



GLOBAL HEALTH SUPPLY CHAIN PROGRAM – TECHNICAL ASSISTANCE SOUTH AFRICA

Year 6 Annual Report, October 2021 - September 2022

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ACRONYMS

| | |
|---------|---|
| AG | Auditor General |
| AIDS | Acquired Immune Deficiency Syndrome |
| AMD | Affordable Medicines Directorate |
| AMR | Antimicrobial Resistance |
| API | Application Program Interface |
| APP | Annual Performance Plan |
| ARC | Africa Resource Center |
| ARV | Antiretroviral |
| CCMDD | Centralized Chronic Medicine Dispensing and Distribution |
| CEO | Chief Executive Officer |
| CFO | Chief Financial Officer |
| CHAI | Clinton Health Access Initiative |
| CHCs | Community health centers |
| CMU | Contract Management Unit |
| DHIS | District Health Information System |
| DSPs | District support partners |
| DTG | Dolutegravir |
| EDP | Essential Drugs Program |
| EML | Essential Medicines List |
| FY | Financial Year |
| GHSC-TA | Global Health Supply Chain Program – Technical Assistance |
| GoSA | Government of South Africa |
| HIV | Human Immunodeficiency Virus |
| HTA | Health Technology Assessment |
| ICDF | In-Contract Demand Forecast |
| IMAT | Improved Medicine Availability Team |
| IT | Information Technology |
| KPI | Key Performance Indicator |
| MAC | Ministerial Advisory Committee |
| MEC | Member of Executive Council |
| MFL | Master Facility List |
| 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 |
| NHLS | National Health Laboratory Service |
| NICD | National Institute for Communicable Diseases |
| NSC | National Surveillance Center |
| PDoH | Provincial Departments of Health |
| PHC | Primary Health Care |
| PMPU | Provincial Medicine Procurement Unit |
| PPE | Personal Protective Equipment |
| PrEP | Pre-exposure Prophylaxis |
| PST | Provincial Support Team |
| PTC | Pharmaceutical and Therapeutics Committee |
| Q1 | Quarter 1 |
| Q2 | Quarter 2 |
| Q3 | Quarter 3 |
| Q4 | Quarter 4 |

| | |
|--------|--|
| RFI | Request for Information |
| RMU | Rational Medicine Use |
| SAHPRA | South African Health Products Regulatory Authority |
| SCOA | Standard Chart of Accounts |
| SIMA | Strategy to Improve Medicine Availability |
| SOPs | Standard Operating Procedures |
| SRCC | Special Requirements and Conditions of Contract |
| STGs | Standard Treatment Guidelines |
| STI | Sexually Transmitted Infection |
| SVS | Stock Visibility System |
| SWG | Sub-working group |
| TB | Tuberculosis |
| TEE | Tenofovir/Emtricitabine/Efavirenz |
| TLD | Tenofovir/Lamivudine/Dolutegravir |
| TOR | Terms of Reference |
| TROA | Total Remaining on Antiretroviral Therapy |
| USAID | United States Agency for International Development |
| VPN | Virtual Private Network |
| WHO | World Health Organization |
| WMS | Warehouse management system |

I. EXECUTIVE SUMMARY

INTRODUCTION

South Africa remains at the center of the global AIDS epidemic and has one of the world's highest burdens of tuberculosis (TB). 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 achieving 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 (PDoH). The program's overall aim is to assist the government with 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 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 6 ACTIVITIES AND ACHIEVEMENTS

Year 6 activities focused on strengthening the health supply chain at the national and provincial levels. At the provincial level, GHSC-TA continued to provide support through the provincial support team (PST), which facilitates the implementation and institutionalization of supply chain reforms in the provinces. In addition, the team continued with efforts to support the Government of South Africa (GoSA) in the national response to the COVID-19 pandemic.

The program is segmented into nine main activities, representing capacity-building interventions across multiple functional areas. These activities align with the six program objectives. A high-level overview of Year 6 activities and accomplishments for each objective follows.

OBJECTIVE I: IMPROVE SELECTION AND USE OF MEDICINES

GHSC-TA continued to work with the Essential Drugs Program (EDP) of the AMD to strengthen the selection and use of medicines. Program support focused on strengthening the current medicine selection structures, such as the National Essential Medicines List Committee (NEMLC) and supporting activities to promote rational medicine use (RMU). Specific achievements included assistance with appointment and convening of the new NEMLC and Tertiary Expert Review Committee (ERC), documenting meetings of the NEMLC and drafting the NEMLC Bulletins, reviewing the terms of reference (TOR) of the NEMLC and Tertiary ERC, developing presentations to communicate the processes of the EDP and functions of Pharmaceutical and Therapeutics Committees (PTCs) as well as the importance of RMU, developing communication and distribution strategies for Pharmacy Month, assisting with the NDoH webinar for World Patient Safety Day, analysis of the KwaZulu-Natal Provincial Formulary, as well as assistance with the data and calculations required for an Antimicrobial Resistance (AMR) Dashboard.

GHSC-TA also assisted with the development of an interim health technology assessment (HTA) strategy, an HTA Project Plan and TOR for the HTA Technical Working Group, as well as a draft guideline on preparedness and emergency response of the medicine supply chain to a pandemic.

OBJECTIVE 2: SUPPORT OPTIMIZATION OF THE SUPPLY CHAIN

GHSC-TA continued to support the Eastern Cape, Free State, Gauteng, and Mpumalanga provinces with monthly demand forecasting reviews. The team also supported the NDoH demand planners working with Northern Cape, North West, KwaZulu-Natal, and Limpopo, as this responsibility had transitioned to AMD. The demand planning stream hosted workshops with NDoH colleagues focusing on demand planning and in-contract demand forecasting. These workshops aimed to identify opportunities for improvements in demand planning processes and collaboration opportunities with other streams, including replenishment planning, contracting, and formulary management.

GHSC-TA initiated support to the Eastern Cape with the introduction of a Provincial Medicine Procurement Unit (PMPU) in the province. The GHSC-TA team completed the Financial Year (FY) 2023/2024 pharmaceutical budget preparations and obtained sign-off from the provincial Heads of Pharmaceutical Services of all nine provinces. In addition, the team finished analyzing and reviewing data on Standard Chart of Accounts (SCOA) codes and was ready to present the findings to the national working group.

GHSC-TA continued with the roll-out of the replenishment planning solution. The team supported five provinces to prepare health establishments to implement the initial stages of the solution. Currently, the team is working in a total of 1,246 health establishments across the Eastern Cape, Free State, North West, and KwaZulu-Natal. Current support in Mpumalanga is focused on rationalization and alignment of the depot catalog with the Medicine Master Data System (MMDS), pending formal provincial approval to implement the replenishment planning solution in health establishments in the province. During the period under review, the replenishment planning team hosted various meetings and workshops across the provinces where the solution is being implemented.

OBJECTIVE 3: STRENGTHEN GOVERNANCE

GHSC-TA continued to support AMD and the provinces to strengthen governance. The team supported AMD in completing the revision of the amendments to three sets of regulations relating to practice, registration, and education of pharmacy support personnel. GHSC-TA supported AMD in the orientation of the newly appointed members of the Bid Specification Committee (BSC) and Bid Evaluation Committee (BEC) and in reviewing the governance documents related to the process of contracting suppliers of medicine in terms of the national transversal contracts. These included the TOR of both committees and the Special Requirements and Conditions of Contract (SRCC). GHSC-TA supported AMD in developing the policy principles for tender forecasting to standardize the process of determining contractual estimates across the provinces. GHSC-TA supported AMD in engagements with the South African Health Products Regulatory Authority (SAHPRA) for the implementation of unique product identification. It was agreed that a technical working group will be established to develop the guidelines. The pharmaceutical services dashboard manual was reviewed and discussed at the National Pharmaceutical Services Committee.

OBJECTIVE 4: IMPROVE WORKFORCE MANAGEMENT

GHSC-TA provides technical assistance to strengthen the workforce and organizational structures within the AMD to perform the functions necessary to improve medicine availability and support the implementation of the Strategy for Improved Medicine Availability (SIMA). GHSC-TA supported the training and mentorship of the champions supporting the transition from Tenofovir/Emtricitabine/Efavirenz (TEE) to Tenofovir/Lamivudine/Dolutegravir (TLD), Pharmaceutical Services, and the HAST managers, as many of the transition activities were moved from provinces to districts. Provincial task teams were established to oversee and identify bottlenecks and provide additional support and training where needed. GHSC-TA worked closely with the AMD central demand planning team, providing support on initiating an additional province into the demand planning process. In addition, GHSC-TA supported training on the use of RxSolution and the Stock Visibility System (SVS) Phase I.

OBJECTIVE 5: STRENGTHEN INFORMATION SYSTEMS AND INFORMATION MANAGEMENT

GHSC-TA continues to help with the development and roll-out of the MMDS. During this period, GHSC-TA efforts concentrated on the roll-out of the formulary management functionality of the system to selected provinces. Formulary roll-out work progressed well in KwaZulu-Natal with analysis of issues data completed as the basis for formulary selection. In Mpumalanga, extensive analysis took place to support alignment of depot catalog data with MMDS data, while coding and formulary assistance to Ngaka Modiri Molema (NMM) district in North West continued.

A significant achievement was attained with integration between the medicine object in the MMDS and the equivalent object in SVS, allowing SVS to seamlessly access medicine configuration data from the MMDS. Once medicines are linked across these systems, changes effected on the MMDS automatically reflect on SVS promoting integration and dissemination of medicine master data.

The key focus of assistance provided by GHSC-TA for transactional information technology (IT) systems development has been on refining and extending SVS eOrdering capabilities in support of replenishment planning initiatives. Effort has centered on the ability for SVS to distinguish between the full formulary of a health establishment and customized tracer lists. The full formulary is required for order processing, while the customized tracer list is the basis for weekly stock availability reporting. Other SVS initiatives related to eOrdering functionality include work towards integration between SVS and the MEDSAS warehouse management system (WMS) and improved upload tools allowing formulary manipulation in Microsoft Excel followed by upload into SVS.

GHSC-TA continued supporting the reporting of medicines, personal protective equipment (PPE) and COVID-19 vaccine reporting compliance and availability for the AMD. The maintenance and support function of the National Surveillance Center (NSC) was transitioned to Mezzanine (the service provider contracted by NDoH), and the dashboards were re-aligned to the updated master data lists, namely the Master Health Product List (MHPL) and Master Facility List (MFL). With a reduction in level of effort due to the transition of the maintenance functions to Mezzanine, the project focused on dashboard development and enhancements initiating eight new dashboards and working on seven enhancements. Of the new developments, five were completed with the remaining three developments remaining work in progress. GHSC-TA supported AMD with the Auditor General (AG) NSC business process walk-through audit held in March 2022 and compiled the required responses to the AG Request for Information (RFIs) and Communication of Audit Finding (COMAF). Whilst the team has automated the PPE and TEE report workflows, the team continues to investigate the automation of NSC alerts for the integrated, supply and demand dashboards for use by provincial users.

Challenges were experienced nationally with the RxSolution Automated Reporting System (RxAPI), resulting in a prolonged outage. GHSC-TA provided the technical assistance required to isolate the source of the problem and restore reporting.

OBJECTIVE 6: IMPROVE FINANCIAL MANAGEMENT

Due to the close linkages with Objective 2, work in this area has been collapsed into the Demand Planning and Financial Management stream.

2. INTRODUCTION

South Africa remains at the center of the worldwide AIDS epidemic, with an estimated 7.9 million¹ people living with the disease. In addition, the country has the third-highest burden of TB internationally.² An efficient and effective health supply chain that improves medicine availability is critical to addressing that 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 achieving universal health coverage.

The availability of medicine directly impacts health outcomes for the South African people. When health establishments do not have adequate medicine stock-on-hand to meet patient needs, 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. 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 PDoH to increase medicine availability nationwide. By improving health supply chain visibility, the program also supports public health establishments' efforts to anticipate patients' needs more accurately and position enough stock of medicines where and when needed.

GHSC-TA provides technical assistance directly to the AMD of the NDoH and the Pharmaceutical Services directorates of the provinces. The program's overall aim is to assist the government in improving access to and availability of medicines and related commodities needed to prevent and treat HIV/AIDS, TB, and associated conditions and disorders. In addition, since the COVID-19 outbreak in South Africa in March 2020, GHSC-TA has supported the GoSA in the national COVID-19 response, including the roll-out of the vaccination program.

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

PROGRAM OBJECTIVES

To this end, the program is tasked with the following six objectives provided in the program's results framework:

- 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 that support the six objectives outlined above are segmented into nine main activities, representing capacity-building interventions across multiple functional areas (refer to Table I below).

Table I: Activities and Descriptions

| Activity | Description | Objective |
|--|--|-------------|
| 1. Medicine Master Data System | Assist AMD in designing (in collaboration with the contracted service provider responsible for development) and implementing the MMDS. This system incorporates the MHPL, Location Hierarchy, and Formulary Management Tool. | Objective 5 |
| 2. National Surveillance Center | Support the operationalization and optimization of the NSC at the national and provincial levels to improve visibility into the performance of the supply chain and strengthen analytics to inform decision making. | Objective 5 |
| 3. Supply Chain Systems | Design, implement, transition, and promote the provincial, district, and health establishment utilization of supply chain systems and applications, including advising on the design and implementation of enhancements to the SVS. | Objective 5 |
| 4. Demand Planning and Budgeting | Develop and implement appropriate processes, tools, and human resource capabilities at national and provincial levels to implement demand planning. Strengthen both national and provincial structures and processes for budgeting and financial reporting for medicines. Support the establishment of the PMPU in the Eastern Cape. | Objective 2 |
| 5. Strengthen Medicine Selection and Use | Develop and implement policies, guidelines, tools, and approaches to support evidence-based selection and use of medicines. | Objective 1 |
| 6. Governance and Legislation | Support good governance by implementing or strengthening relevant structures within the AMD and PDoH (supported by the necessary TORs), and develop and/or review legislation, policies, guidelines, processes, and procedures. Provide technical assistance to AMD on contracting with medicine suppliers and associated post-award contract management. Provide support to AMD in the conceptualization and implementation of supply chain reforms to support the introduction of National Health Insurance (NHI). | Objective 3 |
| 7. Tenofovir / lamivudine /dolutegravir (TLD) Transition | Provide supply chain and clinical-related support for transitioning eligible patients living with HIV to TLD or dolutegravir (DTG) containing products, as appropriate. | Objective 2 |
| 8. Replenishment Planning | Design and implement activities leveraging medicine supply management best practices to ensure essential medicines are available at health establishments through the standardization of medicine master data, strengthening of formulary management, using minimum-maximum (min-max) stock levels, and introduction of an advised pull approach to replenishment planning. | Objective 2 |

| Activity | Description | Objective |
|-----------------------|---|----------------|
| 9. Provincial Support | Support supply chain optimization at the provincial level through implementing and institutionalizing supply chain reforms. | All objectives |

GHSC-TA assists the AMD with implementing the 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 promotion of RMU. These functions are supported by five enabling functions: governance, workforce management, information systems and management, financial management, and education and research. Interventions aim to strengthen 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 I - Health outcomes for South Africans improved, the NDoH SIMA and the NDoH Annual Performance Plan (APP).

YEAR 6 OVERVIEW

GHSC-TA activities in Year 6 focused on strengthening the health supply chain from a national and provincial perspective. GHSC-TA also continued to support the GoSA in managing the outbreak of COVID-19 with respect to the medicines and PPE needed by staff and patients and the roll-out of COVID-19 vaccines.

The response to COVID-19 has allowed the program, AMD, and the provinces to continue monitoring the robustness of processes and tools previously developed. Lessons learned from the pandemic have continued to provide opportunities to strengthen processes, enhance and expand the NSC, and institutionalize its use.

Despite COVID-19, GHSC-TA has managed to maintain most planned activities with minimal interruptions or delays. In the case of some activities, it has been necessary to adjust timelines and reallocate resources. GHSC-TA also commenced working with the Eastern Cape to implement the PMPU. The roll-out of the COVID-19 vaccination program allowed the GHSC-TA team to continue working closely with NDoH, provincial and private sector stakeholders to plan and execute the supply chain activities supporting the national vaccination program.

YEAR 6 ACHIEVEMENTS

Table 2 provides a high-level overview of Year 6 projects and their key achievements.

Table 2: Key Year 6 Achievements

OBJECTIVE 1: IMPROVE SELECTION AND USE OF MEDICINES

1. Assisted with the review of the NEMLC TOR and developed NEMLC Bulletins to communicate decisions made by the committee to stakeholders.

2. Developed the TOR and a submission for the appointment of the HTA Technical Working Group (TWG) by the Director General of Health, as well as a project plan for HTA activities.

3. Developed a communication strategy, distribution strategy and submission to the Director General for Pharmacy Month which took place in September 2022.

4. Developed presentations to communicate EDP processes, the functions of PTCs as well as the importance of RMU to a variety of stakeholders.

OBJECTIVE 2: SUPPORT OPTIMIZATION OF THE SUPPLY CHAIN

5. Continued with monthly demand planning reviews with provinces and initiated demand planning in the Free State.

6. Initiated support to the Eastern Cape in the conceptualization and implementation of a PMPU and facilitated three workshops in the province with key stakeholders.

7. Finalized FY 2023/2024 Pharmaceutical budget sign-off by the Heads of Pharmaceutical Services.

8. Undertook the roll-out of replenishment planning in five districts in the Free State: Fezile Dabi, Mangaung, Thabo Mofutsanyana, Xhariep and Lejweleputswa.

9. In KwaZulu-Natal, completed five district formularies with 189 of the 199 clinics participating in the replenishment planning project, having submitted their signed-off min-max levels.

10. In North West, prepared both the Dr Kenneth Kaunda and NNM districts' stock calculators in preparation for roll-out of the min-max levels.

11. Updated the Mpumalanga Stock Calculator to accommodate the proposed change to roll-out replenishment planning in six sites across three districts.

12. In Eastern Cape, all eight district formularies and stock calculators are signed-off and ready for upload.

OBJECTIVE 3: STRENGTHEN GOVERNANCE

13. Finalized the three sets of regulations relating to practice, education, and registration of pharmacy support personnel.

14. Completed the revised TOR of the BSC and BEC.

15. Developed the national tender forecasting standard operating procedure (SOP).

16. Completed the draft discussion paper for unique product identification using GSI.

17. Reviewed the pharmaceutical services dashboard manual.

OBJECTIVE 4: IMPROVE WORKFORCE MANAGEMENT

18. Trained and mentored the provincial TLD champions to take over activities in preparation for close-out of the TLD transition project.

19. Worked closely with the AMD central demand planning team, on initiating Free State into the demand forecasting process.

20. Conducted SVS Phase I training in Free State and Northern Cape.

21. Initiated development of the PMPU stakeholder matrix in the Eastern Cape.

OBJECTIVE 5: STRENGTHEN IT SYSTEMS AND INFORMATION MANAGEMENT

22. Finalized the KwaZulu-Natal template formulary and loaded it onto the MMDS with all SVS related PHC clinics loaded onto MMDS.

23. In support of eOrdering, assisted with the specification and roll out of SVS formulary functionality to accommodate full formularies while distinguishing tracer and priority items reported weekly.

24. Supported with specification and roll out of SVS formulary import tool that allows SVS formularies to be managed on MS Excel and then uploaded to SVS.

25. Supported system development efforts for MMDS / SVS medicine level integration with all medicines now linked.

26. Formulary Tool roll-out related engagements now underway in five provinces (Free State, North West, Eastern Cape, Mpumalanga, and KwaZulu-Natal).

27. Restored RxSolution Automated Reporting System (RxAPI) after technical assistance to address system outage and maintained connections at 326 sites across eight provinces (Mpumalanga, Limpopo, Gauteng, Eastern Cape, North West, KwaZulu-Natal, Free State, Northern Cape)

28. Transitioned the maintenance and support functions of the NSC to Mezzanine, the AMD approved service provider.

29. Supported the COVID-19 response and Vaccine roll out team by providing weekly reporting compliance and medicine availability update reports to AMD and the provinces.

30. Initiated eight new dashboard developments and completed five of the developments.

31. Supported AMD in the NSC business process audit by the AG.

32. Transitioned the NSC to using the MHPL and MFL master data lists for the medicines views and health establishments APP views and published the updated views.

33. Created automated process flows for generation of PPE reports and TEE/ TLD stock-on-hand reports.

OBJECTIVE 6: IMPROVE FINANCIAL MANAGEMENT

34. Participated in FY 2023/2024 Pharmaceutical budget reviews with provincial Heads of Pharmaceutical Services

35. Completed analysis on SCOA codes and received approval from the NDoH to progress with finance dashboards

PROGRESS TOWARDS GOAL – INCREASED MEDICINE AVAILABILITY

The program aims to improve access to, and availability of the medicines and related commodities needed to prevent and treat HIV/AIDS, TB, and associated conditions and disorders. Progress in this regard is monitored nationally at all levels of care and is reported via the NSC.

KPI I. OVERALL PERCENTAGE MEDICINE AVAILABILITY

This indicator measures the availability of medicine at all health establishments (PHC clinics, community health centers (CHCs), hospitals, dispensing service providers of the Centralized Chronic Medicine Dispensing and Distribution program (CCMDD) and private sector health establishments providing health care services on behalf of the public sector. Overall medicine availability is defined as the percentage of active line items that appear on the health establishment's formulary (for data from RxSolution) or customized formulary based on the Ideal Clinic tracer list (for data from SVS), with stock available in the bulk medicine storage area(s), medicine room(s), or dispensary.

As of the end of Year 6 (September 30, 2022), overall performance against this indicator was 86 percent against the NDoH target of 90 percent: (Shown in Figure 1). Medicine availability has been maintained at this level since the end of Year 5.

In Year 6, GHSC-TA continued to provide bespoke support to provincial and district pharmaceutical services through the PST, flagging and addressing issues identified in each province. At a provincial level, two of the nine provinces consistently achieved the target of 90 percent, namely Gauteng and KwaZulu-Natal. Free State achieved the target in Quarter 1 (Q1) and Quarter 4 (Q4), reaching 91 percent in Q4. Free State, KwaZulu-Natal, Mpumalanga, and North West saw improvements in medicine availability from Q1 to Q4 (shown in Figure 2). The improvement in North West is attributed to resolving some overdue payments to suppliers. At health establishment level, medicine availability at primary health care (PHC) clinics and hospitals remained stable at 87 and 84 percent respectively (shown in Figure 3). The analysis focuses on these two categories of health establishments as they are major contributors to medicine availability in terms of scale.

