-TA continued to support the national and provincial departments of health with the daily refreshing of the COVID-19 dashboards, published on April 28. The COVID-19 dashboards provide medicine availability and reporting compliance information using product categorization as determined by the COVID-19 response team; that is, COVID-19 priority list items, COVID-19 treatment items, chronic medicines, and non-COVID-19 medicines—the program assisted with query resolution and the monitoring of reporting compliance and medicine availability. During Year 4, the program created a total of 12 COVID-19 views including medicine availability, reporting compliance, and forecast views.

PERSONAL PROTECTIVE EQUIPMENT

GHSC-TA provided dedicated support to assist with PPE supply and distribution challenges, and help improve PPE availability for health care workers and patients, thus acting as a link between the NDoH and provinces.

GHSC-TA collaborated with other partners to develop and validate the PPE **forecast**. Through this collaboration, the Infection Prevention and Control guidelines, EPI modelling, and government personnel database changes are considered when forecasts are updated. Forecasts are shared via the NSC.

The team also worked with SAHPRA, the Department of Trade, Industry and Competition (DTIC), and clinicians from across the provinces to compile specifications and testing standards for PPE. These standards will be used by all procurement agencies when going out on tender. Quality training has been initiated, with the development of a training guide for Provincial and National Treasury representatives involved in evaluating bids. The quality guide will also be used by those receiving PPE deliveries from suppliers. This initiative is being rolled out with Gauteng and Limpopo having been trained.

GHSC-TA coordinated the submission of **PPE samples** from all provinces for quality analysis. The team provided feedback to the provinces regarding poor quality products so that defaulting products/suppliers can be proactively identified. A recall SOP has been developed by the team and is awaiting sign-off to be incorporated into provincial processes.

Weekly, GHSC-TA compiles a presentation for the Incident Management Team (IMT) providing an overview of PPE availability, highlighting gaps in supply, and providing information on actions to mitigate items out of stock at depot and health establishment level in the provinces. The project also coordinates bi-monthly Provincial PPE Coordinator meetings. These sessions are used to share challenges and find collective solutions. GHSC-TA participates in the **Occupational Health and Safety Public and Private Forum**. The PPE team has an agenda slot to present the status of PPE availability in the public sector. Quality issues are shared with the forum to assist the private sector.

GHSC-TA worked with the National Treasury to segment the total government **Central Supplier Database** to highlight PPE manufacturers and distributors. This activity included mapping their supply chains to identify the country of origin of either raw material or manufacturing in the case of distributors. The data is included in the NSC for provinces to trace local (provincial) manufacturers and distributors to support local suppliers.

GHSC-TA's PPE team coordinated a workshop with the DTIC, National Treasury, and provincial supply chain management to focus on procuring PPE from local manufacturers. Resolutions recorded by GHSC-TA from the workshop were shared with stakeholders and will be used to drive a new series of transversal tenders that will incorporate local, reliable manufacturers of PPE.

GHSC-TA also developed the COVID-19 **PPE availability dashboard** with 20 new views, including the PPE forecast dashboard views (both published on June 1), including national and provincial availability by facility type, PPE description, and a drill-down functionality enabling the user to see availability at health establishment-level as well as stock-on-hand and stock-out reports. The PPE and PPE forecast dashboards provide availability information for the PPE required by health care workers and facilities in the treatment of COVID-19 patients. A PPE mobile dashboard was developed for viewing via mobile devices using the mobile NSC application. This was done specifically for provincial leadership who require quick access to information and are likely to be using their mobile devices to access this information.

In addition to creating the PPE dashboards, the program also established a protocol around collecting and updating PPE stock-on-hand data and adding this to the PPE MAC stock-on-hand database. The two KPIs used on the PPE dashboards were documented in a PPE KPI dictionary, which is still in review with the PPE support team. Quick navigation guides for both the COVID-19 medicine availability and PPE

dashboards were developed and shared with the COVID-19 response team and provinces for reference and assistance in navigating the views.

Following engagements with the Occupational Health and Safety Committee, GHSC-TA worked with Mezzanine to guide the development of an Occupational Health and Safety Mobile Phone App using the SVS device. The purpose of the app is to enlist the assistance of Organised Labour and the Occupational Health and Safety Committees at health establishment level to help monitor stock-on-hand by ensuring reporting takes place. Their other mandate is to see that the data submitted is of high quality. The app went live on October 5, 2020.

MEDICAL CONSUMABLES

GHSC-TA worked with clinicians and other stakeholders to identify medical consumables required for oxygen therapy and develop a defined list of items with associated specifications. Using the EPI Modelling data, patient duration of stay, and guidelines on the severity of cases, a forecasting model for medical consumable items was developed and visualized using a dashboard. The forecasting model for medical consumables is with the IMT for approval, and once approved, will be published for stakeholders via NSC.