The availability of ARV and TB medicines declined by four and three percent respectively, with ARV medicine below target at 89 percent, and TB medicines at 82% at the end of Year 6 (shown in Figure 4).

Figure 1 Overall Percentage Medicine Availability in Year 6

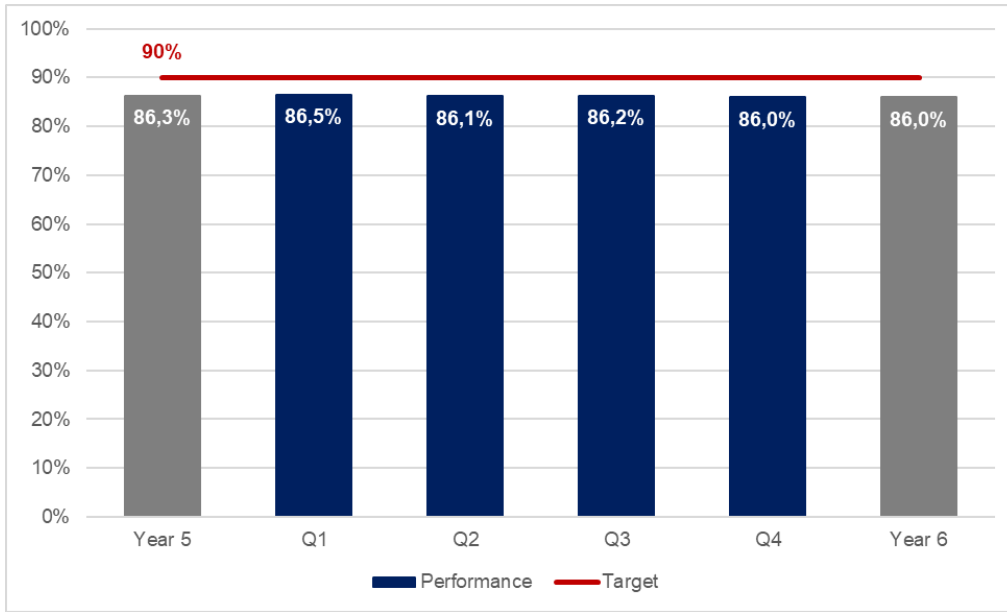


Figure 2 Disaggregation by Province in Year 6

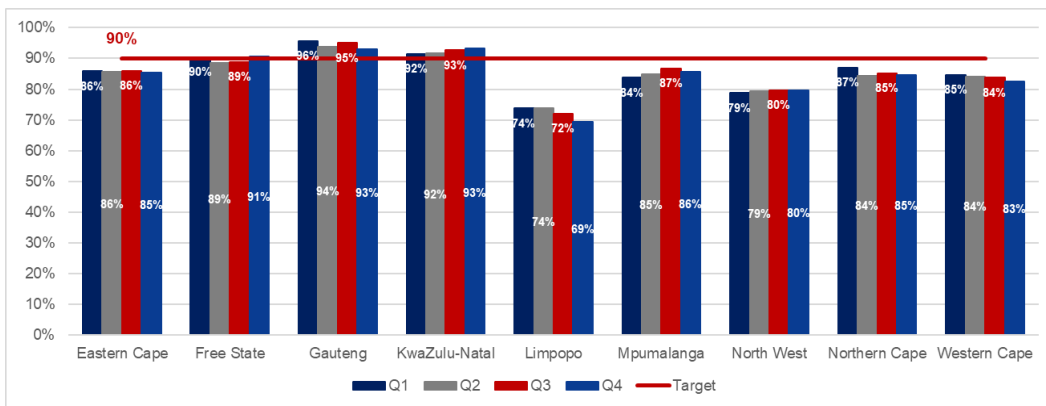


Figure 3 Disaggregation by Health Establishment in Year 6

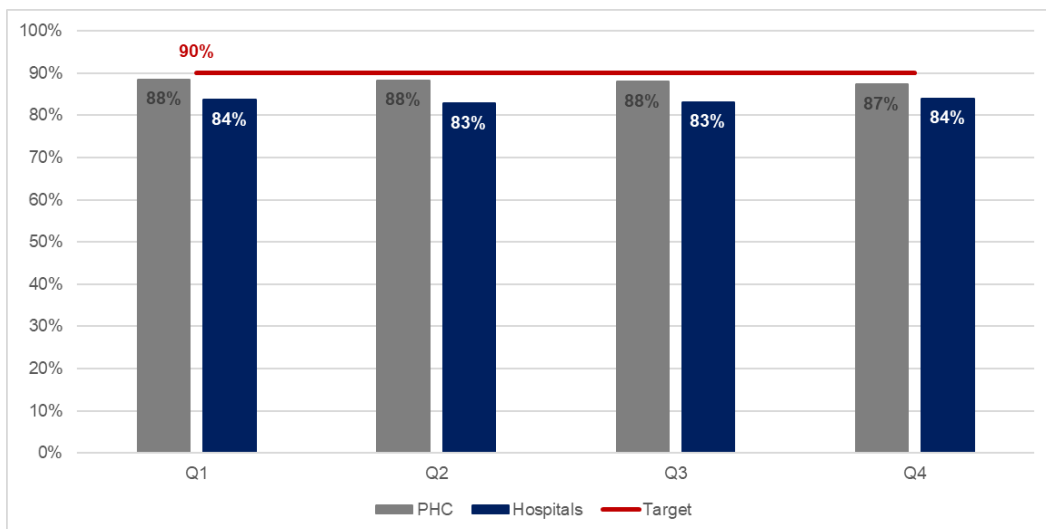
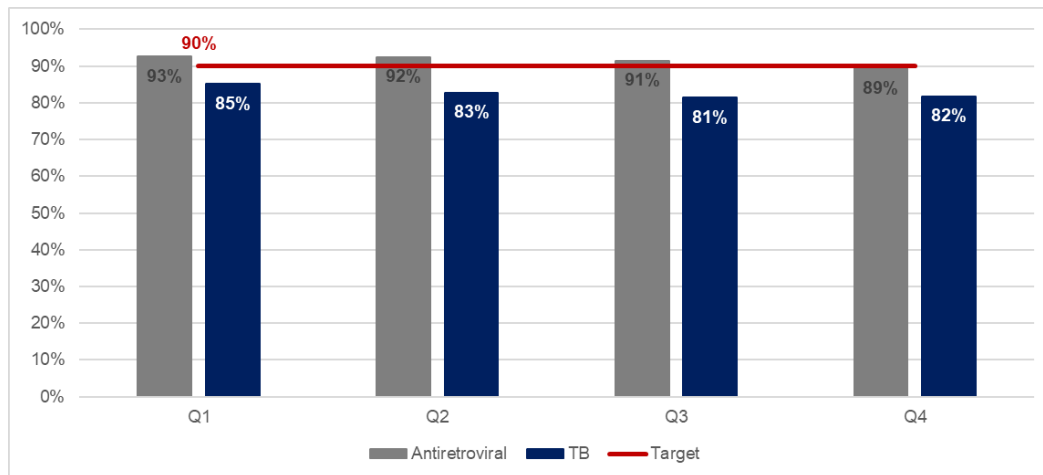


Figure 4 Disaggregation by Medicine Category in Year 6



Although an improvement is noticeable, challenges affecting medicine availability continue. These include supplier related challenges, demanders not placing orders on time (or at all), lack of optimized formularies, and provincial accounts placed on hold due to non-payment of suppliers. GHSC-TA continued to work with counterparts to address these challenges with work underway to improve formulary management and strengthen replenishment planning. GHSC-TA also continued to support provincial and district pharmaceutical services through the PST by flagging items with low medicine availability, stock-outs with sufficient supply according to the supplier, and sites with medicine availability below the target through developing bespoke reports and supporting provinces in addressing issues identified. In addition, GHSC-TA continues to provide technical assistance to improve the budgeting process for medicines.

At a national level GHSC-TA also continued to support contracting and contract management processes. Supplier related investigations through the Improved Medicine Availability Team (IMAT) are ongoing, and GHSC-TA continues to support AMD in identifying and addressing medicine supply challenges and strengthening the functioning of this structure.



3. 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 match the medicine available to meet patients' needs. Through the relevant governance bodies, such as the NEMLC, the AMD is responsible for supporting the selection and use of medicines for patients nationally and ensuring these medicines are accessible and available when and where required.

ACTIVITIES AND ACHIEVEMENTS

STRENGTHEN MEDICINE SELECTION AND USE

Support to NEMLC and the Expert Review Committees (ERC). GHSC-TA assisted with the appointment and convening of the new NEMLC and Tertiary ERC, appointed for a three-year term of office. GHSC-TA assisted the EDP of the AMD with documenting the quarterly NEMLC meetings and drafting bulletins to communicate decisions made at the meetings. The team also supported with

further review of the Tertiary ERC TORS as well as the NEMLC TORs, updating them in line with the changing needs of the committee, particularly regarding its decision-making process, as well as roles and functions of the newly appointed co-chairpersons. GHSC-TA also assisted with updating the EDP operational plan.

Health Technology Assessment Support. GHSC-TA assisted with the development of an interim HTA strategy to outline a short-term strategy over a three-year period for strengthening HTA capabilities of the NDoH in preparation for NHI reforms. The HTA Project Plan was amended for submission and review by the Deputy Director-General: NHI. A submission, TOR, and appointment letters were prepared for the appointment of the HTA Technical Working Group (TWG) by the Director-General of Health. The purpose of the TWG is to support the NDoH to develop a strategy for strengthening HTA.

RMU Support. GHSC-TA drafted a presentation on the introduction of the role and functions of the EDP and PTCs to personnel of the Bertha Gxowa Hospital in Gauteng, as well as a presentation to post-graduate students at the Sefako Makgatho Health Sciences University on RMU and PTCs. A draft SOP for conducting medicine use evaluations or formal research through the AMD was developed to provide the processes to encourage and support RMU activities.

A draft communication strategy, distribution strategy and submission to the Director-General about Pharmacy Month 2022 were developed. Once approved, communication materials including an article for the internal NDoH “Supatsela” newsletter were prepared. Pharmacy Month related events took place across the country during September.

Assistance was provided on resolving requests on the Essential Medicines List (EML) Clinical Guide Application, involving technical and content requirements. GHSC-TA continued updating the content with the 2020 STGs on the EML Content Management System (CMS) of the EML App as requested by EDP. Review and inputs into the ideal hospital district and tertiary tracer lists was conducted, with the purpose of providing a consolidated list of medicines to be reported upon to indicate medicine availability at these facilities, with review facilitated through the NEMLC and ERCs.

Assistance was provided in arranging the NDoH Webinar for World Patient Safety Day on September 16. An article was drafted for Supatsela to communicate World Patient Safety Day and a report from the World Patient Day Webinar was prepared.

Analysis of the KwaZulu-Natal Provincial Formulary was performed, together with the Medicine Master Data System (MMDS). In addition, the formulary was mapped against procurement data to determine which medicines were not procured.

GHSC-TA developed a guideline on emergency medicine supply chain pandemic preparedness and response. The purpose of the document is to use lessons learned from the COVID-19 pandemic to provide guidance on how to effectively prepare for, respond to, and maintain the medicine supply chain in future public health emergencies.

OUTCOME LEVEL RESULTS

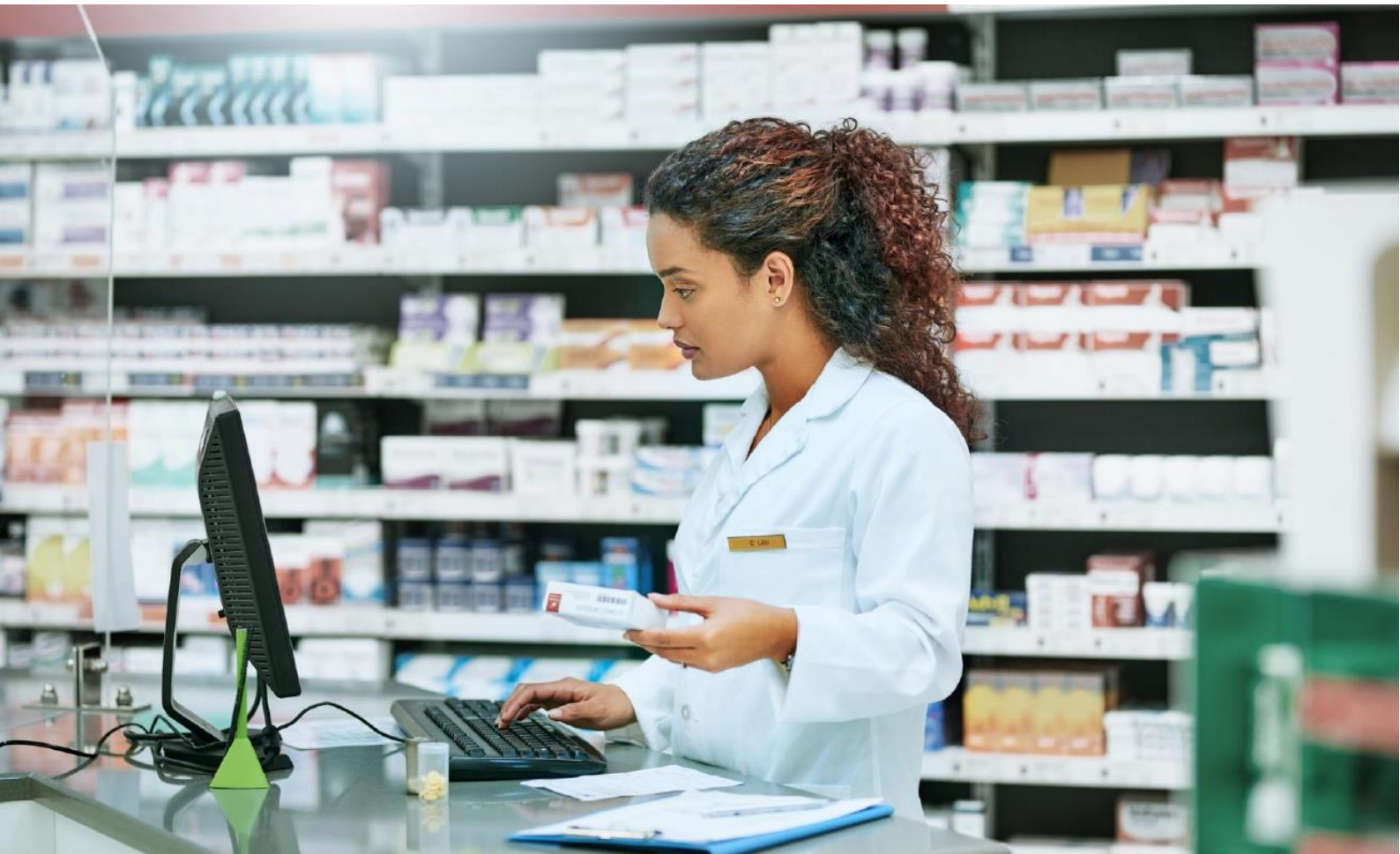
The program’s theory of change hypothesizes that by supporting AMD efforts to conduct HTAs and leverage their outputs, the GoSA will demonstrate improvements in the selection and use of medicines. To test these assumptions, GHSC-TA monitors two KPIs.

KPI 2. NUMBER OF MEDICINE SELECTION DECISIONS MADE UTILIZING HEALTH TECHNOLOGY ASSESSMENT PROCESSES

This KPI measures the extent to which HTA processes inform decision making by the NEMLC and other relevant committees. Improved decision making is key to determining the medicines and other health technologies funded under NHI. There was no change in this indicator during the period under review. During Year 4, AMD placed HTA activities on hold pending the finalization of legislation needed to implement NHI. During Year 6 activities recommenced, and GHSC-TA assisted with the development of an interim HTA strategy, an HTA Project Plan and TOR for the HTA Technical Working Group in anticipation of moving towards HTA under NHI.

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

This indicator measures the total number of assisted PTCs, which demonstrate improved levels of operational capacity as compared to the total number of assisted PTCs. In Year 4, NDoH deprioritized activities contributing to this KPI. In Year 6, engagements with KwaZulu-Natal commenced and a provincial review is underway. Presentations were also provided by GHSC-TA to district PTCs in Mpumalanga on formulary development and other governance processes.



4. SUPPORT OPTIMIZATION OF THE SUPPLY CHAIN

The current supply chain processes within the NDoH form a foundation for enabling medicine availability across the different health establishments in the country. More than 80 percent of the South African population is dependent on public sector health care provision, making the effective supply of medicine a life-saving requirement for many. Medicine availability is also the cornerstone for achieving 95-95-95 in the fight against HIV. Optimizing the supply chain starts with creating visibility and then improving supply chain processes. This optimization will generate savings, ensure more effective execution of key processes, and ultimately increase medicine availability. GHSC-TA has been assisting the NDoH with optimizing the supply chain through several initiatives related to improving the accuracy of demand forecasts, strengthening financial management, and supporting the TLD transition.

ACTIVITIES AND ACHIEVEMENTS

DEMAND PLANNING

GHSC-TA works with the NDoH to produce innovative processes, tools, and workforce training that result in more accurate demand forecasts. The forecasts are established through a centralized demand planning team based at NDoH, with GHSC-TA demand planners providing technical assistance to provinces that have not been transitioned to AMD due to a lack of capacity. GHSC-TA had a demand planning workshop with the NDoH demand planners to review current demand planning processes.

The workshop presented a great opportunity for the entire team to review and give feedback on what is working and how processes can be strengthened at the national and provincial levels, as well as identify opportunities for improvements and knowledge sharing based on different engagements.

Tender Forecasting. GHSC-TA continued to support NDoH in utilizing the provincial demand forecasts to calculate future projections for the following tender cycle. The approach of determining and using a single number across operations (including determining patient needs, forecasting requirements, tendering, contracting and contract management) has enabled alignment across the various functions. GHSC-TA drafted a national tender forecasting SOP, which was then reviewed and approved by NDoH. This SOP is currently in the process of being implemented in the provinces and will form part of monthly demand reviews. In addition, GHSC-TA conducted tender forecasting for 11 national transversal contracts.

In-contract Demand Forecast. The in-contract demand forecast (ICDF) is used nationally in supplier engagements, provincial engagement, and general stock management. GHSC-TA supported provinces with finalizing of various contracts as part of the demand planning monthly review cycle and continued to support AMD by publishing the ICDF monthly. During this period, GHSC-TA hosted and facilitated an ICDF workshop with NDoH to review the ICDF tool, identify improvement opportunities and develop plans to introduce the tool during the monthly demand planning reviews, the BSC meetings and to other stakeholders.

Provincial Demand Planning. GHSC-TA completed the transition of four provinces, Limpopo, KwaZulu-Natal, Mpumalanga, and Northern Cape to the NDoH central demand planners. One of the central demand planners from NDoH resigned at the end of August 2022. As a result of the subsequent lack of capacity, GHSC-TA will support three additional provinces, Limpopo, Mpumalanga, and KwaZulu-Natal. Initiated the monthly demand planning review in the Free State. Western Cape has not been initiated yet, with a preliminary meeting being held with the province to introduce the demand review process.

Provincial Medicine Procurement Unit. PMPU is a shared centralized administrative unit responsible for managing medicine supply chain processes related to demand, supply, and distribution planning, ordering to payment, provincial contract management, and data governance and visibility. The expected outcomes of the PMPU are improved planning, contractual compliance and access to information leading ultimately to improved medicine availability. It is anticipated that lead times will be shortened and wastage reduced resulting ultimately in risk reduction for the province.

Following a request received from the Eastern Cape, GHSC-TA and a team from the province initiated the PMPU project in the province. During the period under review, a series of three workshops were held with a focus on:

- introducing the concept of PMPU to the greater audience in the province;
- constituting a project team with members from the Eastern Cape, NDoH and GHSC-TA;
- gaining an understanding of challenges faced by the province, as well as scoping and conceptualizing the PMPU project;
- developing a detailed stakeholder analysis;
- setting up technical working groups with additional team members from the province and GHSC-TA to tackle the various work streams identified;
- reviewing and finalizing the TOR of the project team, the concept paper describing the PMPU envisaged for the province, stakeholder analysis and project scope and approach.

The approach being followed is one of co-creation, with GHSC-TA and the provincial team working hand-in-hand. The project has been endorsed by top management in the province with the Head of the Provincial Department of Health attending part of the third workshop, where she emphasized the importance of the project to the province.

FINANCIAL MANAGEMENT

GHSC-TA works with the NDoH and PDoH to develop pharmaceutical budgets using the demand forecasting process. The final approved demand forecast is cashed up using the cost prices for the next financial year and submitted to NDoH for consolidation. GHSC-TA also helps with budget reporting and monitoring using dashboards.

Budget Planning. GHSC-TA completed the FY2023/2024 pharmaceutical budget reviews with all nine provinces, and provincial Heads of Pharmaceutical Services approved the budgets. GHSC-TA assisted NDoH in arranging meetings with provincial Chief Financial Officers (CFOs) to review and approve the budgets as the final step.

Budget Reporting and Monitoring. GHSC-TA worked with the provinces to finalize the budget dashboard views on the NSC. Northern Cape, Free State and KwaZulu-Natal provinces were selected for the pilot. NDoH has granted GHSC-TA permission to contact provinces directly through the PST to obtain dashboard data and kick-start the budget review process using the financial dashboard.

TLD TRANSITION

GHSC-TA, in collaboration with Africa Resource Centre (ARC), continued to work closely with the PDoH, the HIV Program, and other implementing partners to support the TLD transition. In May 2022, the Director General of Health, called an emergency meeting with representatives from all nine provinces to discuss the slow transition of South-Africa's 1st line patients to TLD. The following resolutions were to be implemented by provinces with immediate effect:

- transition patients to TLD and DTG containing regimens (1st /2nd line);
- switch all stable patients on 1st line ART to three multi-month dispensing (3MMD);
- implement the TB recovery plan and monitor the implementation thereof; and
- stop all orders for TEE and manage TEE stock levels to avoid wastage.

By the end of Year 6, KwaZulu-Natal, North West, Limpopo, Gauteng, and Western Cape had reached the target of 80 percent of 1st line patients being transitioned from TEE to TLD and are moving towards a target of 90 percent. The ARV tender awarded in May 2022 saw a massive reduction across the board in the prices of ARVs, with a 33 percent price reduction on TLD. The new ARV contract includes the 84/90-day pack that will be used for the scale up of implementation of 3MMD.