OUTCOME LEVEL RESULTS

To monitor the performance of the PPE supply chain, GHSC-TA developed PPE-specific indicators, including the percentage availability of PPE at health establishments and the percentage of health establishments complying with PPE reporting requirements.

The first indicator reflects the **availability of PPE** in all health establishments (primary health care clinics, community health centers, hospitals [district, national, central, regional, specialized, and tertiary hospitals]), and PPE distribution centers on a weekly basis. This information assists stakeholders to identify current stock-on-hand quantities and to proactively reduce shortages and stock-outs of PPE by looking at stockholding vs. the forecast. This indicator is intended to monitor inventory (PPE) across different levels of the national supply chain (facilities, districts, provinces, and national) and is shown in Figure 23.

Figure 23: Screenshot of Stockouts and Availability by Province as of September 30, 2020

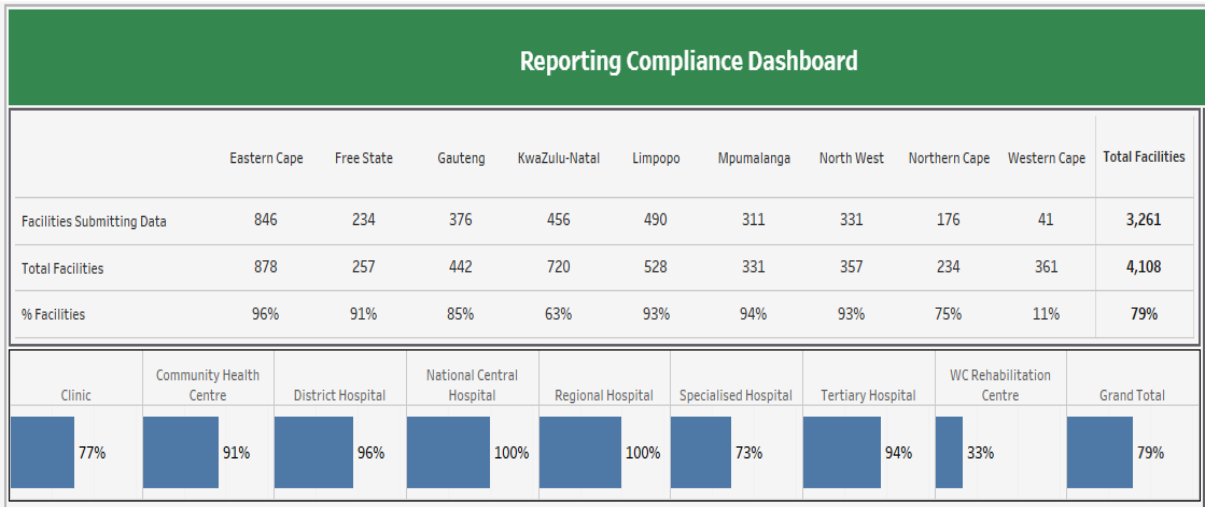
Stockouts and Availability by Province

Province	Total Facilities Submitting PPE Data	Total Available Stock Items	% Availability
Eastern Cape	846	5776	83.9%
Free State	235	1873	89.2%
Gauteng	386	3070	74.0%
KwaZulu Natal	429	4453	77.7%
Limpopo	490	3044	87.0%
Mpumalanga	312	2363	87.0%
North West	332	2458	70.9%
Northern Cape	177	1384	80.6%
Western Cape	43	321	83.2%

By the end of Quarter 4, PPE availability was reported at 81 percent, against a target of 90 percent. Factors contributing to this achievement included the refinement and adoption of the PPE NSC tool, which improved visibility at health establishments and depots, weekly PPE team meetings, and bi-monthly meetings with the provincial PPE coordinators to discuss and assist in unblocking procurement and supply obstacles. Collaboration with the National Treasury and Business for South Africa (an organization which represents South African private sector businesses and actively collaborates with the government to use business resources and the capacity to support public sector initiatives) has facilitated refinement of the Central Supplier Database, which will enable provinces to access quality suppliers and products. The adoption of the demand forecast on the NSC by provinces to perform proactive planning contributed to increased PPE availability. Key challenges remaining focus on local and global PPE shortages and unreliable suppliers. To ensure improved performance against this indicator, the GHSC-TA team will continue supporting the NDoH through working with provincial PPE coordinators and implementing actions to meet targets set by the department.