The NEMLC has reviewed the evidence for DTG compared with efavirenz (EFV) in pregnancy and has determined that the benefits outweigh the risk. DTG has been recommended as part of the preferred 1st and 2nd line ART regimen for all adults and adolescents living with HIV, including pregnant women and women of child-bearing potential. The National Consolidated Guidelines for the Management of HIV in adults, adolescents, children and infants and Prevention of Mother-to-Child Transmission are being updated. The TLD task team assisted the HIV Program with updating all ART training modules, pamphlets, posters, and transition algorithms. Several training sessions were conducted nationally on the Knowledge Hub and the Clinical Care Platform. GHSC-TA in collaboration with the Clinton Health Access Initiative (CHAI) is in the process of developing a model that will assist provinces to manage

the 2nd line transition to DTG-containing regimens. KPIs will be developed to track the transition and will assist with stock management of the lopinavir/ritonavir combination.

The TLD transition team continued tracking the distribution of TLD and TEE from suppliers to provinces, together with stock levels at depots and health establishments. A series of interventions have been implemented to assist provinces to reduce the stock holding of TEE, including updating min-max levels and transferring of stock between facilities where necessary. Once approved, the guideline developed by GHSC-TA for inter-provincial stock transfers may be used to assist provinces to reduce TEE stocks. By the end of the period there had been a significant reduction on TEE nationally.

The Health Informatics Directorate of the NDoH has introduced the CHEZA system that can be used to track the transition to TLD with the hope that Total Remaining on Antiretroviral Therapy (TROA) data will be available more frequently. On-going monitoring will continue, and performance against targets will be tracked monthly and quarterly.

TLD Dashboard. During Year 6, the TLD project team continued to use information from the TLD dashboard. Further enhancements were made using the TROA data obtained from Tier-Net to manage the TEE stock levels. The tool can be used to plan redistribution of stock (as needed), as well as to inform min-max levels of TEE and TLD. Stakeholders can disaggregate reports by TEE/TLD and calculate weekly and monthly stock cover down to district and health establishment levels.

Communication. The team continued to share information and receive feedback on issues related to the transition through the bi-monthly provincial medicine availability meetings and operational WhatsApp groups. This information is shared with the National TLD and MMD Task team and action items are assigned to the affected parties. Improved communication is informing clinicians of changes and updates on the clinical guidelines. GHSC-TA continued to assist the HIV Program with updating and distributing the TLD training material and sharing training material with provincial stakeholders.

Demand Model. GHSC-TA continued to assist Mpumalanga, KwaZulu-Natal, North West, and Limpopo to update the demand on TLD, TEE, DTG, Lpv/r as well as the introduction of the 90-day pack for 3MMD. The provincial forecasts are updated monthly based on the transition to TLD and DTG. The updated forecast data informs the national and provincial supply plans to facilitate the availability of TLD, TEE, and other items related to the transition. GHSC-TA in collaboration with ARC assisted the HIV Program in setting revised TROA and TLD targets. The targets will be reviewed and adjusted between January and March 2023 to include the revised 95-95-95 testing and treatment targets for 1st, 2nd, and 3rd line regimens.

Ongoing Collaboration. GHSC-TA held weekly/monthly sales and operations meetings with provincial Pharmaceutical Services and the Strategic Health Program. In addition, GHSC-TA provided ongoing support to the provincial depots to improve the availability of TLD and TEE and avoid potential stock-outs and write-offs. There are continued engagements with the CMU at AMD to discuss supply challenges on selected ARV treatment. GHSC-TA also provided ongoing support to:

- provincial TLD steering committee meetings with support shared between GHSC-TA and ARC;
- the HIV Program at national and provincial levels with feedback provided in the weekly Phuthuma meetings and bi-monthly TLD task team meetings; and
- assist with planning and implementation of pediatric combinations

MULTI-MONTH DISPENSING

GHSC-TA is committed to supporting the NDoH in the evidence-based scale-up of MMD and will continue this support by assisting to enable the supply chain to support MMD. GHSC-TA will undertake collaborative planning with national and provincial stakeholders to scale-up MMD. Demand forecasting, planning and replenishment planning will be updated, including optimization of min-max levels to ensure sufficient product is available to meet demand. Based on the demand and supply plans developed, the cash flow and financial implications will be assessed and documented to assist NDoH and provinces in budget planning for the transition to MMD. It is essential to make larger pack sizes of ARVs available allowing for easier dispensing and reduced storage requirements in medicine rooms and dispensaries. The recent ARV contract includes an 84/90 pack size for TLD, which will be incorporated in the ICDF, demand review sessions and replenishment planning.

The circular sent to provincial stakeholders following the meeting held on May 4, 2022, by the Director General of Health, instructed provinces to implement 3MMD for all stable 1st line patients. A national task team was subsequently established to monitor all activities related to the implementation of 3MMD. A sub-working group (SWG) is led by GHSC-TA with participation from ARC, CHAI, and the HIV Program. By the end of year 6, the following activities were underway:

System to track the implementation of 3MMD: The CCMDD service providers are able to submit monthly reports on the number of patients per district/province who are receiving three- or four-months' supply of medicine. The facility-based system that will be used is SyNCH, which is currently active in 47 PEPFAR supported districts. The challenge is to track patients on MMD who are not on CCMDD, with further development of SyNCH required to include these patients. In the interim, the team will only track CCMDD patients on MMD.

Demand Forecast: GHSC-TA is in the process of developing a demand model based on TROA data that can be used by provinces for the implementation of 3/6 MMD. The model will be presented to provincial stakeholders for approval before implementation.

Provincial MMD sub-working group established: GHSC-TA worked with ARC and CHAI to establish a MMD SWG to assist with planning, implementation, and monitoring of MMD activities at provincial level. These sessions are held on a regular basis and any risks identified are shared with the National task team to address and provide feedback.

MMD Dashboard: GHSC-TA in collaboration with ARC is in the process of developing a MMD dashboard that can be used to monitor stock availability across all nine provinces for MMD items. The team is currently working on the first version of the dashboard based on a supply planning tool developed by ARC. Data from the CCMDD team is required before further development can take place. Once finalized the dashboard views will be presented to AMD for approval.

Communication: GHSC-TA in collaboration with ARC is leading the development of marketing materials for the MMD. This activity has been placed on hold until the national task team decides if medicines used in the management of non-communicable diseases should be included in the communication strategy or if it should focus on ART patients only.

OUTCOME LEVEL RESULTS

GHSC-TA hypothesizes that by supporting activities to strengthen contracting, contract management, demand planning and replenishment management, and working with the AMD to improve visibility and analytics, the GoSA will demonstrate improvements in the medicine supply chain. In efforts to evaluate

this hypothesis, GHSC-TA monitors nine KPIs. This section provides an overview of the progress and results observed against these KPIs through the end of Year 6.

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

This indicator measures supplier adherence to fulfilling orders received from demanders for ARV units within the contractually agreed time. At the end of year 6 performance was reported at 81 percent, showing an increase from 66 percent reported in year 5. At the end of Q4, 69 percent of ARVs were delivered by suppliers within the contractual lead time of 14 days. Performance has remained below the target of 90 percent (as shown in Figure 5). In this reporting period, there were supply challenges with some ARVs, hence the decline in performance, the decline took place in the last month of Q4. The challenges regarding non-payment of suppliers in some provinces remain, although provinces continued to make strides to pay suppliers on-time so that accounts are not put on-hold resulting in non-delivery of stock. Figure 6 provides a disaggregation by province.

Figure 5 Percentage of Antiretroviral Units Delivered by Suppliers within Contractual Lead-time (Supplier Performance Reliability - On Time) in Year 6

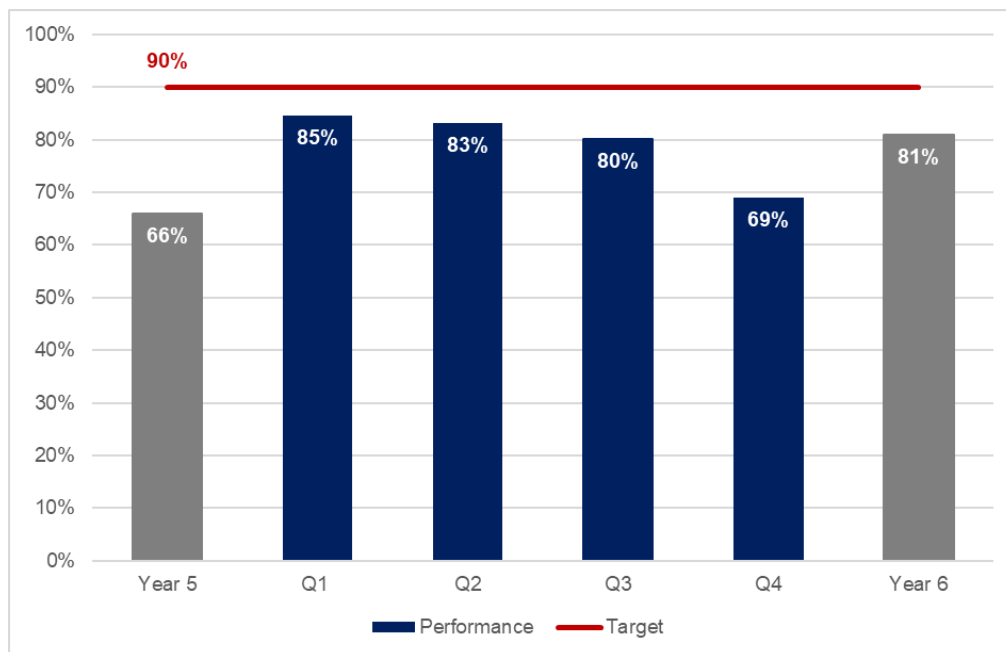
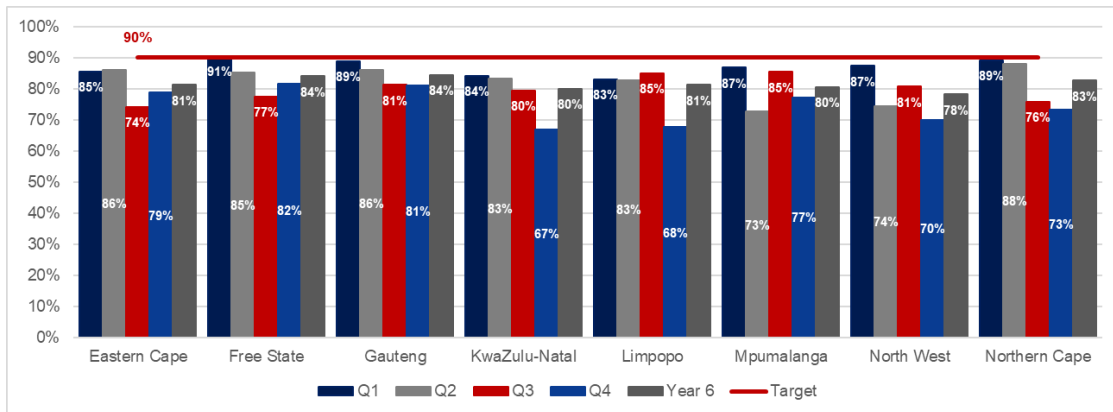


Figure 6 Supplier Performance Reliability for ARVs-On Time-Disaggregation by Province in Year 6



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)

This indicator measures supplier adherence to fulfilling orders for MHPL items on national transversal contracts (excluding ARVs), received from demanders within the contractually agreed time. By the end of year 6 performance was reported at 74 percent, an increase from 67 percent reported in year 5. In Q4, 75 percent of MHPL items (excluding ARVs) were delivered by suppliers within the contractual lead-time, as shown in Figure 7. The performance is below target with several items on

the ‘hotlist’ due to supplier constraints. GHSC-TA continued to support AMD in identifying interventions to resolve medicine supply challenges. Figure 8 presents the disaggregation by province.

Figure 7 Percentage of MHPL Items on Transversal Contracts Excluding ARV Units Delivered by Suppliers within Contractual Lead-Time (Supplier Performance Reliability-On Time) in Year 6

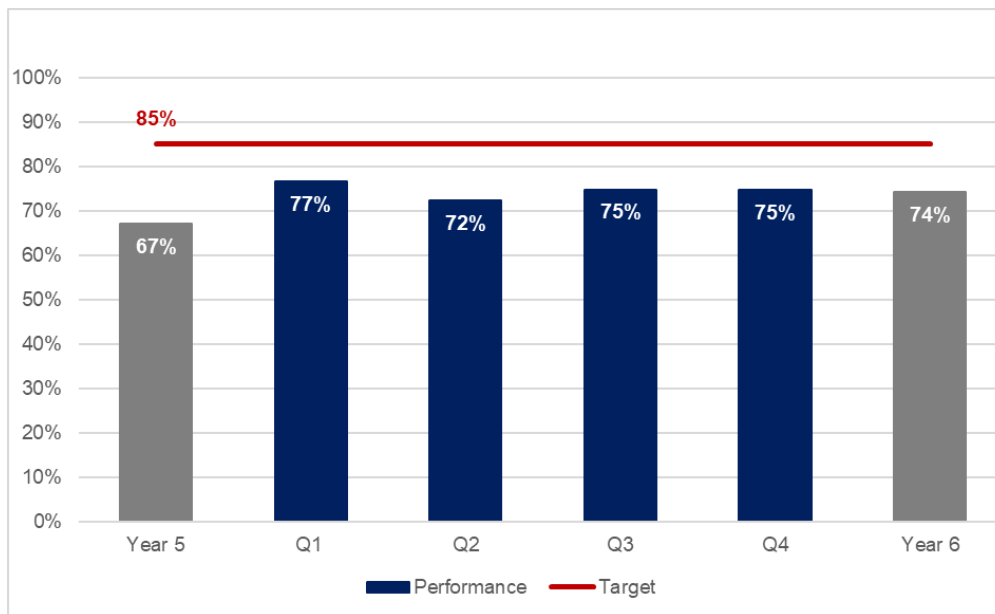
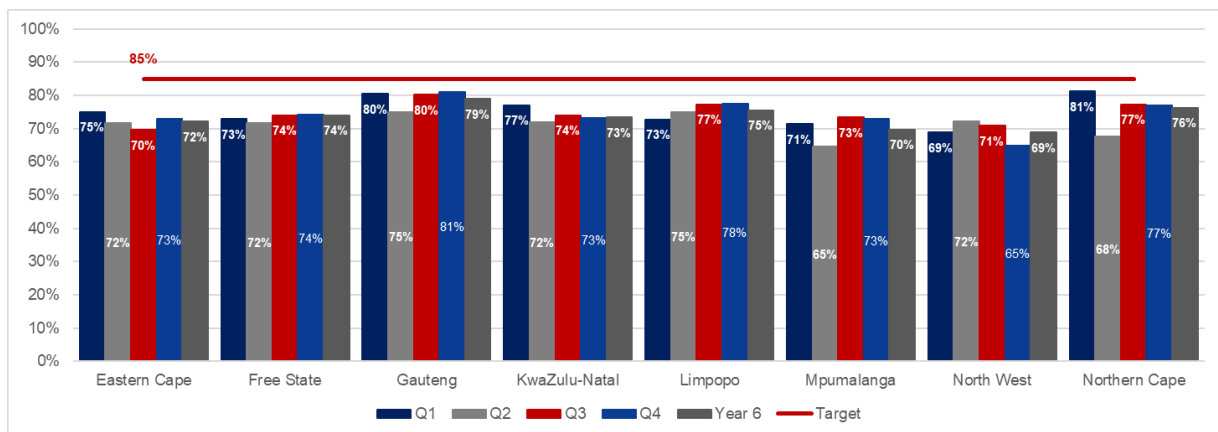


Figure 8 Disaggregation by Province in Year 6



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

This indicator measures supplier adherence to fulfilling orders from demanders on time and in full and monitors supply chain reliability and responsiveness. It applies only to items for which a transversal contract has been awarded and does not include unregistered medicines procured on quotation and/or using section 21 of the Medicines and Related Substances Act 101 of 1965.

At the end of Year 6, supplier performance reliability increased from 63 percent to 68 percent, as shown in Figure 9, with almost every province improving performance vis-à-vis the previous quarter. Overall performance, however, remained below the target of 80 percent. Due to supply constraints and high demand (higher than contractual volumes), suppliers were not able to supply orders in full.

GHSC-TA is working with AMD to strengthen ICDF. Figure 10 presents the disaggregation by province.

Figure 9 Supplier Performance Reliability--Perfect Order Fulfillment for Orders Placed on Suppliers (On-Time and In-Full) in Year 6

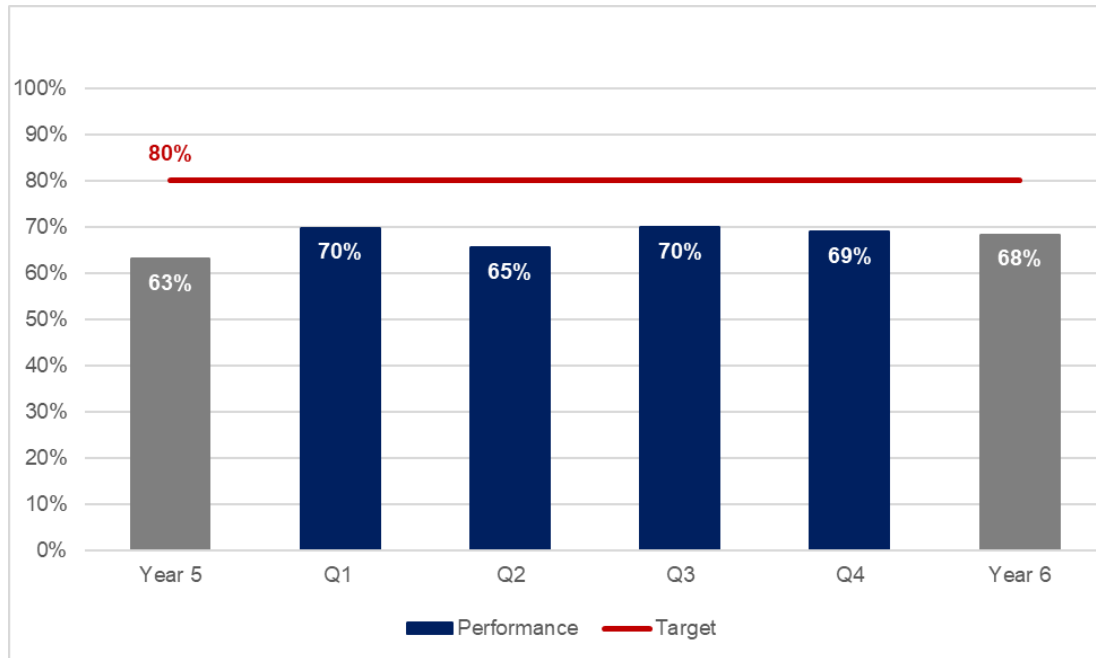
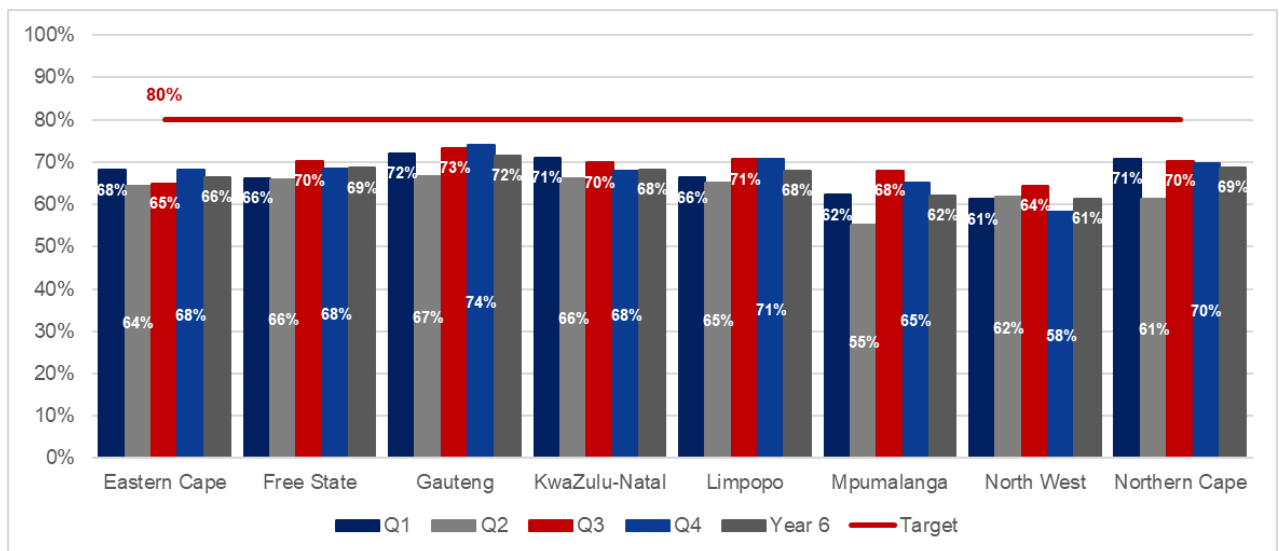


Figure 10 Disaggregation by Province in Year 6



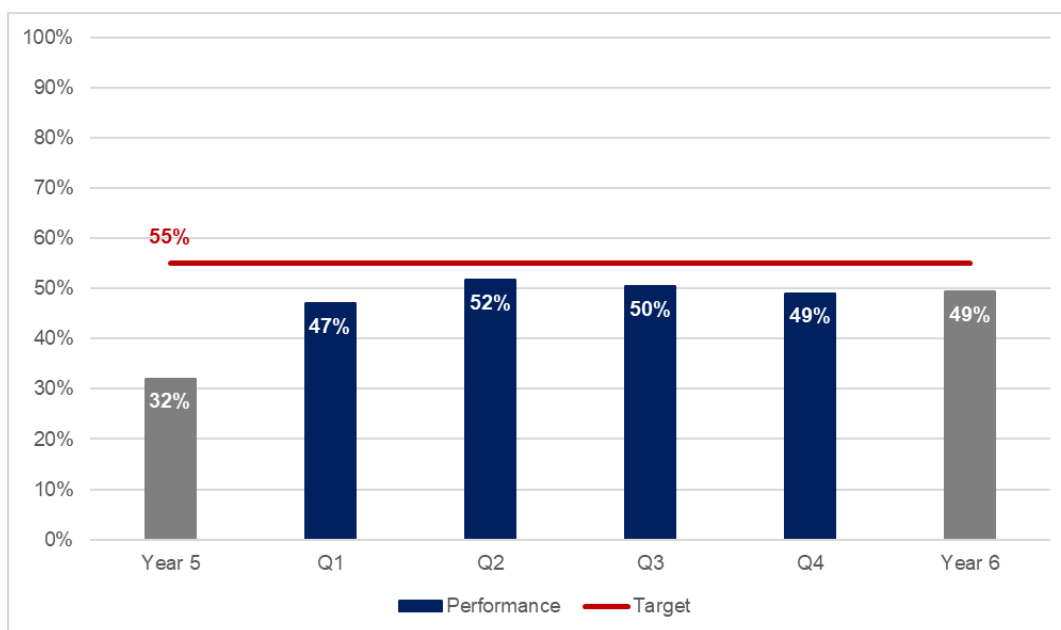
KPI 7. PERCENTAGE OF MASTER HEALTH PRODUCT LIST ITEMS ON TRANSVERSAL CONTRACTS DELIVERED VIA DIRECT DELIVERY TO THE HOSPITALS DESIGNATED BY THE PROVINCE TO RECEIVE DIRECT DELIVERY ORDERS

This indicator measures the percentage of MHPL items on transversal contracts delivered directly to hospitals designated by the province to receive direct deliveries. This activity is no longer included in the scope of GHSC-TA.