The second indicator, **PPE reporting compliance**, is designed to show how many health establishments (hospitals, community health centers, primary health care clinics) and distribution centers report PPE data to the NSC. The overall reporting compliance was reported at 79 percent by the end of Quarter 4. This was a significant improvement from the 58 percent reported at the end of Quarter 3 when reporting against the KPI began. However, performance remained below the target of 90 percent. Noteworthy is that data collection only started in April 2020, and the improvement in reporting compliance rate since then has been substantial (refer to Figure 24).

Figure 24: Screenshot of Reporting Compliance Dashboard[3]

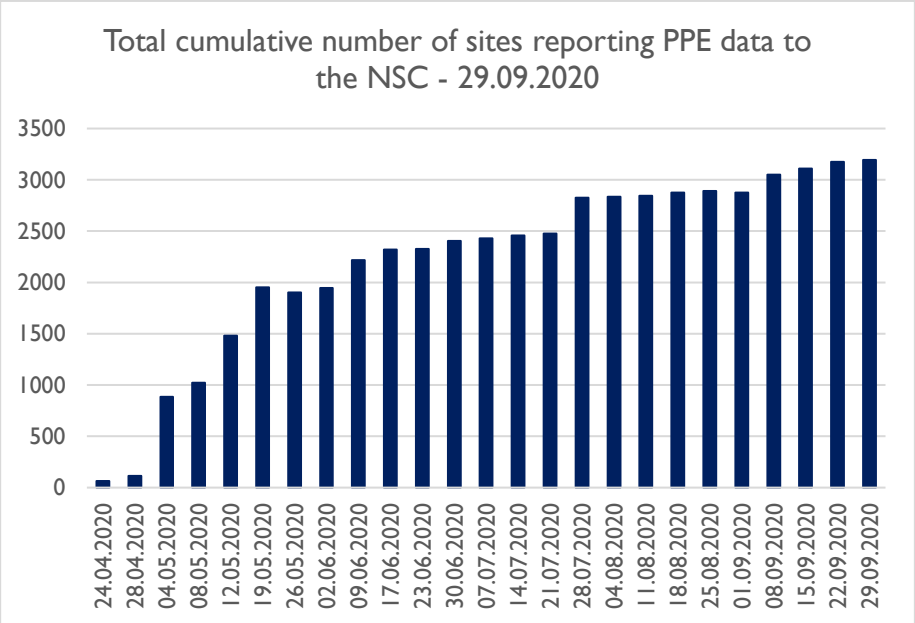


	Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	North West	Northern Cape	Western Cape	Total Facilities
Facilities Submitting Data	846	234	376	456	490	311	331	176	41	3,261
Total Facilities	878	257	442	720	528	331	357	234	361	4,108
% Facilities	96%	91%	85%	63%	93%	94%	93%	75%	11%	79%

Clinic	Community Health Centre	District Hospital	National Central Hospital	Regional Hospital	Specialised Hospital	Tertiary Hospital	WC Rehabilitation Centre	Grand Total
77%	91%	96%	100%	100%	73%	94%	33%	79%

The adoption of PPE reporting platforms has been a significant priority. As demonstrated in Figure 25, great strides have been made in a relatively short time frame to ensure reporting compliance increased month by month. Provinces not using SVS as a data capturing tool, such as the Gauteng and the Western Cape, implemented in-house systems to support the nationwide drive to coordinate reporting on PPE. GHSC-TA will continue to support the NDoH to ensure improved performance against this indicator by working with provincial PPE appointed coordinators and other key stakeholders.

Figure 25: Total Cumulative Number of Sites Reporting PPE



[3] Data as at the end of September 2020. Note: The Western Cape only reports at the hospital level, which brings down overall performance. KwaZulu-Natal had a slow start due to the non-availability of SVS devices at the hospital level, which was subsequently resolved.

LESSONS LEARNED

Multi-stakeholder collaboration. Combating a common foe (COVID-19) with a desire to reach a mutually beneficial outcome brings people together and forms a natural desire to collaborate. Harnessing this "want" during the COVID-19 pandemic has emphasized that multi-stakeholder collaboration can and does work. The collaboration and participation from all health care sectors, both public and private, across South Africa have enabled leveraging of capacity and resources across organizations. In these volatile and unpredictable times of human resource and financial constraints, open communication between the different sectors and stakeholders, collaborating to achieve a common goal has been exceptional. This learning will affect various future activities for which collaboration between sectors is important and is achievable.

Institutionalization of the National Surveillance Centre. It was possible to effect an enormous improvement in reporting compliance across all levels of care, including consistent routine reporting from the provincial warehouses. This was driven by a sense of shared purpose with important drivers being the PST. Additionally, in the introduction of time saving technological advancement, GHSC-TA found it critical to engage users to demonstrate the value of automated reporting with respect to reduced time and elimination of paper processes, thus helping to optimize patient care.

Stakeholder engagement. COVID-19 necessitated a wide range of engagements with a diverse set of stakeholders, necessitating the early adoption of new processes and changes. To a large extent, these engagements have been underpinned by clearly defined roles and responsibilities of the stakeholders.

System stressors. COVID-19 has presented a unique opportunity to stress the medicine supply chain and associated processes to its fullest. It is often only under these circumstances that a true reflection of the overall system's robustness can be gauged. The experience has allowed targeted interventions to be introduced as the working norm for AMD and has helped strengthen the overall supply chain.

Change management. A further benefit emanating from the pandemic has been a full appreciation for the change that GHSC-TA has been driving with AMD. It is believed that, previously, provinces, in particular, felt that the supply chain interventions were attempting to fix something that was not broken. It was not until the supply chain was placed under extraordinary pressure that the need and the value of the interventions could be fully appreciated.

ANNEX 1. PROGRESS SUMMARY

Table 6: Key Performance Indicator Progress Summary

Indicator	Reporting Year	Baseline Value	Year 4 Proposed Target	Year 4, Achievement	% Year 4 Achievement
PROJECT PURPOSE – STRENGTHEN THE CAPACITY OF THE AFFORDABLE MEDICINE DIRECTORATE AND PROVINCIAL PHARMACEUTICAL SERVICES ACROSS THE MEDICINES SUPPLY VALUE CHAIN TO RESULT IN IMPROVED MEDICINE AVAILABILITY.					
Key Performance Indicator 1: Percentage availability of medicines at health establishments	FY20	78%	90%	85%	94%
OBJECTIVE 1 – IMPROVE SELECTION AND USE OF MEDICINE.					
Key Performance Indicator 2: Number of medicine selection decisions made utilizing health technology assessments	FY20	0	2	0	0
Key Performance Indicator 3: Percentage of assisted Pharmaceutical and Therapeutics Committees with improved operational capacity.	FY20	N/A	25%	NA	NA
OBJECTIVE 2- SUPPORT OPTIMIZATION OF THE SUPPLY CHAIN					

Indicator	Reporting Year	Baseline Value	Year 4 Proposed Target	Year 4, Achievement	% Year 4 Achievement
Key Performance Indicator 4: Percentage of antiretroviral units delivered by suppliers within contractual lead-time (supplier performance reliability – on time).	FY20	79%	90%	60%	67%
Key Performance Indicator 5: Percentage of Master Health Produce List items on transversal contracts excluding antiretroviral units delivered by suppliers within contractual lead-time (supplier performance reliability – on time).	FY20	75%	85%	65%	76%
Key Performance Indicator 6: Supplier performance reliability – Perfect order fulfilment for orders placed on suppliers (in-full).	FY20	73%	75%	62%	83%
Key Performance Indicator 7: Percentage of master health product list items on transversal contracts delivered via direct delivery to the hospitals designed by the provinces to receive direct delivery.	FY20	N/A	70%	79%	113%
Key Performance Indicator 8: Min/Max level reporting – Number of health establishments and warehouses with configured minimum and maximum (min/max) stock levels for stocked medicines being reported to the National Surveillance Centre.	FY20	0`	1,300	938	72%
Key Performance Indicator 9: Demand forecast accuracy for provinces using the demand forecasting process.	FY20	N/A	45%	50%	111%