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

This indicator measures the accuracy of forecasted demand of line items relative to the actual volume of items supplied over a three-month period. This KPI is applied in the four provinces where the standard demand planning process has been fully implemented. It is critical to have high forecast accuracy to avoid stock-outs and maintain appropriate levels of inventory. At the end of the reporting period, demand forecast accuracy for provinces using the demand forecasting process was 49 percent, an improvement on the 32 percent reported at the end of Year 5 (See Figure 11).

Figure 11 Overall Demand Forecast Accuracy in Eastern Cape, Gauteng, North West, and KwaZulu-Natal in Year 6



The low performance in North West was due to TB medicines being the worst performing category in the province. Gauteng ended the year with 47 percent forecast accuracy and the province achieved the lowest forecast accuracy in Q1 at 40%, since then, the province demonstrated slight improvement from Q2 until Q4. KwaZulu-Natal achieved the highest forecast accuracy for year 6 followed by Eastern Cape. Disaggregation for ARVs, TB medicines, vaccines and other categories are shown in Figures 12- 16.

Figure 12 Disaggregation by Province in Year 6

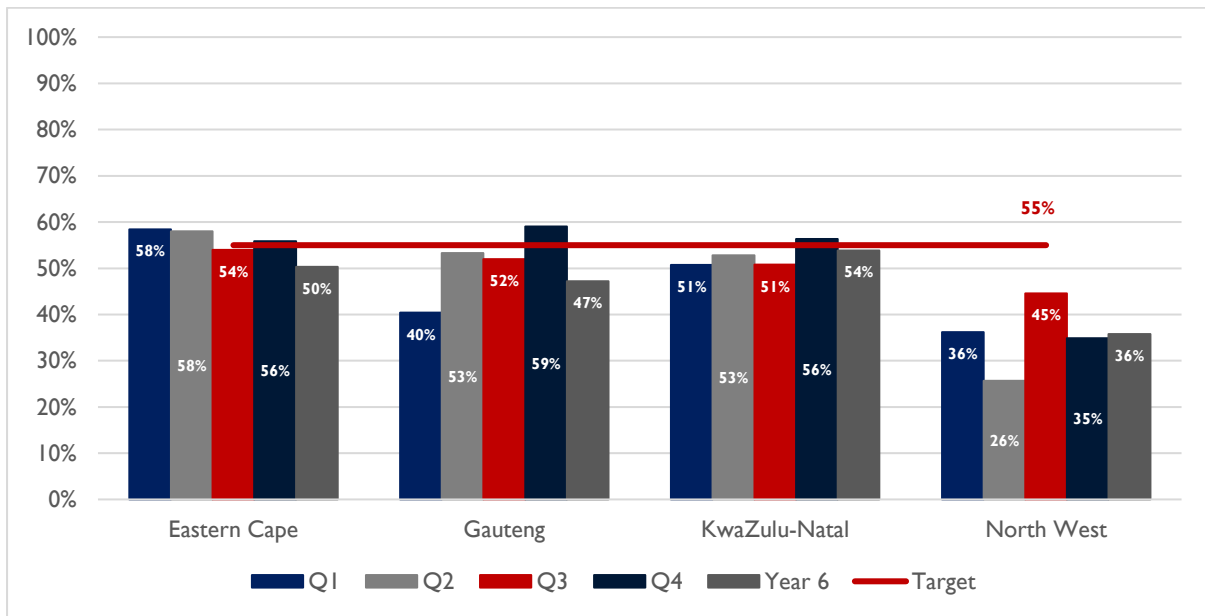


Figure 13 Disaggregation by HIV, in Year 6

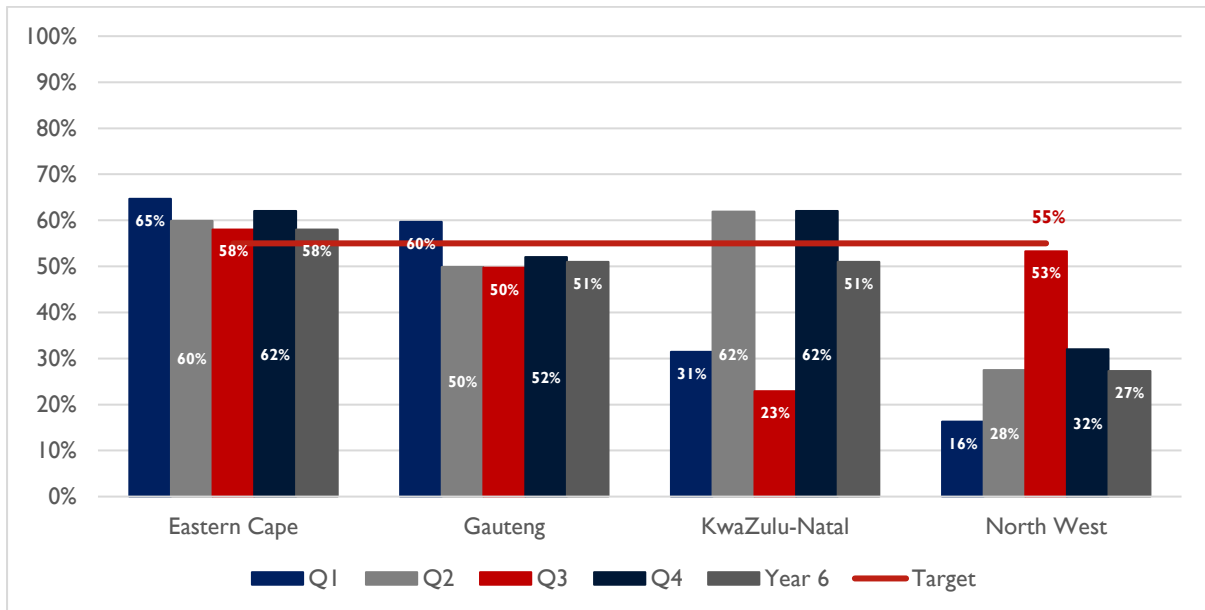


Figure 14 Disaggregation by TB, in Year 6

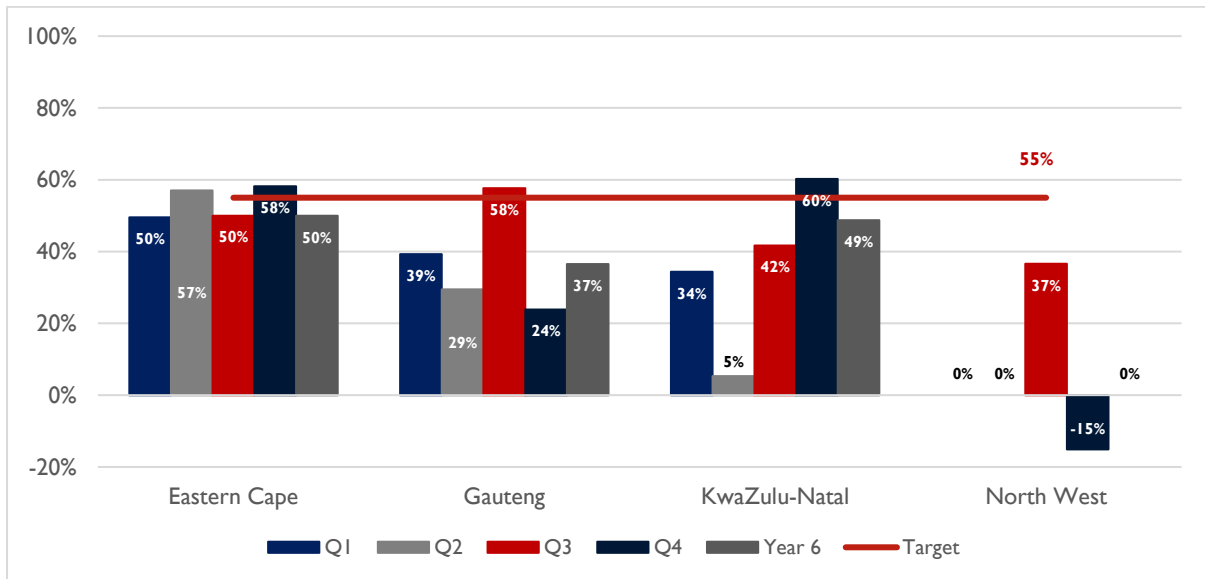


Figure 15 Disaggregation by Vaccines, in Year 6

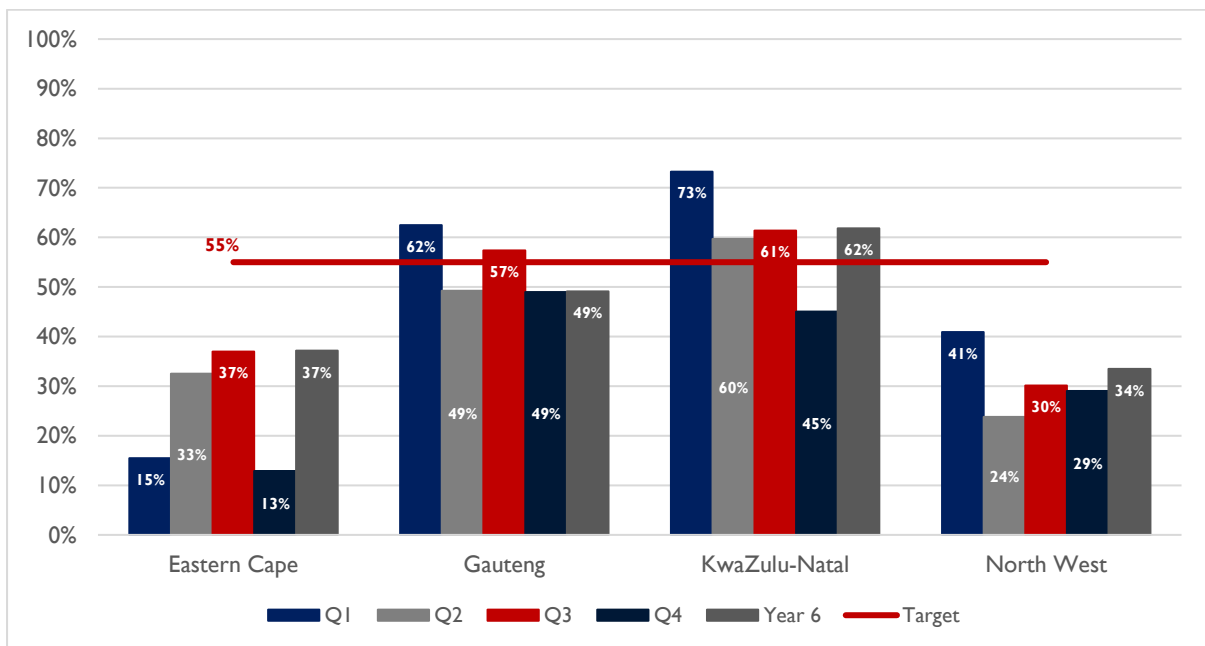
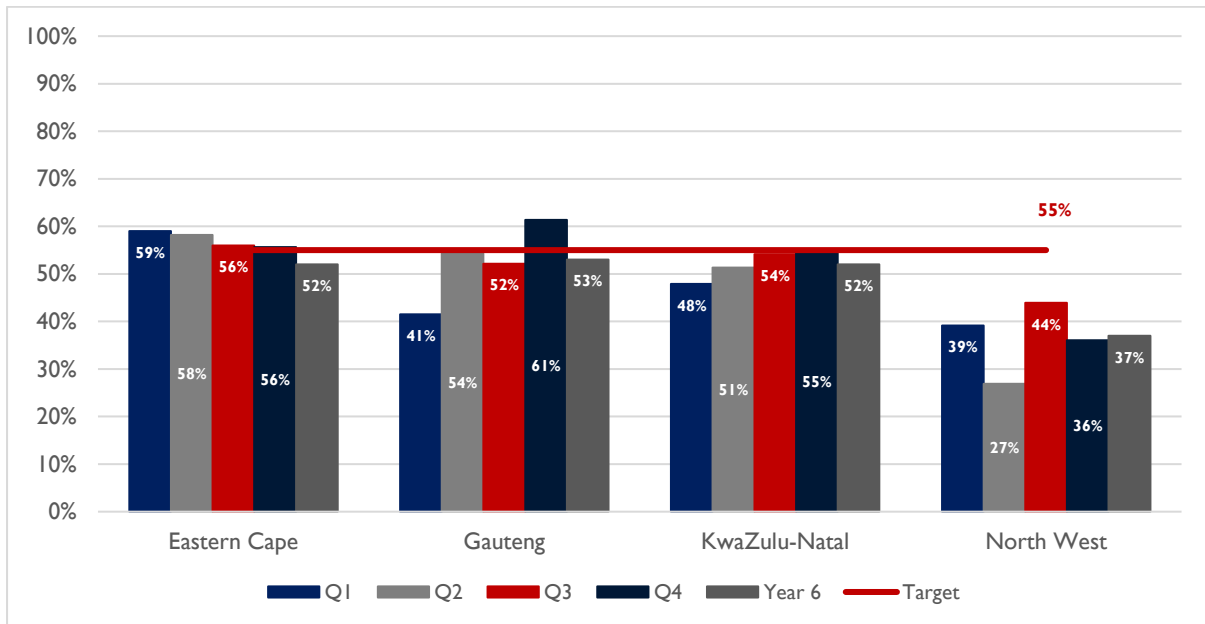


Figure 16 Disaggregation by Other Medicines, in Year 6



KPI 10. FORECAST BIAS FOR PHARMACEUTICAL FORECASTS IN PROVINCES

Forecast bias measures the tendency for actuals to be over or under the forecasted amounts on a consistent basis. The presence of a tendency in either direction requires investigation and corrective action. Forecast bias is measured as a variance between forecasted demand of item and actual volume of item supplied to provinces, either positive or negative, expressed as a percentage of actual volume of item supplied over three consecutive months.

At the end of the reporting period, demand forecast bias for pharmaceuticals in the f provinces where the standardized demand planning process has been introduced was reported at three percent as shown in figure 17, provinces that achieved the highest bias are North West and Kwa-Zulu Natal (figure 18).

Eastern Cape’s worst performing categories in Q4 were other medicines and vaccines, as shown in figure 21. This was a result of the province not having demand review in the last two months because of other engagements. KwaZulu-Natal was affected by TB medicines and HIV categories.

Figure 17 Forecast Bias for Pharmaceutical Forecasts in Eastern Cape, Gauteng, North West, KwaZulu- Natal, and Free State in Year 6

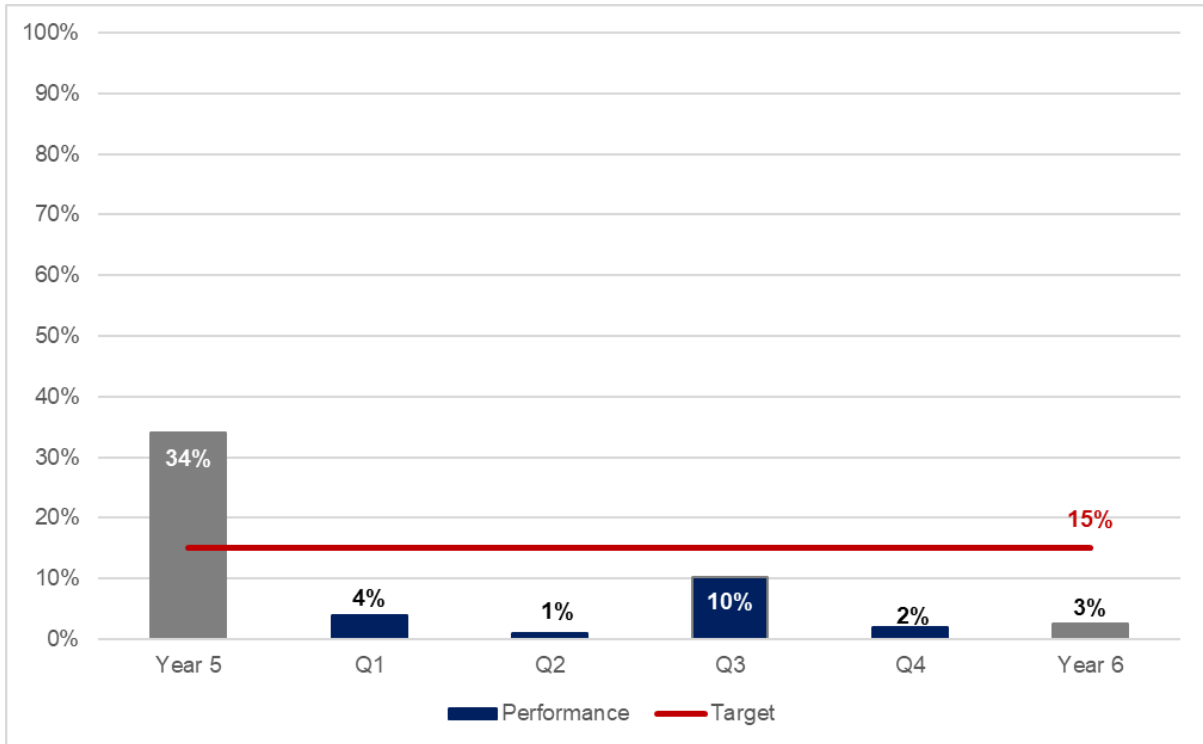
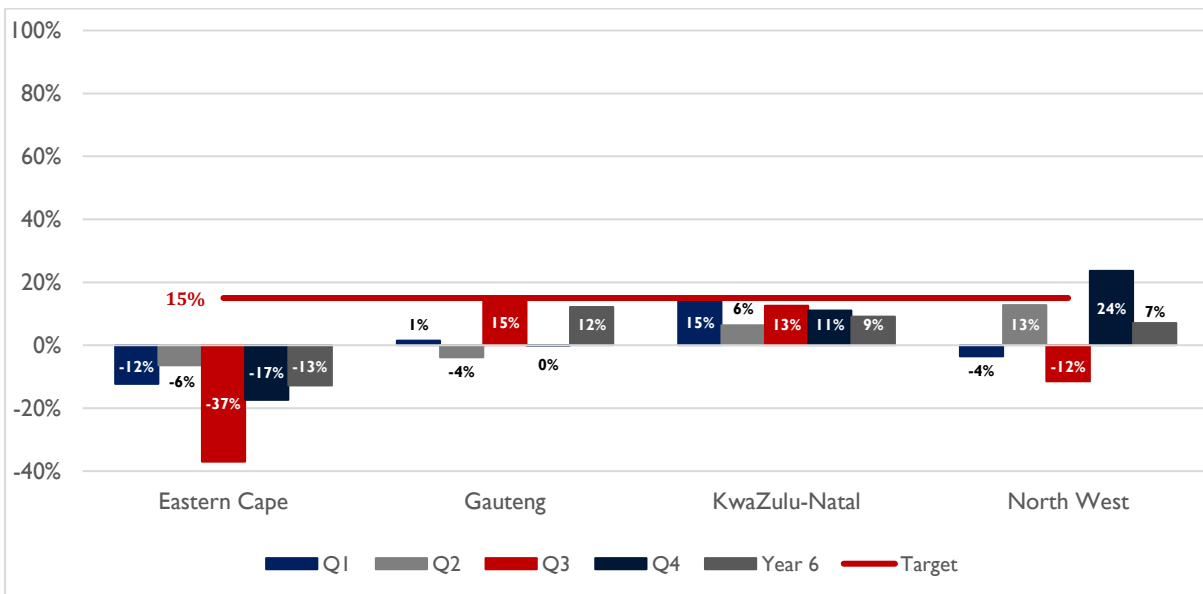


Figure 18 Disaggregation by Provinces in Year 6

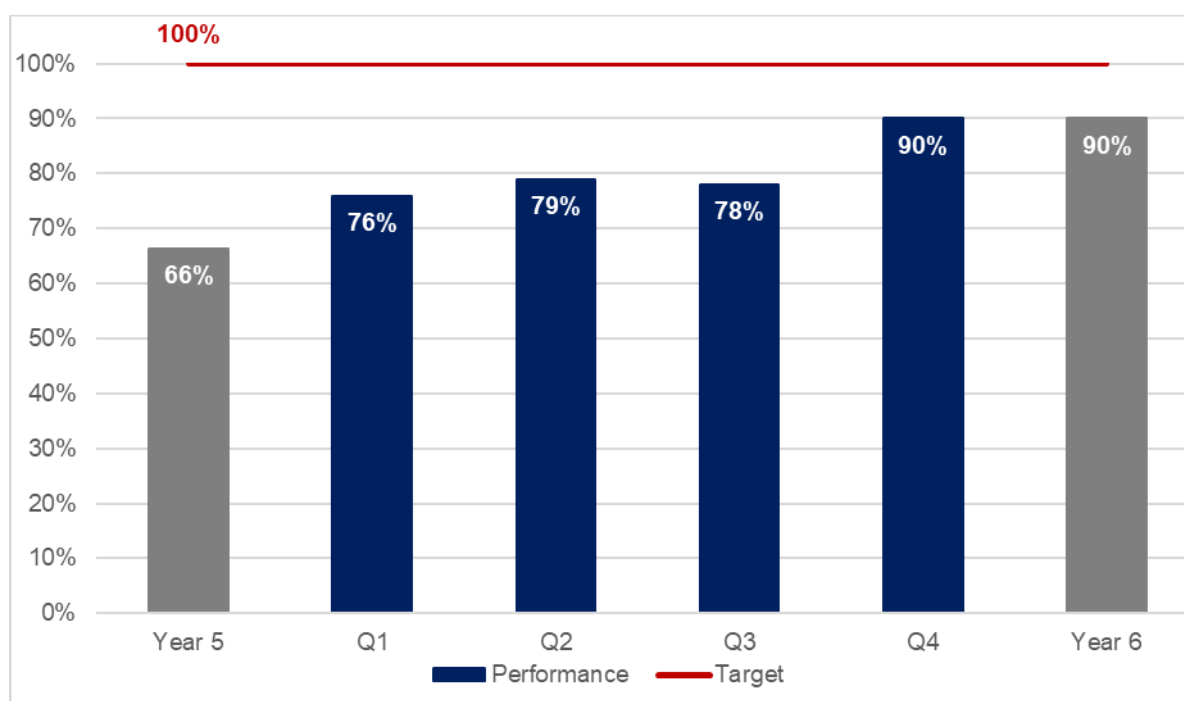


KPI 11. PERCENTAGE OF ELIGIBLE PATIENTS TRANSITIONED FROM TEE TO TLD

This indicator measures GHSC-TA's support for the phase-out of TEE and the transition to TLD nationally. As Figure 19 shows, at the end of Q4, 90 percent of eligible patients transitioned from TEE to TLD, below the target³ of 100 percent. There was a noted increase in the number of patients transitioned to TLD during the last quarter of the year mainly because of increased pressure from the Director General of Health, the HIV Program and implementing partners to ensure that all provinces reach their TLD targets by December 2022.