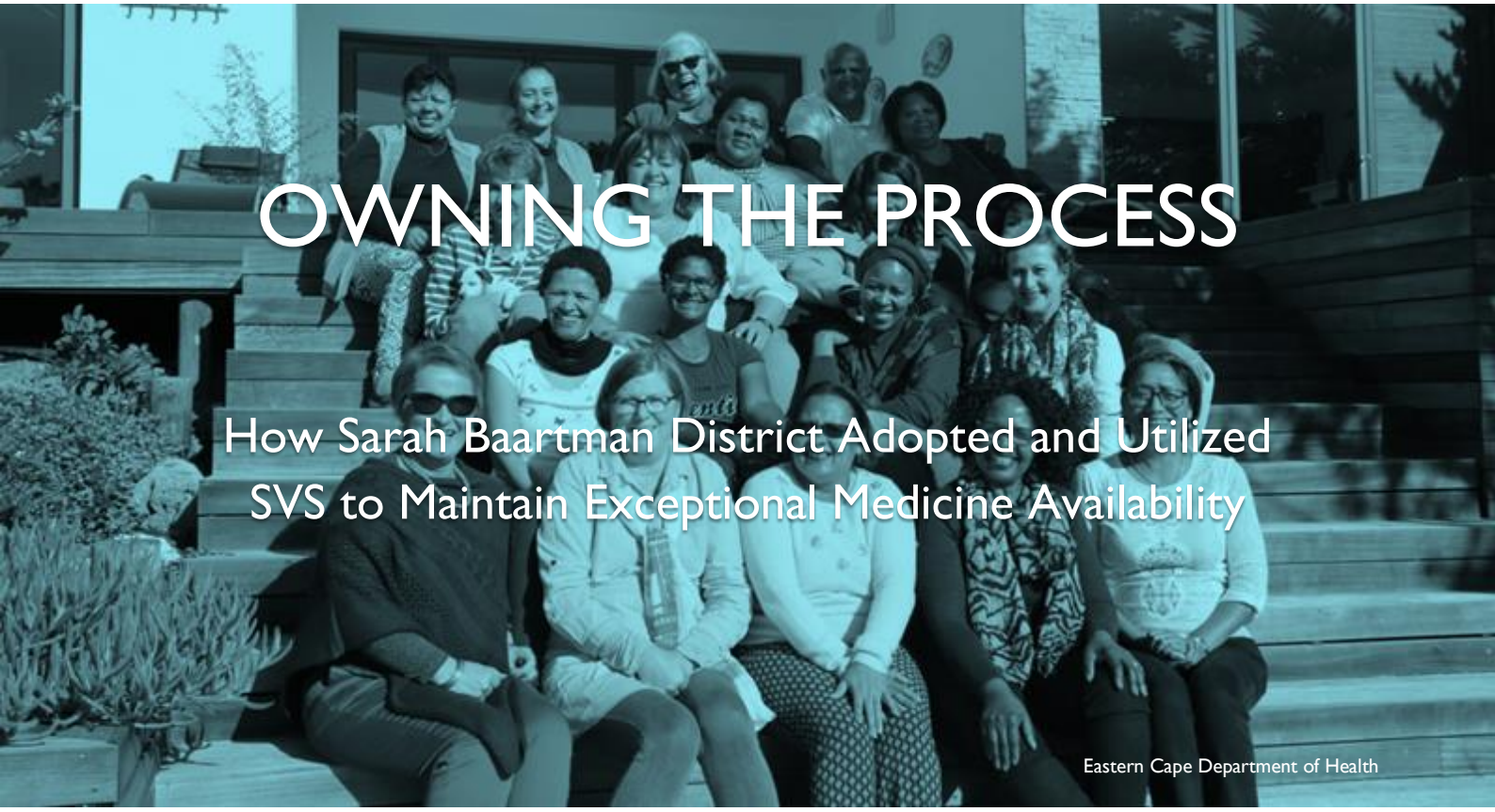
Indicator	Reporting Year	Baseline Value	Year 4 Proposed Target	Year 4, Achievement	% Year 4 Achievement
Key Performance Indicator 10: Forecast bias for pharmaceutical forecasts in provinces using the demand forecasting process.	FY20	TBD	<10%	5%	100%
Key Performance Indicator 11: Percentage of eligible patients transitioned from Tenofovir/Emtricitabine/Efavirenz to Tenofovir/Lamivudine/Dolutegravir.	FY20	0%	70%	38%	54%
OBJECTIVE 3 – STRENGTHEN GOVERNANCE					
No KPIs scheduled to be reported quarterly.					
OBJECTIVE 4 – IMPROVE WORKFORCE MANAGEMENT					
No KPIs scheduled to be reported quarterly.					
OBJECTIVE 5 – STRENGTHEN INFORMATION SYSTEMS AND INFORMATION MANAGEMENT					
Key Performance Indicator 12: Percentage of users utilizing the National Surveillance Centre to review medicine availability trends and reports.	FY20	N/A	70%	54%	77%

Indicator	Reporting Year	Baseline Value	Year 4 Proposed Target	Year 4, Achievement	% Year 4 Achievement
Key Performance Indicator 13: Number of health establishments and warehouses utilizing the Medicine Master Data Systems as a source of master data.	FY20	0	3,000	N/A	N/A
Key Performance Indicator 14: Number of health establishments using core supply chain information systems to order and/or receive stock.	FY20	0	1,300	697	54%
Key Performance Indicator 15: Reporting compliance – Percentage of health establishments reporting stock availability to the National Surveillance Centre	FY20	N/A	100%	102%	102%
Objective 6 – Improve Financial Management					
Key Performance Indicator 16: Number of provinces who review their budget vs. actual as defined in the new budgeting process to support the ring-fenced budget.	FY20	0	2	2	100%
Key Performance Indicator 17: Percentage of expenditures on non-Essential Medicine List items.	FY20	1.60%	<10%	2.8%	100%

ANNEX 2. SUCCESS STORIES

Three success stories from the GHSC-TA project follow and provide insights on significant projects achievements and accomplishments. These include :

- OWNING THE PROCESS: How Sarah Baartman District Adopted and Utilized SVS to Maintain Exceptional Medicine Availability
- REDUCING WASTAGE AND SAVING MONEY: Using the National Surveillance Centre to Improve Medicine Supply Management in the Eastern Cape
- REPORTING COMPLIANCE: Continuous Improvement in Medicine Availability Reporting in KwaZulu-Natal Province



"We walk the talk and are committed to make sure that the ordering system works well".