To date, KwaZulu-Natal, Limpopo, North West, Gauteng, and Western Cape achieved the original target of 80 percent of 1st Line TROA being transitioned to TLD and are now pushing towards a target of 90 percent. Provincial task teams oversee activities related to the transition and assist with monitoring targets monthly. GHSC-TA will be closing out TLD transition related support as provinces achieve their revised targets.

Figure 19 Percentage of Eligible Patients Transitioned from TEE to TLD in Year 6



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

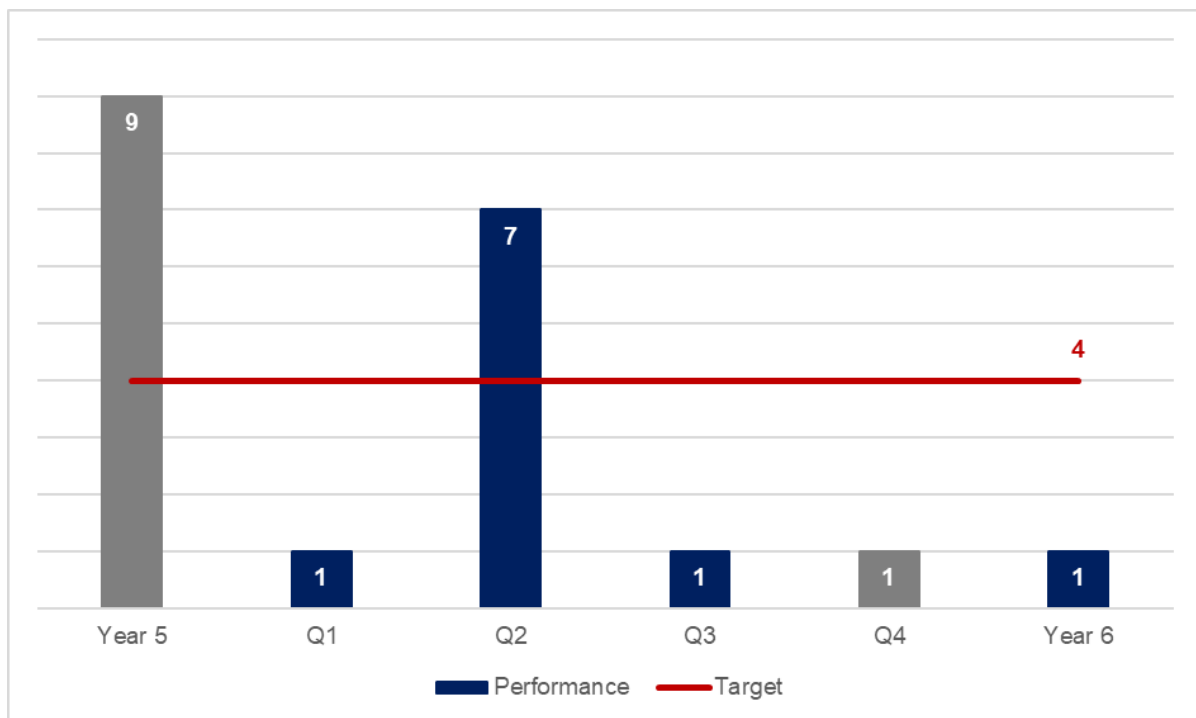
This indicator, shown in Figure 20, measures the effectiveness of GHSC-TA support in developing and implementing provincial budgeting and financial management processes. The demand planning process, developed by GHSC-TA, supports PDoH in establishing accurate forecasts to inform the annual pharmaceutical budget.

At the end of year 6, GHSC-TA confirmed that one province, Northern Cape, submitted and reviewed dashboards monthly. This remains below the target of four. The performance of seven provinces

³ Note: disaggregation by province, new and existing eligible patients and sex is not available. Only the national percentage is available for reporting due to data reporting limitations.

reported in Q2 was as a result of a different methodology of calculating the KPI being applied in that quarter. In future, the GHSC-TA PST will assist provinces in accessing the data required, as well as training on how to use the dashboard and support with the dashboard review meetings.

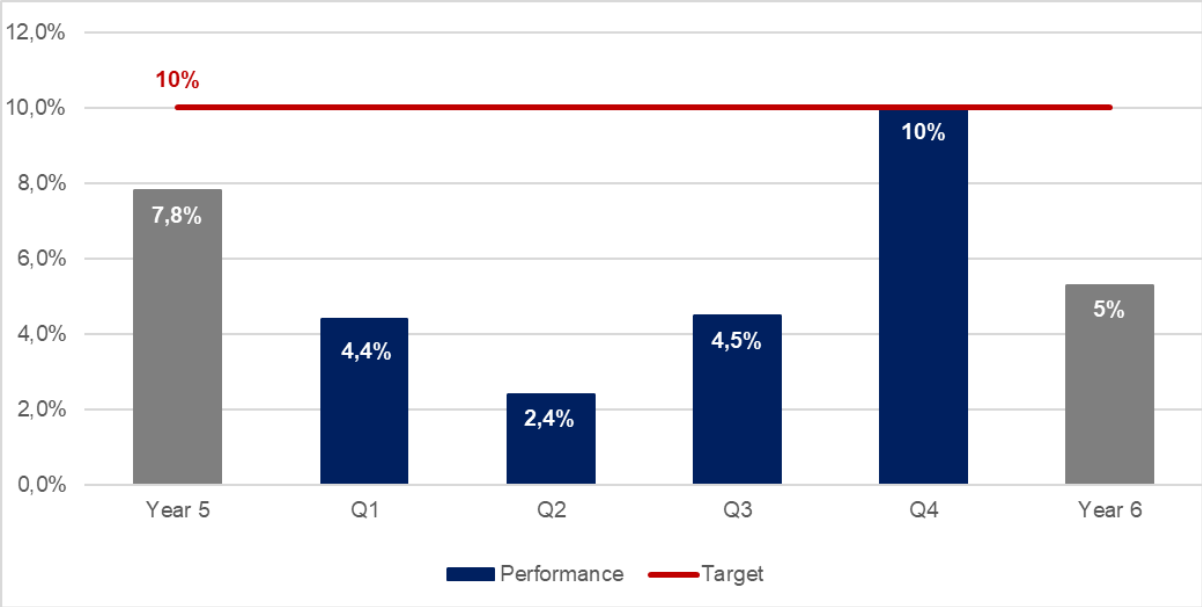
Figure 20 Number of Provinces Who Review Their Budget vs. Actual as Defined in the New Budgeting Process to Support the Ring-Fenced Budget in Year 6



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

This indicator measures the percentage of expenditure on medicines that do not appear on the EML compared to total expenditure on medicine at the provincial level. Medicines not appearing on the EML can be approved for use through the provincial, district, or institutional PTCs. Q4 finished on target at 10 percent, as shown in Figure 21.

Figure 2 | EML vs Non-EML Spend on Medicine List Items in Year 6





5. 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 with improving governance by strengthening the policy and legislative framework, establishing appropriate governance structures, and building capacity to provide the necessary oversight. A key role of GHSC-TA is to provide technical assistance in the development of relevant policies and legislation necessary for implementation of strategic priorities and interventions.

ACTIVITIES AND ACHIEVEMENTS

GOVERNANCE AND LEGISLATION

GHSC-TA conducted several activities in Year 6 to strengthen governance by developing and revising policies as an enabler for medicine availability. Most notably, the program supported activities in the areas of contracting and contract management.

CONTRACTING AND CONTRACT MANAGEMENT

Procurement of medicines for use in South African government hospitals and clinics follows a competitive tendering process. The resultant contracts are, therefore, extremely important for

medicine availability. Once contracts have been awarded, AMD plays a critical role in monitoring and managing supplier performance. In addition to managing contracted suppliers, it is important that the performance of all parties, including participating authorities and demanders, is monitored and managed. Support provided by GHSC-TA focused on strengthening contracting and contract management processes. Assistance was also provided on the development and consolidation of tender specifications for the HP09 tablet tender.

Pharmacy support personnel regulations. GHSC-TA supported AMD and the South African Pharmacy Council (SAPC) to complete the revision of the three sets of regulations published in terms of the Pharmacy Act 53 of 1974 to govern the practice, education, and registration of pharmacy personnel. The purpose of the amendment to the regulations is to establish a new category of pharmacy support personnel (pharmacy technicians) and to align scopes of practice to service delivery needs. The three sets of regulations have been revised and updated based on comprehensive public comment received after publication of the regulations in the Government Gazette. The revision included providing clarity on the scope of work of all three categories of pharmacy support personnel to ensure that there is clear distinction between them, indicating progression from one category to another and providing clarity on supervision ratios. The regulations have been submitted to the NDoH Legal Unit for final review and publishing for implementation.

Contracting. GHSC-TA facilitated a two-day workshop to onboard new members of the BSC and BEC. The workshop was also used to review, obtain input from members, and finalize several documents, including the TORs for both committees, the criteria for inclusion of items on tender, the bid evaluation rules and the SRCC. In addition, GHSC-TA developed the SOP for conducting and managing the BSC meetings, including policy principles that are aligned to what is stated in the BSC TORs and SRCC. GHSC-TA has completed the first draft of the contracting guideline. The purpose of the guideline is to outline the roles and responsibilities of stakeholders involved in contracting, and the communication flows for each stage of the contract. The guideline scope has been discussed and agreed upon with AMD.

Special Requirements and Conditions of Contract. 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 continued to support AMD with reviewing the SRCC template based on previous input received from a legal expert and lessons learnt from the COVID-19 pandemic. Based on the SRCC template, GHSC-TA has developed the SRCC obligation matrix to outline all the pre- and post-award requirements and obligations of the various role players to facilitate contract management. Additionally, GHSC-TA reviewed and provided input on the national supply chain management policy, with a particular focus on alignment with the SRCC.

Tender and in-contract demand forecasting. GHSC-TA supported AMD in developing the policy principles for determining the estimated tender forecast and adjustments for demand during the contract period. Defining the policy principles for both processes ensures that the ‘one number’ demand planning principle is adhered to, and processes are standardized across the provinces. GHSC-TA developed SOPs for both tender forecasting and ICDF. The tender forecasting principles were presented and discussed with the National Pharmaceutical Services Committee. GHSC-TA has also supported AMD with the identification of stakeholders who would be impacted by the implementation of the SOP and developed an implementation plan.

Contract management processes and SOPs. GHSC-TA reviewed the existing contract management processes and SOPs. Five SOPs were developed and reviewed – the SOP for supplier reporting, for re-negotiating estimates with suppliers during the contract period, sourcing quotations

for non-awarded items, and query escalation protocol for provinces to raise any supply issues. Additionally, the SOP for managing supplier non-compliance was updated based on comments received from the AMD Director and the SOP was then signed off. The non-compliance letter template was also updated to align to the revised SOP.

Contract transition SOP. GHSC-TA has developed an SOP for contract transition, including policy principles for transitioning from one contract to the other. The purpose of the SOP is to optimize the process of transitioning from one contract to the other, including close-out of the contract and initiation of the contract, to ensure that medicine availability is not compromised.

Product Identification and Capturing (Barcoding). GHSC-TA developed a draft discussion paper for the implementation of product identification and capture for all medicines registered in South Africa. The purpose of the discussion paper is to outline the requirements and phased approach for implementing unique product identification and data capture, enabling end-to-end data visibility, improving supply chain efficiencies, ensuring supply chain security, and improving patient safety. The discussion paper has been aligned to the principles outlined in the “WHO policy paper on pharmaceutical traceability” and the “GSI implementation roadmap for medicinal products”. GHSC-TA also drafted a submission to the Director-General providing an update on work done regarding implementation of product identification and capture; and to request a meeting with the CEO of the SAHPRA to take the lead in implementation. A meeting was held with SAHPRA to discuss the best way forward and it was agreed that a technical working group should be established to develop the guidelines for implementation.

Pharmaceutical Services Dashboard Manual. GHSC-TA has supported AMD with reviewing and updating the pharmaceutical services dashboard manual. The manual describes the standardized KPIs used to monitor the core functions involved in pharmaceutical services, including selection and medicine use, financial management and budgeting, access and availability and workforce management. Reporting on the dashboard will ensure that there is visibility on pharmaceutical services provision across the provinces, enabling identification of challenges and opportunities. GHSC-TA further supported in developing a reporting template, based on the KPIs outlined in the manual, for all provinces to report at a meeting of the National Pharmaceutical Services Committee.

National Health Insurance Bill review. GHSC-TA supported AMD in reviewing and providing input on the NHI bill which was published in July 2019. The purpose of the review is to understand the implications of the bill on supply chain and identify any challenges. GHSC-TA provided input on the Bill and identified supply chain policy principles to provide a framework to enable NHI. Additionally, GHSC-TA has done research in other countries that have implemented NHI, to understand and compare country level health models in relation to selection of medicines, pricing and reimbursement models and the medicine supply chain.

Minister of Health and Director-General conference speeches. GHSC-TA supported AMD in compiling speaking notes for the Minister of Health and Director General delivered at various conferences. These related to for example lessons learned on the COVID-19 response and management, medicine access and local manufacturing of vaccines and other medicines. GHSC-TA has also supported AMD in responding to parliamentary questions and to stock-out reports published by civil society.

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.



6. IMPROVE WORKFORCE MANAGEMENT

GHSC-TA continued to support the AMD and provinces with workforce strengthening and building organizational structures to perform the functions necessary to improve medicine availability.

ACTIVITIES AND ACHIEVEMENTS

Declaration of Supply Chain Activities as an Essential Service. GHSA-TA supported the NDoH in a sector wide application to the Commission for Conciliation, Mediation and Arbitration (CCMA) to declare parts of the supply chain specific to the warehousing and distribution of medicines an essential service. GHSA-TA represented the NDoH in hearings conducted in Gauteng, Eastern Cape, KwaZulu-Natal, and the Western Cape. Following input, the Commissioner granted the supply chain activities of storage and delivery of medicine an essential service, thus preventing industrial action from disrupting the supply of medicines in the country.

TLD Transition Training. GHSC-TA implemented a provincial mentorship program to assist clinicians who have not completed the TLD training. GHSC-TA first introduced the program in KwaZulu-Natal and, based on successful implementation there, rolled it out to other provinces. GHSC-TA also supported the training and mentorship of Pharmaceutical Services personnel and the HAST managers, as many of the transition activities were moved from provincial to district level. Provincial task teams were established to oversee and identify bottlenecks, and to provide additional support and training where needed.

GHSC-TA, as part of the TLD task team, assisted the HIV Program with updating all ART training modules, pamphlets, posters, and transition algorithms. GHSC-TA trained key staff members on the use of the TLD dashboard to monitor medicine availability of key items related to the transition and the use of provincial allocations.

Centralized Demand Planning Unit. GHSC-TA assisted AMD with establishing a centralized demand planning unit at the national level. After successful recruitment, on-boarding, and training, the NDoH demand planners assumed responsibility for provincial demand planning for KwaZulu-Natal, North West, Limpopo, and Northern Cape with support being provided by the GHSC-TA demand planners.

SVS Phase I. The PST continued to support provinces with routine SVS training and capacity building. The training sessions were conducted in the Free State and the Northern Cape to improve medicine availability and reporting compliance at health establishments. Roles and responsibilities were also explained with the aim of improving the usage of the reports on the NSC and SVS web platform. Ongoing support was also provided to sites experiencing technical issues. During Q4, the PST started reviewing registered users on the SVS web platform to determine dormant system users and the subsequent removal of their user rights.

Stakeholder Matrix. GHSC-TA initiated work around the stakeholder analysis and the development of the PMPU stakeholder matrix in Eastern Cape. The tool will be used to determine specific actions needed to engage stakeholders and obtain the necessary buy-in and alignment with project goals.

OUTCOME LEVEL RESULTS

GHSC-TA hypothesizes that by supporting the AMD to develop a set of standardized structures, roles, competencies, and performance management practices, along with institutionalization of a stakeholder engagement program in collaboration with the upskilling and mentoring of staff, the AMD will foster an improved culture aligned with proactive patient-centric decision-making and enhanced leadership management and technical skills, thus improving workforce management practices. There are no outcome level KPIs reported under this objective.



7. STRENGTHEN INFORMATION SYSTEMS AND INFORMATION MANAGEMENT

Information systems are critical to support the health product supply chain. 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

A core element of the AMD systems strategy involves 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 transacting between systems and aggregation of data drawn across systems and facilitate visibility via the NSC, ultimately contributing to enhanced medicine availability.

GHSC-TA supports the rollout of the MMDS through data analysis work to align medicine data from various sources into coherent sets that can be used to improve medicine coding of depot catalogs such as in Mpumalanga, or inform formulary building decisions and loading (such as in Free State, North West, Eastern Cape, and KwaZulu-Natal). GHSC-TA also supports districts or provinces through the process of data coding, formulary building and the loading of medicines, facilities, and formularies onto the MMDS. By the end of year 6, GHSC-TA was supporting the roll-out, adoption and institutionalization of the MMDS and Formulary Tool across five provinces.

Development. The MMDS and SVS reside on the same IT platform and share the same development team at the NDoH contracted service provider. Given that both these tools are foundational to replenishment planning efforts and that the highest priority development needs currently relate to SVS, development resources were largely directed to SVS during year 6. Activities focused specifically on the redevelopment of SVS formularies, and the formulary import tool in support of eOrdering. GHSC-TA assisted with maintenance requests for MMDS for an improved data extract to be used by the RSA Pharma supplier reporting system and extending the medicine landing page to include additional data columns to facilitate easier data analysis.

NATIONAL SURVEILLANCE CENTER

During year 6, GHSC-TA continued with enhancements to existing, and development of new dashboards, as well as optimization of the NSC views and manual database. The team also continued its support of the monitoring function relating to health establishment reporting compliance and medicine availability.

Following the transition of hosting of the NSC to Mezzanine in year 5, all maintenance and refresh functions were formally transitioned to Mezzanine in February 2022. To facilitate this transition, GHSC-TA provided support to AMD in the review and update to the scope of the RT-I5 contract that included details of the NSC hosting requirements and maintenance requirements.

The NSC experienced a few technical challenges that resulted in brief downtime or access restrictions to users. The first challenge occurred in October 2021 when AMD and Mezzanine experienced an issue caused by an update to the license keys after the last license renewals by AMD. GHSC-TA supported AMD by providing license keys to Mezzanine and a summary of user email addresses to AMD. Two issues occurred in Q2 of year 6. Firstly, the auto emailing and certain flow applications driven through Alteryx were temporarily unavailable due to a delay in license renewals. This challenge was resolved, and functionality was fully restored with no negative impact on the NSC or its users. Secondly, the NSC server hosted by Mezzanine experienced downtime due to a corrupted JAVA library. GHSC-TA supported the communication and management of this downtime between AMD and Mezzanine for the duration of the outage.

GHSC-TA supported AMD with the AG NSC business process walkthrough audit held in March 2022, and compiled the responses to the AG RFI and COMAF, where the AG raised a finding regarding the number of sites reporting into the NSC.

After the ending of the GP Care Cell (GPCC) program in August 2022, AMD granted approval for the removal of 141 GPCC practitioners from the NSC in September 2022.

To reduce the level of effort (LOE) required to manually compile and distribute reports, the team automated the PPE and TEE reports. GHSC-TA is investigating the automation of NSC alerts for the integrated, supply and demand dashboards.

Enhancement of the NSC. The LOE of GHSC-TA on the NSC was reduced in year 6 due to the transition in February 2022 of all NSC maintenance and refresh functions to the NDoH contracted

service provider. GHSC-TA focused on new dashboard developments and enhancements and initiated the development of eight new dashboards and reports and worked on seven enhancements to NSC views.

With the approval of AMD, the team completed the transition of the NSC to using the MHPL as the product master linkage table rather than the legacy Master Procurement Catalogue. Similarly, the APP Dashboard was updated to use the MFL rather than the District Health Information System (DHIS) facility list as the linking table.

GHSC-TA initiated eight new dashboards/ reports. Five developments were completed, and three will be completed in Year 7. The new developments were as follows.