– Lesley Welman, Sub-district Pharmacy Manager, Camdeboo, Sarah Baartman District

The South African National Department of Health (NDoH) and the United States Agency for International Development (USAID)-funded Global Health Supply Chain Program – Technical Assistance (GHSC-TA) are working together to introduce systems and processes to help improve medicine availability for all South Africans. However, systems are only as good as the people who utilize them. What does it take to implement and institutionalize a new system to help ensure that medicine availability is realized at hospitals, community health centers and clinics?

For Lesley Welman, Sub-district Pharmacy Manager in the Camdeboo Sub-district of the Sarah Baartman District in the Eastern Cape, it takes commitment, a shared vision, and walking the talk to ensure that systems work effectively.

Sarah Baartman has a population of 530 252 (2019), covers seven local municipalities and surrounds Nelson Mandela Bay. It has 15 hospitals, of which five are district hospitals; one a specialized psychiatric hospital and four are TB hospitals. The remaining five are district community hospitals. There are 63 primary health care facilities, which include three community health centers. These facilities are staffed by 41 pharmacists, nine pharmacists doing pharmaceutical community service, 50 pharmacists' assistants (post- basic), and four pharmacists' assistants (basic).

Since the introduction of reporting to the National Surveillance Centre (NSC).[1] The district has managed to report medicine availability consistently and has the highest reporting compliance in the Eastern Cape - meaning that more accurate data is displayed on

[1] The NSC is a web-based performance monitoring and evaluation tool based on nationally agreed key performance indicators. Medicine availability data from hospitals and clinics, pharmaceutical depots, and suppliers of medicine is visualized on dashboards, providing a holistic view of medicine availability throughout the South African public health medicine supply chain.

the NSC dashboards, enabling better decision-making.

The NSC has helped the country's hospitals and clinics understand stock-on-hand reporting and facilitate re-distribution of stock between health establishments based on need.

Reporting by clinics is done using Stock Visibility System (SVS), a mobile application and web-based management tool introduced in 2016. SVS is used by health practitioners to capture and monitor medicine availability. Larger facilities report using RxSolution, an electronic transaction inventory management system (introduced in the district prior to 2014) that is used to record medicine transactions such as stock movement into and from a pharmacy.

The GHSC-TA provincial support team is working with provinces to use the NSC's reports to understand and monitor medicine availability at the health establishment level.

"We currently [September 2020] have a reporting compliance of 98.4 percent in terms of reporting on medicine availability to the NSC. [Reporting on] medicine availability in our hospitals is at 93 percent, clinics is at 94 percent, and the personal protective equipment is above 90 percent," said Lesley.

For the NSC to be useful, health care workers on the ground must input data regularly to ensure that the system has accurate data and information. In some instances, districts have struggled to implement this successfully. So, what makes Sarah Baartman District different?

For Lesley, it was essential that there was total buy-in for the system. Once the vision for regularly inputting data to the NSC was shared with stakeholders, it was crucial to ensure effective implementation. The first step was to get all stakeholders into the habit of inputting data and reporting. This helped them to become familiar with the system. Once this stage was successful, the district committed to ongoing training so that all stakeholders understood what they needed to do to use the system. It was also essential to ensure that some frontline workers at each health facility knew how to use the tool, especially in cases where there were no pharmacy staff at the facility. The district also provided regular encouragement to health care workers for uploading accurate data, emphasizing that the more accurate the data, the more successful the system would be.

The NSC has helped the Sarah Baartman District team to understand what is happening at pharmacies across the district. As the COVID-19 pandemic hit the world, Lesley celebrated how having effective reporting systems and the NSC made her work so fulfilling. "Over the last six months, I have been forced to stay behind my desk [because of COVID-19]. The NSC dashboard has brought information to our fingertips. We can see how our clinics are doing and having all this information has helped to make our work believable. Our staff are happy because they can track that they are doing their job well," said Lesley.

"The success that we have realized must be attributed to the phenomenal teamwork in the district. There is pure ownership of the work that we do, and everyone plays their part to contribute and support." – Lesley Welman

Sarah Baartman District stands out for its reporting compliance. With support provided by GHSC-TA, the ability to track and monitor medicine availability has guaranteed that stock outs are minimal in the district, thus helping to make sure that patients in this rural district have access to life-saving medicines including antiretrovirals, products used to treat tuberculosis as well as other essential medicines.