- A **Scatter Graph report** highlighting reporting compliance and medicine availability and disaggregated by province, district, sub-district, or health establishment was developed. The report provides a quick view of those entities requiring targeted interventions regarding reporting compliance or medicine availability. AMD approved the publication of this new view on the NSC in December 2021.
- A report comparing the percentage of medicine availability against the percentage of items above and below the **minimum configured stock utility** was developed and published to the min-max views.
- A new **AMR dashboard** was developed to facilitate AMR reporting. A master data table was developed, and initial concept views were designed. Trend views for the AMD Demand/ Supply, defined daily dose views, and geographical views representing resistance levels per geography were also developed during this period, for review by EDP.
- **PrEP dashboards** were developed following a request from the NDoH HIV Prevention Program and support partner, CHAI. These views support the monitoring of PrEP uptake in target districts. Five PrEP Dashboard views were created and published to the NSC in August 2022. Access was provided to relevant stakeholders. A list of proposed users was submitted to GHSC-TA and 14 licenses were allocated by AMD to the PrEP users. User navigation guides were developed in August 2022 and were shared with the CHAI team.
- Three new **TEE/TLD Stock Management** views were created and published with the purpose of comparing TEE/ TLD stock-on-hand data against TROA data, to identify potential entities with stock surpluses for potential redistribution and identify health establishments reporting TROA data that do not match to the NSC, to highlight potential patient numbers that are not linked to health establishments carrying stock.
- An introductory meeting was held with the MMD team to discuss initial ideas for **MMD dashboards views**. GHSC-TA suggested that KPIs be determined before any work commences on development. The development of MMD views will run concurrently with the ramp up and development work conducted by the MMD stream.
- The **User Activity dashboard** was updated with a new look. This update to the visuals and navigation will serve as the blueprint for the refresh that will be done for all NSC views. New views include information about views accessed by users during routine use of the NSC. GHSC-TA can identify views that are not used and can be made redundant and archived, allowing for more efficient space utilization of the server, and improved performance of the NSC.

Enhancements to the NSC included the following:

- Changes required to some of the trend views and calculations on the **min-max dashboard** GHSC-TA added these views as two separate reports to the existing min-max dashboard with access restricted to relevant stakeholders (specific users from the Free State and the replenishment planning team).
- GHSC-TA developed flow coding for the expenditure data, accruals and creditor data needed to populate the **finance dashboard views**. These views were completed and reviewed internally by the GHSC-TA team and submitted to the national and provincial finance teams for review. Feedback from this review remains pending. An inhibiting step to completing and publishing this dashboard is an ongoing challenge to access to the requisite data routinely from provincial and national departmental teams. This challenge is being addressed.
- A “**minimum basket**” filter was developed for the integrated medicine availability views to allow provinces where advised pull is being implemented to view their medicine availability in line with their historical SVS Ideal Clinic formulary, and not the full formulary required for the e-ordering process.
- Updates to the **supplier dashboard views** were completed and published for further review by the GHSC-TA team and the AMD. Similarly, a review and update of the **demand planning views** were undertaken, and updated views published to the NSC.
- Flows were developed, and an automated process (bot) was created to facilitate the auto-generation of **PPE reports** to be sent to provincial and national users, thus reducing reliance on departmental resources to generate these reports.

Institutionalization of the NSC. GHSC-TA continued to drive institutionalization of the NSC by supporting the compilation of summaries of reporting compliance of health establishments to the NSC and reviews of medicine availability at health establishments. The program submitted these reviews to AMD weekly and presented them to AMD and the provinces in the weekly and later bi-weekly COVID-19 response meetings as well as the monthly IMAT meeting. In addition, the program also supported compilation of a weekly COVID-19 vaccine reporting compliance report to AMD.

GHSC-TA assisted AMD with the APP data and targets summary for health establishments reporting to the NSC for the NHI quarterly report and supported the Northern Cape Pharmaceutical Services team with training on the differences in reporting trend values on the NSC and the SVS reports available through the portal. GHSC-TA also completed a navigation guide to aid NSC users on the updated supplier dashboards which was submitted to the CMU support team for review and acceptance.

Technical and Function Specifications. During the period under review, the program continued with compiling, reviewing, and updating the NSC technical documents that detail the workflow image, NSC process inputs and outputs, workflow steps and tools for the Integrated dashboard, the COVID-19 dashboards and the trends views. These technical documents were further enriched and reviewed during year 6. These documents will remain work in progress for as long as new developments and enhancements to the dashboards are made, as these changes result in updates to the flows and process charts.

SUPPLY CHAIN SYSTEMS

Supply chain information systems are foundational for improved effectiveness of the health products supply chain. In year 6, GHSC-TA continued to provide assistance for the development and deployment of supply chain information systems, including SVS.

Implementation and Development of SVS. The MMDS and SVS systems reached a significant achievement supported by GHSC-TA with the completion and deployment of new code to integrate MMDS medicine data with SVS medicine data. The usefulness of master data depends on the ability of

processes and supporting systems to access the master data that they require. This new code creates interoperability between the MMDS and SVS, allowing SVS to access medicine configuration data from the MMDS seamlessly. Once medicines are linked, changes effected on the MMDS automatically reflect on the SVS.

During the implementation of the replenishment planning project, challenges were encountered with the current formulary functionality on SVS. Over time, requirements and operational practices at the district level had outgrown legacy functionality. The ability was now required to load the complete health establishment formularies necessary for electronic ordering cycles while distinguishing these full formulary lists from the reduced formulary lists required to monitor the availability of tracer items. Significant changes to SVS formulary functionality have now been deployed and allow for full formulary counts to be used when preparing electronic orders and an abridged list to be used when only partial counts are required. GHSC-TA supported the creation of this functionality from conception, through to specification and testing, and conducted extensive contact sessions with stakeholders to socialize the changes prior to deployment.

Aligned to the new formulary management capability, functionality was built, tested and deployed that allows for management of formularies across multiple health establishments on spreadsheets allowing for easier manipulation of formulary data. In addition, upload capability is in place to accept the spreadsheet data into the system and adjust formulary configuration.

A further initiative underway to improve eOrdering capability on SVS will allow integration between SVS and the MEDSAS WMS via the Remote Demander Module (RDM). To date data columns have been added to SVS that allow for parameters required by the WMS for each order line and orders can be exported to a spreadsheet. The remaining step is to create an export option formatted to RDM requirements.

GHSC-TA supported AMD with audit queries received from the AG in June 2022 around the SVS User access and assisted in compiling the responses required.

While challenges with the RxAPI reporting servers in North West and KwaZulu-Natal have been ongoing, problems were experienced with the compilation of the source code for the system, preventing resolution. GHSC-TA was able to resolve these issues and assist the KwaZulu-Natal provincial IT team reinstall the affected reporting servers, with reinstallation of the server in North West underway.

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 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 licensed users access the data available on the NSC. GHSC-TA has defined utilization as logging on to the NSC at least once a month to review data.

During year 6, 64 percent of licensed users logged on to the NSC at least once a month, a decrease from 66 percent from year 5 and still below the target of 80 percent⁴. Use of the NSC started at 55 percent in Q1 and was reported at 64 percent by the end of Q4 showing an increase of nine percent as shown in Figure 22. An improvement occurred in AMD and Western Cape. Mpumalanga, Free State

⁴ NB: Disaggregation by users' role and sex are not reported due to unavailability of data.

and North West performed above the target by the end of the quarter. Performance was below target in Limpopo, Eastern Cape, KwaZulu-Natal, Northern Cape as shown in Figure 23.

This is an ongoing challenge GHSC-TA addresses by monitoring usage and engaging with users to identify and address challenges. Where improvements have been made, activities included the reallocation of licenses of inactive users and targeted stakeholder engagements focusing on users with low utilization.

Figure 22 Percentage of Users Utilizing the NSC to Review Medicine Availability Trends and Reports in Year 6

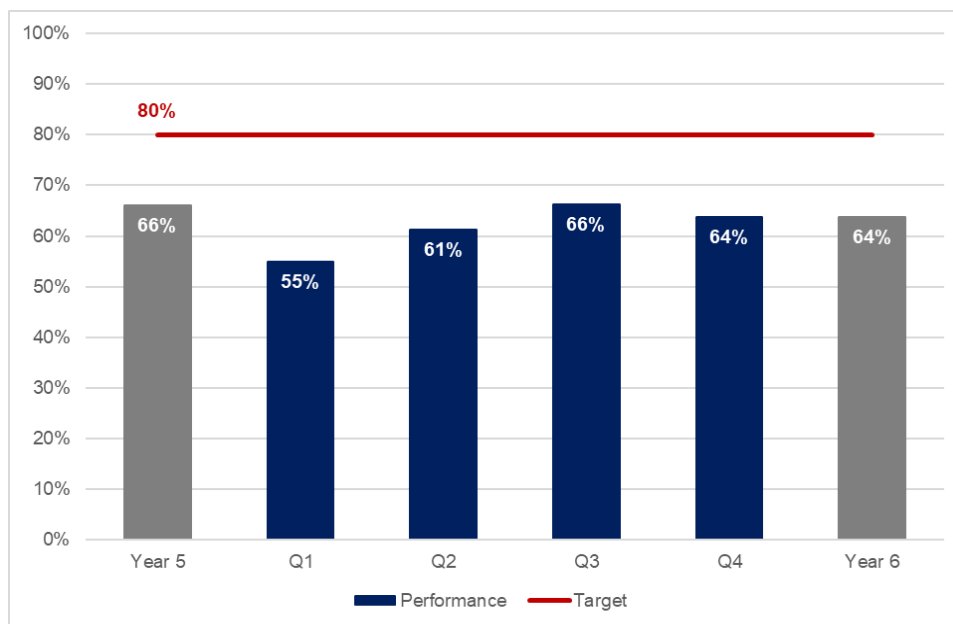
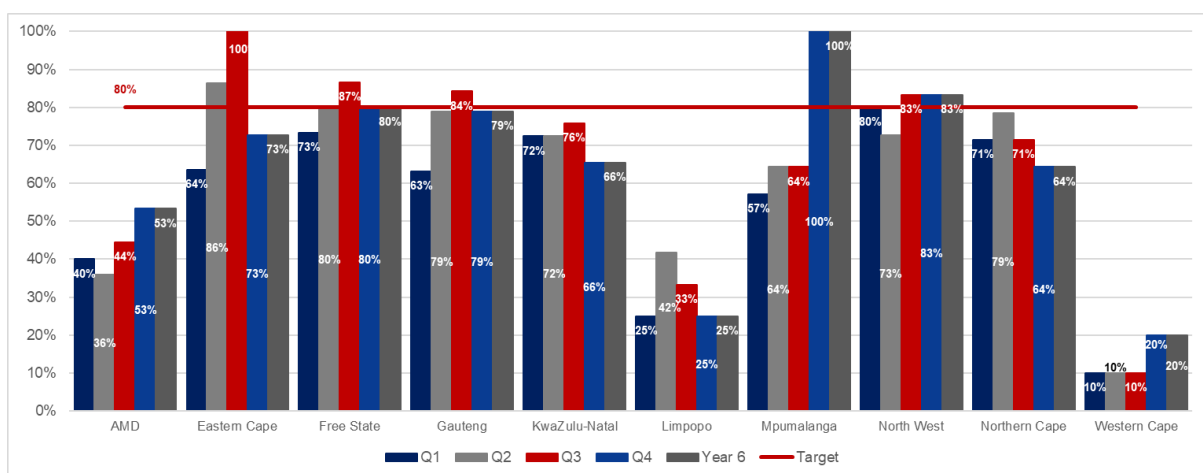


Figure 23 Disaggregation by Provinces in Year 6



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, clinics, and provincial warehouses, with access to master data originating from the MMDS. Values in Table 3 reflect the number of health establishments with access to master data derived from the MMDS and made

available to facilities via SVS. During year 6, medicine master data from the MMDS was integrated into SVS via system-to-system integration and after setting the links between MMDS data items to corresponding SVS data items. By the end of the period 3,094 health establishments were accessing data from MMDS.

Table 3: Health Establishments Utilizing MMDS

| Geographic Locations | Overall Number of Health Establishments and Warehouses Utilizing MMDS |
|----------------------|---|
| All Provinces | 3094 |
| Eastern Cape | 764 |
| Free State | 216 |
| Gauteng | 316 |
| KwaZulu Natal | 552 |
| Limpopo | 484 |
| Mpumalanga | 288 |
| North West | 304 |
| Northern Cape | 170 |
| Western Cape | 0 |

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

This indicator measures GHSC-TA’s support for expanding core supply chain information systems, including SVS and RxSolution, across health establishments⁵. The total number of health establishments using information systems for order management grew from 753 in Q3 to 778 by the end of Q4, as shown in Figure 24. Notably, performance remains below the target of 2,600. A total of 666 health establishments are using RxSolution, 110 are using JAC, and two are using Meditech shown in Figure 25. However, it should be noted that GHSC-TA is currently reviewing the previously set target of 2,600. This is due to the fact that in 2020, the COVID-19 pandemic changed the focus of the SVS team away from eOrdering on SVS to functionality to support the vaccine rollout; it also changed the focus of the operational staff at health establishments to COVID-19-related activities. When the focus returned to the roll-out of the eOrdering functionality of SVS, challenges at pilot sites became apparent with rework required to better differentiate full count items from partial count items and improved order output files required for upload into WMS. By the end of year 6, changes allowing differentiating between full and partial counts were completed, tested and ready for deployment. Previously, growth in this metric had come from RxSolution as a core medicine inventory management system for hospitals and CHCs. There is a reduction in the expansion of RxSolution as saturation increases for

⁵ GHSC-TA is not tracking the use of stock receiving functionality by HEs as the required functionality is not adequate on SVS

the available sites. Further growth is expected from the new SVS eOrdering functionality as part of the advised pull replenishment approach being rolled out. RxSolution, JAC and Meditech can support both ordering and receiving, while the SVS eOrdering functionality only supports ordering.

Figure 24 Number of Facilities Using Core Supply Chain Information Systems to Order and/or Receive Stock in Year 6

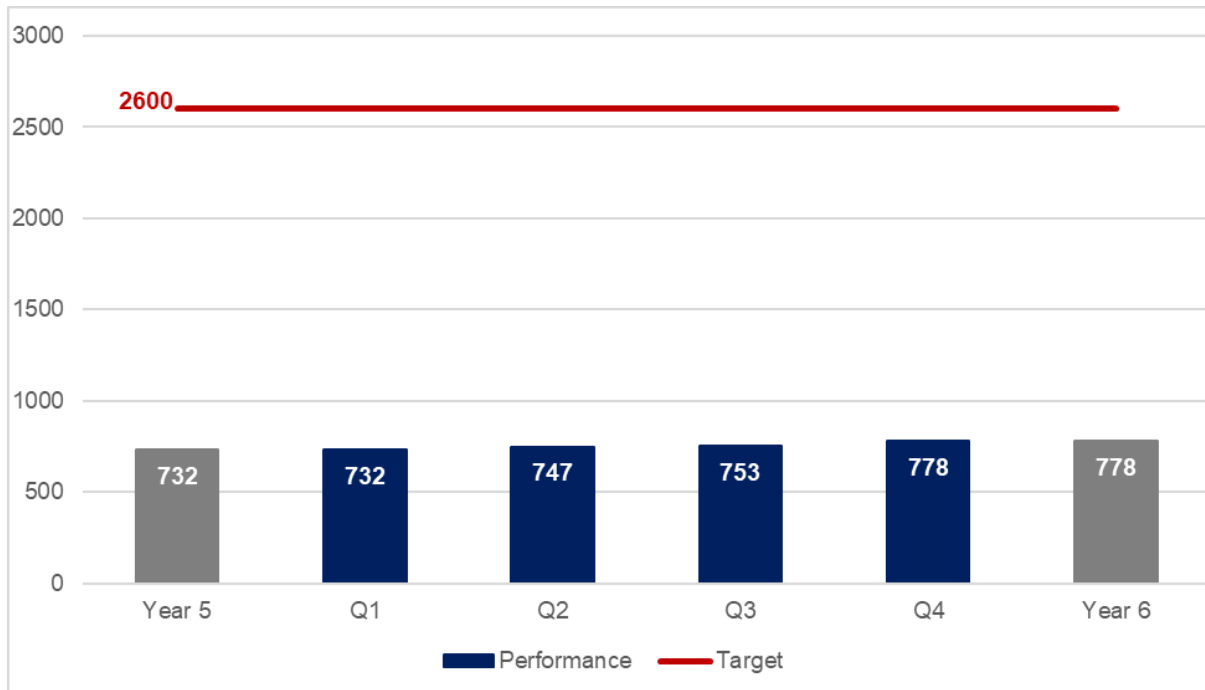
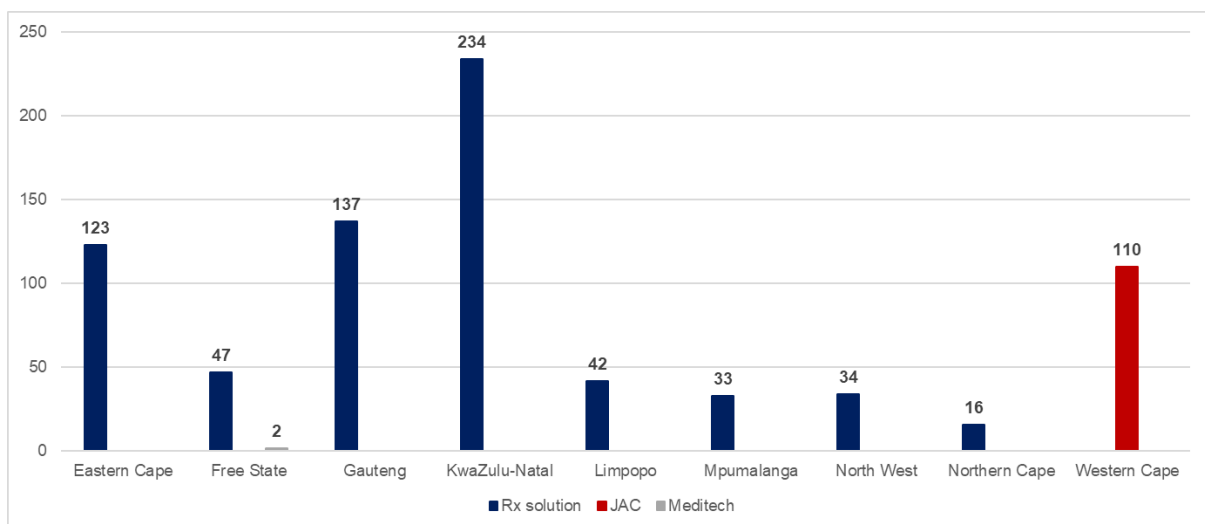


Figure 25 Disaggregation by Province and Stock Management System in Year 6



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

The reporting compliance KPI shown in Figure 26 below measures the number of health establishments reporting stock availability to the NSC. By the end of Q4, 3,857 health establishments

reported stock availability to the NSC, slightly above the target of 3,840. The new APP Dashboard was published on March 31, 2022. It uses the MFL rather than the legacy DHIS facility list as the linking table – the dashboard was approved for use by AMD in March 2022. All APP dashboard reporting values are now aligned to the MFL. A total of 3303 clinics and 376 hospitals were reporting to the NSC as shown in Figure 27.

Figure 26 Number of Health Establishments Reporting Stock Availability to the NSC in Year 6

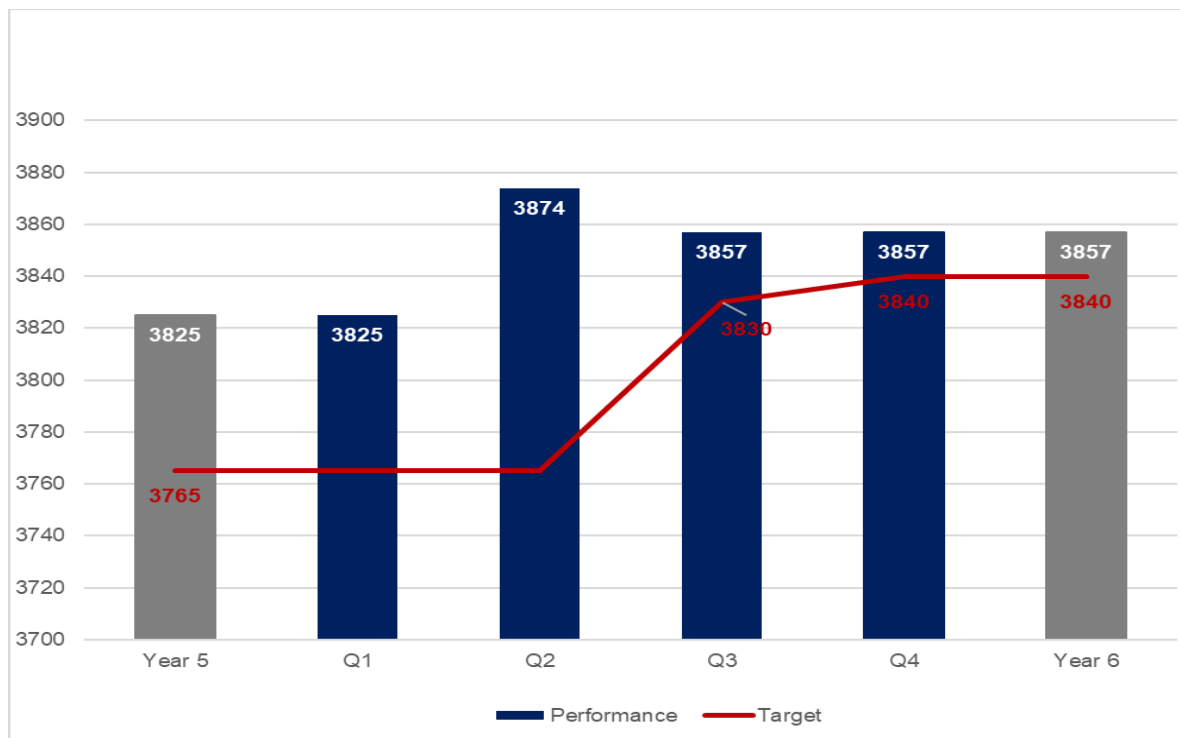
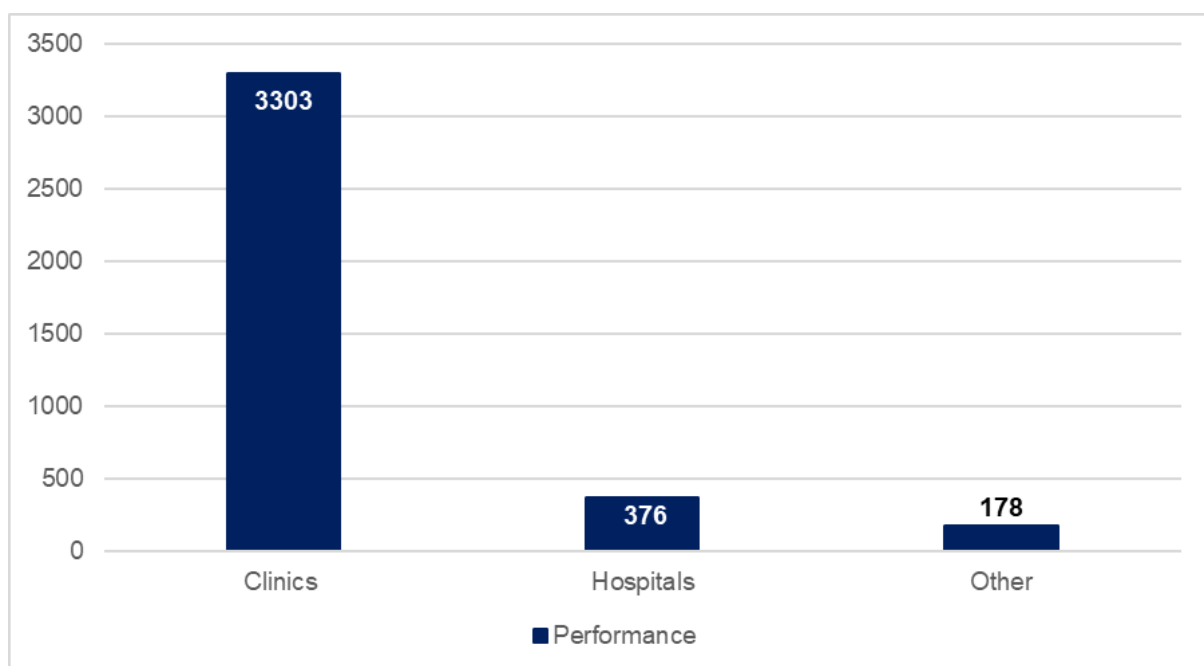


Figure 27 Disaggregation by Health Establishments in Year 6





8. PROVINCIAL SUPPORT AND REPLENISHMENT PLANNING

This work aims to streamline and support the coordinated implementation of activities across the various GHSC-TA program work streams in the provinces and to ensure coordination, alignment, and successful implementation of the various supported supply chain reforms.