REDUCING WASTAGE AND SAVING MONEY

Using the National Surveillance Centre to Improve Medicine Supply Management in the Eastern Cape

"If we all use the [NSC] report in this manner, I foresee great savings, reduced expired stock, and improved service delivery".

– Ann Evans, Responsible Pharmacist at Settlers Hospital in the Eastern Cape

Imagine having to procure 36 units of an important medicine, when your hospital needs only two, because of supplier minimum order quantities. One of the advantages that the National Surveillance Centre (NSC) has brought to the South African public health supply chain is the ability to identify medicine stock levels across districts, provinces, and indeed the whole country. This enables pharmacists to engage each other and work together to transfer medicines from areas where there is excess stock to other health establishments where they are needed.

The National Department of Health and the United States Agency for International Development (USAID)-funded Global Health Supply Chain Program – Technical Assistance (GHSC-TA) collaborated and developed the NSC, a web-based performance monitoring and evaluation tool. Using nationally agreed key performance indicators, medicine availability data from hospitals and clinics, pharmaceutical depots, and suppliers of medicine is visualized on dashboards, providing a holistic view of availability throughout the South African public health medicine supply chain.

The NSC has helped the country's hospitals and clinics to understand stock-on-hand reporting and facilitate re-distribution of stock between health establishments based on need. The GHSC-TA provincial support team (PST) is also working with provinces to interpret and use the NSC's reports to understand and monitor medicine availability at the health establishment level.

Settlers Hospital is one of the many hospitals that utilizes the NSC. This hospital is a provincial government-funded health establishment in Makhanda (previously known as Grahamstown), in the rural Eastern Cape province of South Africa. According to the most recent census, Makhanda is home to just over 67,000 people and Settlers Hospital is the main hospital that serves the population. The hospital provides a wide range of services, and its

pharmacy department provides the necessary medicines and medical-related products to meet patient needs.

Being the largest hospital in the area, there is an obvious need for Settlers Hospital to practice comprehensive medicine supply management to facilitate optimal medicine availability, promote rational medicine use, and support cost-effective management of these costly resources. On a weekly basis, the GHSC-TA PST generates a report from data extracted from the NSC. This report is shared with all the hospital staff in pharmacy departments in the Eastern Cape. The report provides details of stock on hand in each hospital in the province, providing province-wide visibility to the broader stakeholder group of pharmacy staff. Settlers Hospital has identified several advantages of using NSC data.

Saving costs and preventing wastage

In June 2020, Settlers Hospital needed to procure only two units of Sevoflurane (an inhalational anesthetic) for use by a specialist anesthetist as it is not a commonly used product. The minimum order quantity, however, was 36 units with a total cost of R72,000. This would not make sense for the hospital as Sevoflurane is a slow-moving item and it would take about six years for the hospital to use an order of 36 units. Using the report generated by the GHSC-TA, the pharmacist at Settlers Hospital was able to identify a nearby hospital–Port Alfred Hospital (60km away)– which had 16 Sevoflurane units that were slow moving and expiring in 2021. It was clear from the demand for the medicine that it was unlikely to be used before it expired.

After obtaining this information from the NSC report, Ann Evans, Responsible Pharmacist at Settlers Hospital, was able to save on the purchase cost of the anesthetic by drawing stock from Port Alfred Hospital. At the same time, this contributed towards minimizing the risk of stock expiry before use that would lead to wastage at Port Alfred Hospital. Using the NSC report, a mutually beneficial outcome was reached, leading to Settlers Hospital saving R68,000 from not having to order 36 units instead of only the two units needed. Port Alfred Hospital also avoided a potential loss of R4,000 by having a high-cost, slow-moving stock item taken off their hands. Settlers Hospital now has an arrangement to continue drawing stock of Sevoflurane from Port Alfred Hospital to reduce unnecessary expenditure and reduce anticipated expired stock.

Preventing medicine stock outs

Phenylephrine injection is used in the Settler Hospital theater and has been in extremely short supply in 2020. In June 2020, Ann realized that she was down to the last 10 ampoules. The NSC report showed her that Frontier Hospital in Queenstown and the Port Elizabeth Provincial Hospital each had a large amount in stock. She contacted Frontier Hospital (218km away) first, as their availability appeared to exceed their demand. The pharmacy manager agreed to transfer 30 ampoules to Settlers Hospital in exchange for caffeine powder that was required by Frontier Hospital. This suited Settlers Hospital since they had excess caffeine powder which would expire in September 2020. Within a few days, Settlers Hospital had the Phenylephrine ampoules required. Since then, Settlers Hospital has continued to make similar exchanges based on NSC data.