ACTIVITIES AND ACHIEVEMENTS

The team continued to support the activities of the nationwide COVID-19 vaccination program. Despite this, the team's efforts towards supporting implementation of supply chain reforms within pharmaceutical services at a provincial level continued to yield success.

INSTITUTIONALIZATION OF THE NSC

The PST continued activities to drive NSC institutionalization, including weekly monitoring of usage, targeted engagements with users with low utilization, reallocation of licenses of inactive users, the circulation of customized reporting compliance and medicine availability reports and flagging areas requiring attention. The team provided direct support to, and engaged with provincial and district counterparts, and the district support partners (DSPs) to identify and address challenges. NSC utilization improved at the end of the year 6, with great improvement in North West and Mpumalanga.

During Q3, a highlight was the Member of the Executive Council (MEC) for Health in the Eastern Cape accessing the NSC - the first MEC to do so. In addition, the MEC for Health in Gauteng included reference to the NSC as one of the interventions to improve access and availability of medicine during the provincial budget vote speech.

At the end of Q4, seven of the nine provinces reached the national reporting compliance target of 80 percent. GHSC-TA continued to flag non-reporting sites, providing technical support, and working with the provincial teams to devise solutions for challenges. In all applicable provinces, the PST monitors automatic reporting via the RxAPI and follows a contingency plan when automated reporting fails.

The target of 90 percent was consistently achieved for overall medicine availability at the end of the year in Gauteng and KwaZulu-Natal. Improvements were noted in Eastern Cape, Free State, Mpumalanga, and North West. Collaborative efforts with provincial IT, pharmaceutical and district teams have contributed to the favorable medicine availability observed. In addition, the PST also supported the provinces in the review and maintenance of formularies, review and editing of medicine supply management SOPs, resolving technical challenges on SVS and RxSolution, and providing customized reports to avoid stock-outs.

In the **Eastern Cape**, a SVS device refresher took place resulting in a decrease in reporting compliance for several months. Monthly SVS sessions were implemented to provide the district teams with feedback, lessons learned, and facilitate the sharing of ideas across the province. The result of this approach was improved usage of SVS and the NSC. The province commenced an undertaking to obtain access to the Virtual Private Network (VPN) account for hospitals using RxSolution, which are now able to report via the provincial RxAPI. During this period, five hospitals reported through the newly established VPN connection. Several targeted engagements on SVS, NSC and RxSolution were held with community service pharmacists, and newly appointed pharmacist's assistants (post-basic). Personnel of the Pharmacy School at Rhodes University were also trained on RxSolution, with the aim of including training on the system in the undergraduate pharmacy curriculum. With TEE/TLD receiving additional attention in this province, a weekly TEE redistribution report was created to allow for redistribution of overstocked TEE in some facilities. Relationships have become stronger between GHSC-TA and the DSPs with collaboration taking place on the TEE/TLD transition, medicine availability, cold chain items and COVID-19 vaccines.

In **KwaZulu-Natal**, the Head of Pharmaceutical Services together with the member of the PST in the province presented improvements in medicine availability and TB medicine availability at the SAAHIP and 7th SA TB Conference, respectively. These successful presentations are the outcome of structured engagements and ongoing collaboration with provincial, district and health establishment staff.

In **Mpumalanga**, PTC training sessions were conducted in two of the three districts. The District PTC trainings are aimed at reviving the health establishment and district PTCs and ultimately the provincial PTC.

The members of the PST in the Northern Cape, Free State and Gauteng conducted NSC walkthroughs in collaboration with the NSC team, to try and improve reporting compliance and NSC usage. The reallocation of NSC licenses was facilitated in Mpumalanga and North West to improve usage.

REPLENISHMENT PLANNING

Replenishment planning includes the standardization of medicine master data, strengthening of formulary management processes, and optimizing the use of proven supply planning principles to inform replenishment. Activities include the use of min-max stock levels and the introduction of an advised-pull approach at health establishment level. This process is enabled by using information systems supported by the relevant policy, guidelines, and SOPs. The aim is to apply medicine supply management best practices to help ensure that essential medicines are available where they are needed.

MMDS and Formulary Tool. Formularies are essential tools supporting RMU and informing medicine supply management activities. From the supply chain perspective, formularies inform which medicines should be stocked at each health establishment and that there is alignment with the EML and STGs applicable at that level of care. In support of replenishment planning initiatives, GHSC-TA supports AMD with Formulary Tool adoption across five provinces, namely Free State, North West, Eastern Cape, Mpumalanga, and KwaZulu-Natal, mostly with activities preliminary to loading formularies onto the Formulary Tool.

Optimization of Minimum and Maximum Stock Levels. For the period under review, the GHSC-TA Team continued to support provinces in implementing and operationalizing the optimized min-max stock levels on stock management systems.

Overall progress with implementation of the replenishment planning work is summarized below per province.

Free State: By the end of year 6, the roll-out of the replenishment planning solution was underway across all districts in the Free State. GHSC-TA has been working on the formularies and min-max levels in Mangaung, Thabo Mofutsanyana, Xhariep, Lejweleputswa, and Fezile Dabi districts. Formulary work was completed in prior periods in Fezile Dabi. Formulary building engagements are taking place in the remaining districts - Xhariep, Thabo Mofutsanyana Mangaung and Lejweleputswa. Implementation will follow once these formularies have been finalized. The full solution including advised pull has been implemented in all Fezile Dabi clinics and is being sustained with minimal support from the GHSC-TA team.

Eastern Cape: All formularies and min-max levels have been signed-off for 723 clinics in all eight districts in the province. By the end of the period, uploading of the min-max levels was still pending due to technical difficulties on SVS. The team implemented advised pull in one facility in Alfred Nzo District (Pabalong) as a pilot. During the implementation, the team conducted training (in collaboration with Mezzanine) with the facility and district pharmacist. The site went live during the last week of March 2022. Since then the team has provided extensive support to the district pharmacist and the facility.

KwaZulu-Natal: Five districts (iLembe, Mzinyathi, Zululand, Uthukela, and Ugu) are participating in the replenishment planning roll-out. All health establishments that use SVS are now loaded onto the MMDS with full provincial level template formularies agreed upon and loaded onto the system. The building of the customized tracer list across districts is currently underway. The provincial formulary has also been loaded onto the MMDS. Of the 199 facilities participating in the project, 189 have signed-off their formularies and min-max levels.

Mpumalanga: Extensive data analysis and medicine coding work is near completion to align the Mpumalanga depot catalog to the MMDS to improve reporting quality by ensuring that codes are used consistently across the WMS and NSC.

Although various engagements have taken place with the province, formal approval to implement the replenishment planning solution at six pilot sites in three districts has not yet been obtained.

North West: The formulary for NMM district was finalized with a few medicine codes to be agreed before loading can take place. GHSC-TA also sourced all the RxSolution data for the NMM district as well as Dr Kenneth Kaunda district. For both districts, the team cleaned all the data and plugged it into the Stock Calculator. As soon as the formularies are finalized, GHSC-TA will commence with the roll-out.

Performance Monitoring and Visibility: The min-max dashboards on the NSC provide visibility on the stockholding position of health establishments and facilitate stock monitoring activities that empower managers to proactively manage medicine supply and use. In the period under review, the GHSC-TA team did extensive internal testing/review to assist and improve provincial views on the dashboards. The next phase is to start giving more users access as the configured min-max levels are uploaded onto SVS.

OUTCOME LEVEL RESULTS

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

This indicator measures GHSC-TA activities contributing to the configuration of min-max stock levels. These basic stock usage parameters are used to inform replenishment management processes. At the end of year 6, data from 1,534 clinics and 238 hospitals indicated a setup of min-max stock levels on SVS (for clinics) and RxSolution system (for hospitals), bringing the total to 1,749 facilities against a target of 1,500 as shown in Figure 28. Note that the difference of 23 facilities between Figure 28 and Figure 29 are due to health establishments using both systems.

The current methodology for calculating facilities with configured min-max stock levels may include facilities that do not have configured levels, including those for which levels are configured for only one item or which have default configurations. GHSC-TA is in the process of revising the methodology for calculating this indicator.

Figure 28 Number of Health Establishments and Warehouses with Configured Minimum and Maximum (Min-Max) Stock Levels for Stocked Medicines Being Reported to the NSC in Year 6

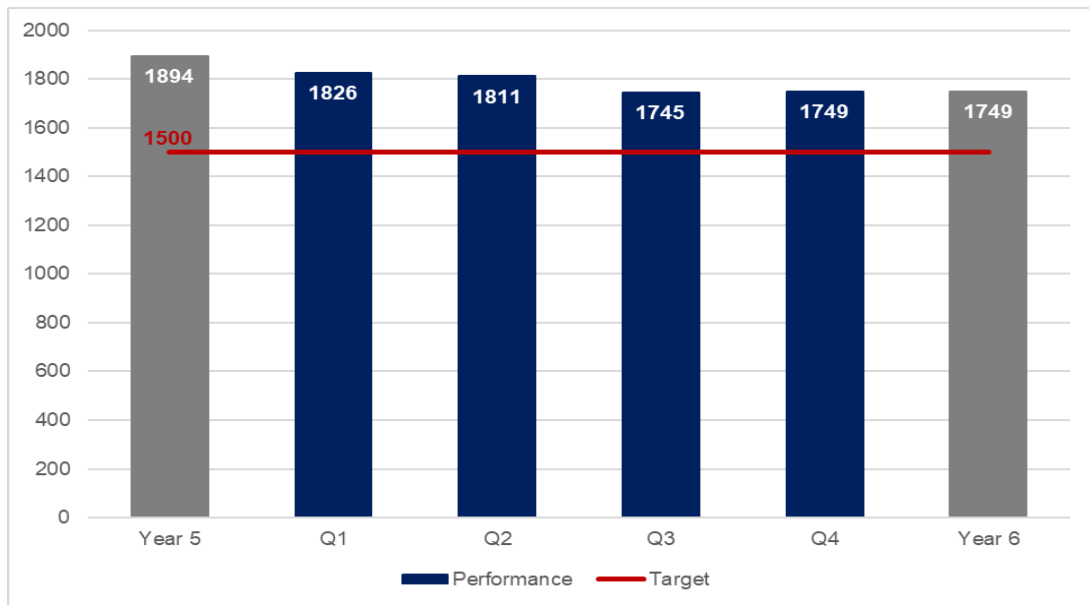
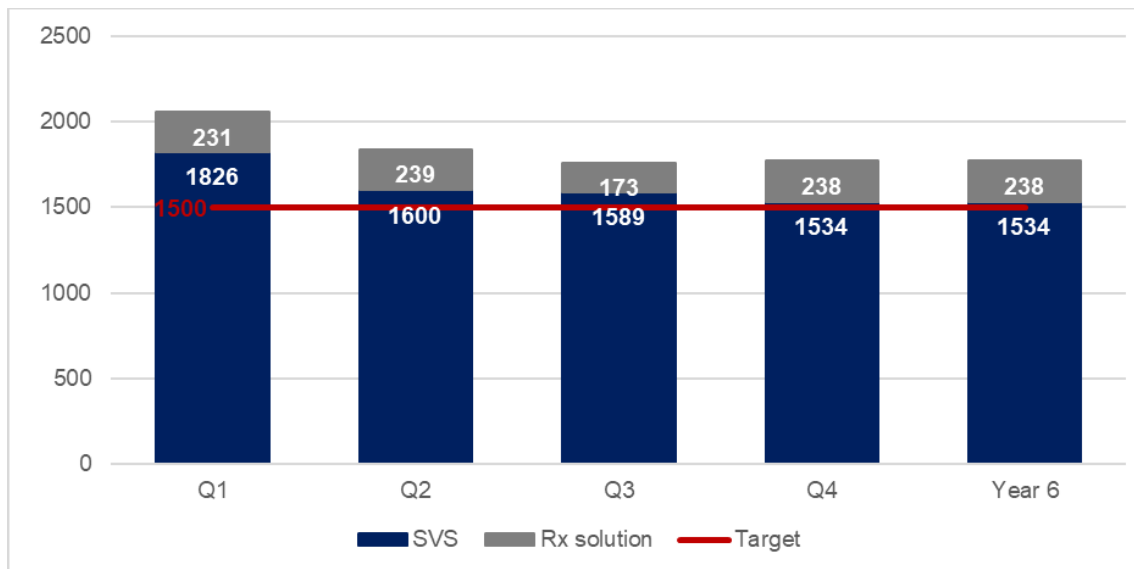


Figure 29 Disaggregation by Systems





9. SUPPORTING THE GOVERNMENT OF SOUTH AFRICA IN THE RESPONSE TO COVID-19

South Africa's first detected case of COVID-19 was identified on March 5, 2020. By the end of September 2022, a total of 4,011,385 confirmed cases of COVID-19 had been recorded in South Africa, with a recovery rate of 97.3 percent. The global COVID-19 pandemic has the ongoing potential of causing challenges in the availability of medicines used to fight HIV/AIDS, TB, and other diseases as countries such as China periodically go into lockdown, interrupting global supply chains. Over and above medicines, it is critical to limit the spread of the disease and protect both patients and health care workers.

During year 6, GHSC-TA continued to assist the NDoH in mitigating the impact of COVID-19 in South Africa on the health products supply chain and assisted in responding to the demand for medicines, PPE, and vaccines to manage the disease. During year 6, GHSC-TA provided comprehensive technical assistance to the NDoH, the provinces, the private sector, and other stakeholders in the coordination of vaccine distribution and integration of COVID-19 vaccination services into routine health services. As of September 30, 2022, just over 40.7 million COVID-19 vaccine doses had been distributed with the assistance of GHSC-TA (equivalent to 68.6 percent of doses received). 37.7 million doses had been administered, equal to 92.7 percent of doses distributed.

ACTIVITIES AND ACHIEVEMENTS

Support for the MAC on COVID-19. GHSC-TA continued to provide secretariat 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. The program worked with AMD to provide continued support in convening meetings of the MAC on COVID-19 and its technical working groups, assisting with the development of ministerial advisories, responding to stakeholder queries, communicating decisions to the Incident Management Team of the NDoH and tracking the implementation of advisories. In addition, GHSC-TA also assisted with consolidating comments on the revised COVID-19 testing guidelines and developed a MAC on COVID-19 close-out report to outline the committee's progress since its establishment in March 2020.

COVID-19 Response Team. Responding to the pandemic, AMD assembled a national and provincial COVID-19 response team. During this period, GHSC-TA continued to support AMD in regular meetings to review the demand, supply, and availability of COVID-19 related medicines and the roll-out of COVID-19 vaccines.

GHSC-TA continued to support AMD with updating the COVID-19 priority list and the related medicine forecast, enriching the forecast as required in line with the changing nature of the pandemic and anticipated medicine usage. GHSC-TA also continued to support the NDoH and PDoH with the daily refreshing of the COVID-19 dashboards. The COVID-19 dashboards provide medicine availability and reporting compliance information using product categorization determined by the COVID-19 response team. The program assisted with query resolution and the monitoring of NSC reporting compliance and medicine availability, which was presented to provincial and national stakeholders.

PERSONAL PROTECTIVE EQUIPMENT

GHSC-TA continued to provide ongoing support to overcome ongoing PPE supply, distribution, and payment challenges, acting as a link between the NDoH, National Treasury, contracted PPE suppliers and provinces to reduce supply challenges and improve PPE availability.

GHSC-TA continued to provide assistance in calculating the provincial forecast as presented on the NSC Dashboard from the IPC (Infection prevention and control) guideline.

During the reporting period, GHSC-TA continued to support monitoring the availability of PPE at health establishments by providing a monthly report for NDoH, as well as weekly provincial reports enabling stakeholders easy access to data about PPE availability.

ROLL OUT OF COVID-19 VACCINES

During year 6, GHSC-TA continued its comprehensive support to the NDoH in coordinating the COVID-19 vaccine program in both the public and the private sectors.

Supply and distribution. GHSC-TA continued to refine and improve vaccine supply, distribution, and accounting processes for both sectors. Tools and SOPs have been streamlined and make processes more effective and efficient. Activities undertaken are summarized below:

- **Vaccine Control Tower.** Established in April 2021, the Vaccine Control Tower has the sole purpose of providing COVID-19 vaccines to all eligible South African citizens, by implementing and managing the end-to-end supply chain covering both public and private sectors. GHSC-

TA not only developed the systems, processes, and procedures used for the supply chain, but did this as part of the rapid response to COVID-19 and with no established blueprint in place.

- **Multisectoral Engagements.** GHSC-TA continued to play an integral role in multisectoral engagements pertaining to vaccine distribution, site readiness, and coordination with other government departments and institutions. The team also supported AMD in giving feedback when required on the weekly meeting with the private sector groups hosted by B4SA (Business for South Africa).
- **Inbound vaccine supply.** GHSC-TA provided oversight of eleven inbound shipments of J&J vaccines (13 264 800 doses) and twenty-two shipments of Pfizer vaccine (12 202 800 doses), cumulatively amounting to a total of 25 467 600 doses.
- **Vaccine Distributor Performance Management.** GHSC-TA held weekly touch base sessions with each of the vaccine distributors. The purpose of these sessions is to review orders placed for the week, as well as resolve any logistical challenges the distributors might face in executing the delivery of orders the following week. GHSC-TA also managed monthly KPI review meetings with each vaccine distributor to evaluate performance in accordance with the contract and aid in developing improvement strategies as needed. All reports were based on a standard set of KPIs using GHSC-TA-developed templates.
- **Vaccine Distributor Contract Management.** GHSC-TA supported AMD with contract management and administration pertaining to quantifying and facilitating NDoH purchase orders to distributors, verifying and vetting monthly distributor invoices, and monitoring financial expenditure against budget, contract escalations, contract extensions and potential scope extensions.
- **NHPVS.** New enhancements were implemented for NHPVS, the COVID-19 application that collates sector-wide purchase order requisitions from delivery sites and collates orders for submission to the three vaccine distributors. Work commenced on Version VI which will facilitate better communication of vaccine orders to distributors.
- **Purchase Order Control.** During year 6, GHSC-TA supported the NDoH by collating, vetting, processing, and allocating 4,594 orders for public and private sector vaccination sites (equating to 17,511,850 doses in total).
- **Inventory Management.** GHSA-TA produces weekly reports to monitor stockholding and expiry dates. These reports allow the NDoH to communicate the extent of possible write-offs proactively. GHSA-TA coordinated two vaccine stock takes. One for the Financial Year End (March 2022), which involved the AG, and the other for the mid-year financial review (September 2022). GHSA TA provided oversight to the counts and prepared the outcome results for NDoH for use in the financial reports required.
- **Dashboards.** The ongoing update of NSC Vaccine Dashboards has improved the visibility of the GHSC-TA Vaccine Control Tower team in the supply pipeline and the demand and supply capacity to sub-district levels across public and private vaccination sites.
- **Vaccine Expiry Date and Shelf-Life Extensions.** GHSC-TA developed and assisted with communicating the outcome of the two SAHPRA approvals for the shelf-life extension and storage condition changes of the Pfizer and J&J vaccines. During this period, the Pfizer vaccine shelf life was extended twice from nine to fifteen months, and the J&J vaccine storage at 2-8°C was increased from four to eleven months.
- **Vaccine Donations.** GHSC-TA has been working with the NDoH to find and secure other African countries willing to accept donations of vaccines to mitigate the unnecessary write-off of doses due to expire.