"This is such a fabulous [report] … It is great to see who has stock to share when the depot has none. Great money saver too …. I was able to draw from Port Alfred Hospital who had … slow moving [stock], with an expiry date of next year."
– Ann Evans

As the use of the NSC spreads across the Eastern Cape, more pharmacists will be able to engage each other and work together to transfer medicines from areas where there is excess stock to other health establishments where they are needed, saving costs and improving quality of care as they go.

REPORTING COMPLIANCE

Continuous Improvement in Medicine Availability Reporting in KwaZulu-Natal Province

The KwaZulu-Natal province of South Africa has 690 health establishments spread across 11 districts. These hospitals, community health centers and primary health care clinics must report medicine availability data to the National Surveillance Center (NSC)[1] on a weekly basis. Primary health care clinics utilize the Stock Visibility System (SVS)[2] while hospitals and community health centers use RxSolution[3] for reporting to the NSC.

Improving reporting compliance when it comes to submitting data on the availability of essential medicines is a key activity of the South African National Department of Health (NDoH), which aims to ensure the quality of the data used to monitor medicine availability. Every week, large and small health establishments across the country report medicine availability data to the NSC. Various reports and dashboards are visualized and presented electronically via a remotely accessible web-based reporting platform.

The NSC serves as an effective management tool by allowing the relevant stakeholders to easily access and review medicine availability data across the entire medicine supply chain, including the "last mile" to primary health care clinics.

With various factors contributing to medicine stock outs, stakeholders, particularly district pharmacy managers, can actively review NSC data to identify health establishments that are at risk of stock outs and/or over-stocking due to poor medicine supply management. All these benefits can, however, be eroded by failure to report or irregular reporting of medicine availability data, impacting the optimal use of the

[1] The NSC is a web-based performance monitoring and evaluation tool used to provide visibility of medicine stock levels and improve availability across all provinces.

[2] SVS is a mobile application and web-based management tool that provides an innovative solution for identifying and addressing stock outs in the health care system.

[3] RxSolution is an electronic inventory management system that captures and records medicine transactions such as stock movement in a pharmacy. It allows easy tracking and management of medicine stock, can be used to record the dispensing of medicines, and supports the reporting of medicine availability.

NSC. Poor reporting compliance may lead to the risk of stock-outs, which in turn may result in the interruption of patient treatment and suboptimal therapeutic outcomes.

Through the support of the United States Agency for International Development (USAID)-funded Global Health Supply Chain Program – Technical Assistance (GHSC-TA), and working in collaboration with the NDoH, the KwaZulu-Natal pharmaceutical services team was able to critically review reporting rates across all districts and health establishments. On a weekly basis, details of facilities that did not submit data or submitted incomplete reports are extracted from the NSC. Communication takes place with these health establishments via emails and WhatsApp groups so that the relevant district stakeholders can establish the reasons for non-reporting and work to address them.

Routinely, feedback from non-reporting facilities is consolidated by the province's GHSC-TA technical advisor in concise reports identifying problem areas needing redress and shared with the KwaZulu-Natal provincial office and the NDoH. GHSC-TA's support to monitoring of reporting compliance began on January 14, 2020, with 85 of the 700 facilities not reporting to the NSC. On February 18, 2020, the program recorded 72 non-reporting sites, the second highest number ever noted. A significant decrease in non-reporting sites was noted between March and October, with just 20 sites recorded as non-reporting on October 27, 2020. On September 22; the lowest number of non-reporting sites was recorded, with only 12 facilities not reporting or submitting incomplete reports. Conversely, overall reporting compliance rates increased from 92.7 percent in March to 96.7 percent in October 2020 due to constant engagement with district pharmacy managers and active follow-up of non-reporting facilities. It was found that the main reasons for non-reporting included lost or damaged mobile devices, poor network connectivity, staff limitations, and closure of facilities due to the COVID-19 pandemic which peaked in July 2020 in South Africa. From April to October 2020; Zululand district recorded the highest overall average reporting rate of 98.8 percent, followed by Umkhanyakude and Harry Gwala districts at 98.3 and 98.2 percent, respectively. The remaining districts recorded an average overall reporting compliance of greater than 90 percent ranging from 91.8 to 97.7 percent. Despite the challenges and uncertainties that accompanied the COVID-19 pandemic, health establishments in KwaZulu-Natal showed commitment and dedication to reporting to the NSC, especially where management and technical assistance activities supported their improvement.

As Nelson Mandela stated, "Everyone can rise above their circumstances and achieve success if they are dedicated and passionate about what they do." This is exactly what GHSC-TA has observed in KwaZulu-Natal with health care professions at facilities and throughout the pharmaceutical supply chain in the province pushing past the barriers before them to ensure sustained reliable reporting to the NSC.