- **Clinical Trials.** GHSC-TA coordinated the supply for four clinical trial programs representing 5,410 doses of vaccine - 2,500 J&J and the balance Pfizer.
- **Auditor-General.** GHSC-TA assisted AMD by responding to the following audits:
 - RFI 325 – Inbound vaccine shipments
 - RFI 353 - Vaccines CAATs (Computer-assisted audit tools)
 - RFI 429 - Goods and Services - Operating Expenses (HPI7 payments to the vaccine distributors)
 - RFI 439 – Contract management for vaccine manufacturers (Pfizer and Janssen).
- **World Bank Loan for COVID-19 Vaccines.** GHSC-TA supported AMD in preparing supporting documents for submission to the World Bank. The World Bank approved a €454.4 million (R7.6 billion) loan to South Africa in June 2022 for the country's COVID-19 Emergency Response Project.
- **Vaccine Redistribution.** GHSC-TA continued to assist public and private sector sites with the redistribution of vaccines to mitigate the risk of wastage. To date, 472 transactions have been submitted and approved by NDoH Finance for credit and reinvoice.
- **Vaccine Ancillary Items.** Working with both the provinces and suppliers to reduce the risk of stockouts, GHSC-TA continued to assist in resolving supply and payment difficulties for the distribution of the ancillary items needed to administer the vaccines. When supplies were constrained, the supply was managed by allocation based on the vaccine quantities supplied.
- **COVID-19 Vaccine Diluent.** In cooperation with the sourcing entity and the diluent supplier, GHSC-TA helped to organize the supply and distribution of the vaccine diluent to the Ministries of Health in Rwanda, Eswatini, and Botswana.

COVID-19 Vaccine Toolkit. In ongoing support of the COVID-19 vaccination program, as new data, information, and lessons learned become available, GHSC-TA continued supporting NDoH in developing, reviewing, and updating the COVID-19 vaccination guide and toolkit. This includes SOPs and job aids that support good practice and governance in the handling and managing of COVID-19 vaccines at sites as well as the SVS COVID-19 reporting principles. GHSC-TA participated in the training sessions for public and private sector stakeholders based on the updated COVID-19 vaccination guide and toolkit.

COVID-19 Vaccine Circulars, Standard Operating Procedures and Documents. GHSC-TA has provided technical assistance in drafting, contributing to, and reviewing multiple documents related to the COVID-19 vaccine program for DG sign-off and distribution.

ADAPT Program Support. GHSA-TA provided supply chain support in assisting Right to Care plan for the ADAPT program.

COVID-19 Integration into Routine Services. GHSC-TA began working with the EPI program team to begin incorporating COVID-19 vaccinations into routine services.

SVS COVID-19 VACCINE

Since the roll-out of COVID-19 vaccination campaign, GHSC-TA has provided extensive support to the NDoH with the use of SVS COVID-19 to monitor vaccines, ancillary items, and diluents at vaccination sites in the public and private sector, allowing for rapid access to data. During the period under review, SVS COVID-19 training materials, SOPs and job aids were augmented and/or developed. Additionally, GHSC-TA continued to collaborate closely with the service provider and advised on system related issues that enabled rectification or preventative actions. Reporting principles,

requirements and strengthening opportunities have been presented on various platforms such as the Effective Vaccine Management of COVID-19 and COVID-19 Vaccine Program Implementation Updates Webinar hosted by NDoH.

On the ground SVS support. GHSC-TA continued to provide ongoing support to ensure that new vaccination sites storing vaccines overnight were uploaded on SVS COVID-19 with the required items included on the formularies and provided ongoing support to sites experiencing technical challenges. The PST continued with targeted engagement with site staff, coordinators, and management from various groups in the public and private sectors, including distributors, to improve reporting compliance and data quality.

SVS enhancements and tools. During this reporting period, GHSC-TA continued to collaborate with the service provider on various enhancements, including the development of a *Variance Flagger*, which is used to improve data quality, a *Historic Stock Lost Reasons report*, a *Deactivated facilities stock update*, which is used to assist with identifying sites uploaded on SVS COVID-19 that can potentially be deactivated, and enhanced expiry date capturing functionality.

Integration of reporting of COVID-19 vaccine availability. With the integration of COVID-19 vaccinations into routine health care services, GHSC-TA provided extensive support for the reporting of these commodities to be integrated into the reporting of other medicines and commodities on NDoH SVS or other electronic stock management systems used in health establishments. Following impact assessment, GHSC-TA proposed reporting options to NDoH and provinces and obtained approval for the option chosen.

Other support. GHSC-TA participated in a Vaccine Reconciliation workshop which assisted in identifying gaps in the reconciliation process and system in use and providing strengthening recommendations. At the beginning of year 6, GHSC-TA commenced investigating master data discrepancies across the MFL, the system used to issue Section 22A(15) permits to vaccination sites, and SVS COVID-19. Throughout the period, GHSC-TA continued to support the issuing of Section 22A(15) permits, tracking of sites that have been uploaded on SVS COVID-19 with outstanding permits.

COORDINATION OF COLD CHAIN EQUIPMENT DONATIONS

As part of its support to the NDoH, GHSC-TA coordinated the commissioning, distribution and installation of cold chain equipment donated by Vodacom, including quantification and serialization for asset management and inclusion in asset registers. In collaboration with the PDoH delegation and Vodacom, the team coordinated the hand-over ribbon-cutting ceremonies. The donation valued at \$1 500 000 was concluded at the end of February 2022. The provincial asset management verification process is, however, ongoing, and not yet concluded. In addition, GHSC-TA managed the selection, commissioning, and operational deployment plan in partnership with UNICEF SA (the project coordinators for donor funding from Germany and Japan) for the provincial purchase of specialized cold chain equipment. By the end of January 2023, distribution, installation, and training will be complete, along with the associated asset management procedures. The value of the donation is \$5,500,000.

LESSONS LEARNED

Preparedness and response guidelines for emergencies are crucial to support a rapid and effective response to future public health emergencies. At the beginning of the COVID-19 pandemic South Africa was not adequately equipped with emergency supply chain management guidelines. Preparedness for emergencies such as pandemics includes having processes in place before the emergency occurs, with clear roles, governance structures and communication channels. GHSC-TA is supporting the development of the draft NDoH Emergency Medicines Supply Chain Preparedness and Response Guideline to document best practices in emergency supply chain preparedness and response, using learnings and experiences from the COVID-19 pandemic. The intention of this document is to provide guidelines to enable the health sector to respond rapidly and more effectively to public health emergencies in the future. Although the response to the COVID-19 pandemic in South Africa was agile and rapid, clear guidelines on the approach to the supply chain response to future emergencies will be invaluable.

The demand planning process is enabling consistency in pharmaceutical budgeting across all provinces. NDoH identified the lack of an equitable and standard process of determining the annual medicine budget including for those medicines needed to reach the 95/95/95 targets. GHSC-TA intervened by using the demand planning process to help provinces produce budgets for FY 23/24. i.e., the demand planning process implemented in provinces was used to determine future medicine needs for the following financial year FY 23/24. This led to budgets being generated using a standard process (demand planning process) thus facilitating consistency in budgeting across all provinces. This intervention will assist in reducing inconsistent budgets across provinces, which could result in deficits of needed medicines in some provinces, and a surplus in others. The demand planning process ameliorates these asymmetries, and is critical to resource allocation, improving the effectiveness of medicine delivery and helping to improve health outcomes. The demand planning process can be made sustainable by encouraging and assisting provincial officials to embrace this practice.

Quicker restoration of process or service will be achieved when key process flows are documented, archived, backed up and not overwritten. In Q4, AMD granted approval for the removal of the GPCC sites from the NSC as the program had concluded with the last data being received at the end of August. When the GPCC facilities were removed from the NSC, the dashboard refresh workflow became corrupted, resulting in downtime for this specific workbook. GHSC-TA intervened through the workflow recovery, backup, and restoration. However, the technical glitch meant that the restored flow was still not connecting to the MHPL. As a result, the flow was recreated. This challenge led to flow backups being maintained/archived. Old archive files were not overwritten with newer information. The lesson learned was that archives and backups of key process flows can dramatically reduce the time required to restore a service.

Misalignment of product identifiers can result in low medicine availability reports. The medicine depot in Mpumalanga continuously reported low levels of medicine availability. It was found that the root cause of this situation was a misalignment between the national stock numbers (NSNs) used by the depot for some products as compared to the NSN for the same product on the NSC. The depot catalog included NSN numbers that are not recognized by the NSC with these items reflecting zero stock -on-hand though they are available at the depot GHSC-TA intervened through supporting alignment of NSNs on the depot catalog to the NSNs on the MMDS. This intervention will result in improvement of medicine availability at the depot. The lesson learned was that misalignment of master data can result in inaccurate reporting of medicine availability.

FINANCIAL STATUS OF THE TASK ORDER

ANNEX I. PROGRESS SUMMARY

Table 5: Key Performance Indicator Progress Summary

| INDICATOR | REPORTING YEAR | BASELINE VALUE | YEAR 6 TARGET | YEAR 6 ACHIEVEMENT | % YEAR 6 ACHIEVEMENT |
|--|----------------|----------------|---------------|------------------------|----------------------|
| <i>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</i> | | | | | |
| KPI 1: Percentage availability of medicines at health establishments | FY22 | 78% | 90% | 86% | 96% |
| Objective 1 – Improve selection and use of medicine | | | | | |
| KPI 2: Number of medicine selection decisions made utilizing health technology assessments | FY22 | 0 | 2 | 0 (Activities on hold) | 0% |
| KPI 3: Percentage of assisted Pharmaceutical and Therapeutics Committees with improved operational capacity. | FY22 | N/A | 25% | Data not yet collected | N/A |
| Objective 2- Support optimization of the supply chain | | | | | |
| KPI 4: Percentage of antiretroviral units delivered by suppliers within contractual lead-time (supplier performance reliability – on time). | FY22 | 79% | 90% | 81% | 90% |
| KPI 5: Percentage of MHPL items on transversal contracts excluding antiretroviral units delivered by suppliers within contractual lead-time (supplier performance reliability – on time). | FY22 | 75% | 85% | 74% | 87% |
| KPI 6: Supplier performance reliability – Perfect order fulfillment for orders placed on suppliers (in-full). | FY22 | 73% | 80% | 68% | 85% |
| KPI 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. | FY22 | N/A | 70% | No longer in scope | N/A |

| INDICATOR | REPORTING YEAR | BASELINE VALUE | YEAR 6 TARGET | YEAR 6 ACHIEVEMENT | % YEAR 6 ACHIEVEMENT |
|---|----------------|----------------|---------------|--------------------|----------------------|
| KPI 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 NSC. | FY22 | 0 | 1,500 | 1,749 | 116% |
| KPI 9: Demand forecast accuracy for provinces using the demand forecasting process. | FY22 | NA | 55% | 49% | 89% |
| KPI 10: Forecast bias for pharmaceutical forecasts in provinces using the demand forecasting process. | FY22 | TBD | <+/-15% | 3% | 20% |
| KPI 11: Percentage of eligible patients transitioned from TEE to TLD. | FY22 | 0% | 100% | 90% | 90% |
| Objective 3 – Strengthen governance | | | | | |
| No KPIs scheduled to be reported | | | | | |
| Objective 4 – Improve workforce management | | | | | |
| No KPIs scheduled to be reported | | | | | |
| Objective 5 – Strengthen Information Systems and Information Management | | | | | |
| KPI 12: Percentage of users utilizing the NSC to review medicine availability trends and reports. | FY22 | NA | 80% | 64% | 80% |
| KPI 13: Number of health establishments and warehouses utilizing the MMDS as a source of master data. | FY22 | 0 | 3,200 | 3,094 | 97% |
| KPI 14: Number of health establishments using core supply chain information systems to order and/or receive stock. | FY22 | 0 | 2,600 | 778 | 30% |

| INDICATOR | REPORTING YEAR | BASELINE VALUE | YEAR 6 TARGET | YEAR 6 ACHIEVEMENT | % YEAR 6 ACHIEVEMENT |
|---|----------------|----------------|---------------|--------------------|----------------------|
| KPI 15: Reporting compliance – Number of Health Establishments Reporting Stock Availability to the NSC. | FY22 | NA | 3,840 | 3,857 | 100% |
| Objective 6 – Improve Financial Management | | | | | |
| KPI 16: Number of provinces who review their budget vs. actual as defined in the new budgeting process to support the ring-fenced budget. | FY22 | 0 | 4 | 1 | 25% |
| KPI 17: Percentage of expenditures on non-Essential Medicine List items. | FY22 | 1.60% | <10% | 5% | 50% |

ANNEX 2. SUCCESS STORIES

1. Facilitating a smooth transition to TLD.
2. Using the four pillars of replenishment planning to improve medicine availability at South African health facilities.
3. Developing a web-based COVID-19 Vaccine ordering platform.



FACILITATING A SMOOTH TRANSITION TO TLD

Updated Guidance on the Use of Dolutegravir in Pregnancy

Niqita Pieterse who has transitioned to TLD – seen here with her young family

Niqita Pieterse was young and orphaned when she contracted HIV. Adhering to life-saving antiretroviral treatment (ART) has helped this young woman have her own family. Many in Niqita's community remain afraid to test and start treatment due to misinformation and social stigma associated with HIV. Stigma occurs at many levels within society and can include isolation, ridicule, as well as physical and verbal abuse. While there have been a lot of medical advances in the treatment of HIV, misinformation persists about the treatment options available.

Niqita was also worried that the newly introduced regimens containing dolutegravir (DTG) are not safe for pregnant women and women of childbearing age due to an increased risk of neural tube defects. However, based on new evidence assessing the risks, the World Health Organisation (WHO) now recommends DTG-containing regimens as the preferred first and second-line treatment for all populations, including women who are already pregnant and those of childbearing potential. Niqita lives in

KwaZulu-Natal, which remains South Africa's province with the highest burden of HIV/AIDS, with an estimated 1.54 million people living with the disease. An efficient and effective health supply chain that assures medicine availability is critical to addressing this disease burden. Since the end of 2016, the United States Agency for International Development (USAID)-funded Global Health Supply Chain Program – Technical Assistance (GHSC-TA) has been providing technical assistance to the South African government to strengthen public health programs and the associated supply chains to advance an AIDS-free generation and contribute to the achievement of the nation's 95/95/95 targets.

In 2019, South Africa began its journey to transition 80 percent of its then 4.8 million patients on ART from the former first-line treatment—tenofovir, emtricitabine, efavirenz (TEE) — to the new fixed-dose combination of tenofovir, lamivudine, dolutegravir (TLD). Such a large-scale transition required detailed planning and coordination from numerous stakeholders. At the same time, concerns were raised regarding the safety of dolutegravir during pregnancy after preliminary results of a surveillance study in



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Botswana indicated an increased risk of neural tube defects in infants exposed to dolutegravir at conception or during early pregnancy. Further study of birth outcomes in Botswana was needed. The Nucleosides and Darunavir/ Dolutegravir in Africa (NADIA) study was designed to answer this question. The NADIA results showed that the risk of neural tube defects in pregnant women taking dolutegravir is lower than preliminary results suggested. The World Health Organization (WHO) subsequently recommended that dolutegravir be available for all women.¹

The 96-week results of the NADIA study also indicated that:

1. TLD can be recycled as a second-line treatment instead of switching to AZT (azidothymidine/ zidovudine), meaning that TLD can be used as a second-line treatment.
2. Dolutegravir is likely to maintain virological suppression even if the switch is done without previous viral load testing to identify those with treatment failure and possible nucleoside/nucleotide reverse transcriptase inhibitors NRTIs resistance.

In June 2021, in response to this study, South Africa's National Department of Health (NDoH) issued a notice providing updated guidance for the safe use of dolutegravir in pregnant women and women of childbearing age. The National Essential Medicines List Committee also reviewed the evidence for DTG compared with efavirenz in pregnancy and determined that the benefits of its use outweigh the risk. DTG was recommended as part of the preferred first-line ART regimen for all adults and adolescents living with HIV, including pregnant women and women of childbearing age.

To support the transition to DTG-containing regimens of women like Niqita, the NDoH, GHSC-TA and other implementing partners worked together to improve visibility of the

performance of the supply chain for these products, improved the use of data to strengthen analytics and decision making, and where necessary, improved existing processes. Close collaboration and consultation between the GHSC-TA team and key stakeholders is helping to make sure that stock levels of TLD and TEE at provincial depots, health establishments, and the Centralized Chronic Medicine Dispensing and Distribution (CCMDD) service providers support access to these life-saving medicines. In addition, GHSC-TA assisted with training of prescribers, community engagements, and marketing campaigns to facilitate the transition of patients to DTG-containing regimens. The GHSC-TA-supported National Surveillance Center also played a significant role in the transition, providing readily available information relating to the location and quantum of stock at all levels and making recommendations on redistribution of excess stock, where necessary.

Proactive stakeholder engagement and information dissemination drive efficient use of medicines and provide guidance on ART transition activities. With a target of achieving 85% of patients transitioned from TEE to TLD by December 2022, as of 31 August 2022, 84 percent of patients had transitioned from TEE to TLD. These numbers include Niqita, who is now an advocate on the benefits of using the new regimen for other women, especially since she wants to continue to grow her own family.



Niqita Pletse is a strong advocate of ARV treatment and uses her social media

¹ Reference: 2021/06/29/EDP/01 NOTICE- UPDATED GUIDANCE FOR THE USE OF DOLUTEGRAVIR IN PREGNANCY





Using the four pillars of replenishment planning to improve medicine availability at South African health facilities

Professional Nurse ~~Puseleho Labiso~~, Professional Nurse Samekeliswe Khumalo and Pharmacist's Assistant Prudence Sodwela

replenishing stock at a clinic in Alfred Nzo District, Eastern Cape

With the high burden of disease in South Africa, an efficient and effective health care supply chain that improves medicine availability is critical to addressing this disease burden. The majority of the population of around 60 million relies heavily on the public health system with health establishments needing optimal solutions to assist in providing a service. One of the key enablers is implementation of an improved method of replenishing stocks of medicine within clinics.

The United States Agency for International Development (USAID)-funded Global Health Supply Chain program – Technical Assistance (GHSC-TA) team developed a bottom-up replenishment planning methodology that comprises four pillars: **Formulary Management, Optimizing Minimum and Maximum (min-max) stock levels, Monitoring Performance, and Implementation of Advised Pull.**

This methodology is currently being implemented in five of South Africa's nine provinces.

These provinces are at varying stages of implementation. The GHSC-TA program works closely with the Affordable Medicine Directorate (AMD) of the National Department of Health (NDoH), to optimize supply chain processes with the aim of facilitating an uninterrupted supply of medicines through a resilient and reliable supply chain.

Pillar 1: Formulary Management

Formulary Management serves as the foundation for replenishment planning. A formulary is a regularly updated list of medicines that must be stocked and available at a health establishment to meet the needs of the population served.

The formulary is customized to align with the health care services provided at each establishment. Medicine coding is addressed at this step. GHSC-TA works to align the names and codes of medicines on the formulary to the Medicine Master Data System (MMDS). This activity helps to align medicine codes across national lists, provincial warehouse management



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systems, and electronic stock management and reporting systems.

Since computer systems transact against codes, aligning medicine names and codes ensures that when orders are placed by a facility, those orders are correctly interpreted across the supply chain. The formulary is used to assist teams to calculate min-max stock levels. GHSC-TA is collaborating with provincial stakeholders across five provinces to embed formulary management.

Pillar 2: Optimization of Minimum-Maximum stock levels

Standardized min-max calculations are applied using a methodology developed by GHSC-TA to calculate the parameters. The team uses issue data accompanied by the demonstrated lead time and procurement period to calculate the re-order points for a specific medicine at a specific facility. This allows facilities to mitigate the risk of having too much or too little stock. By having evidence-based re-order levels, standardized min-max values help shift the burden and complexity of determining re-order parameters from individuals to an electronically enabled ordering approach.

Pillar 3: Monitoring Performance

Monitoring performance provides crucial information regarding stock levels of medicine across provinces, districts, sub-districts, and individual facilities. The National Surveillance Center (NSC) has dedicated min-max dashboards developed by the GHSC-TA team highlighting critical data points and key metrics. These dashboards currently have eight views which include trend reports, stock balance reports and matrix reports from a facility and item perspective. Users can answer questions about stock positions, better foresee risks, and assess and analyse trends across facilities.

Pillar 4: Advised Pull

The final pillar of replenishment planning is Advised Pull. Advised Pull refers to a medicine ordering system that supports health establishments to proactively manage the supply

of medicines and associated spend. This process leverages off the existing technology of the Stock Availability System (SVS) 2.0 which is run on mobile devices. Advised Pull was designed by the team in collaboration with Mezzanine – the company contracted by the NDoH to develop and support SVS. Recommended quantities for each order cycle are automated using electronic devices, but still approved by accountable staff in accordance with applicable legislation.

The benefits of implementing the GHSC-TA replenishment methodology are seen at various levels. At health establishment level, replenishment planning has led to improved efficiency due to reduced time spent on stock management activities, improved and predictable ordering patterns, reduced cost of holding stock due to reduction in excess inventory, and increased stock holding accuracy. At the provincial level, replenishment planning has improved demand management and ordering patterns, improved visibility of stock levels across health establishments, and improved data quality for demand forecasting. Replenishment planning is contributing to improved resilience and reliability of the medicine supply chain, as well as process standardization and optimized management of facility spend versus budget.

Introduction of this approach is a significant innovation for provinces that rely on the effectiveness of a strengthened public health supply chain system. The successful implementation of these four replenishment planning pillars based on data analytics and enabling technology continues to optimize the supply chain with the aim of ensuring the uninterrupted supply of medicines to patients.



Replenishment Planning

Four pillars to improve **inventory management** in South Africa

4 PILLARS

1. Formulary Management
2. Optimisation of Minimum-Maximum stock levels
3. Monitoring and Performance
4. Advised Pull

5 PROVINCES

- › Eastern Cape
- › Free State
- › KwaZulu Natal
- › Mpumalanga
- › North West

8

Dashboard views dedicated to Min-Max monitoring for all facilities with configured Min-Max values.

79

Facilities with calculated Min-Max approved and uploaded onto SVS.

207

Formularies reviewed and uploaded for facilities.

45

Facilities have received training for e-ordering.



OUTCOMES

- Eastern Cape: 8 Districts with 722 facilities with formulary and Min-Max work completed and ready for upload.
- Free State: 35 facilities in Fezile Dabi district fully an e-ordering (Advised Pull).
- KwaZulu Natal: 198 facilities across five districts with finalized formularies and 155 stock calculators finalized.
- Mpumalanga: Depot catalogue and formulary work currently being worked on and stock calculators ready as soon as approval to implement is received.
- North West: Dynamic data integrity management to ensure accurate collection and processing of data from different enabling technologies (RxSolution and SVS).



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Developing a web-based COVID-19 Vaccine ordering platform

Image Stock Photo

As of October 2022, South Africa has a population of 60 million people¹. From the onset of the COVID-19 vaccination effort, there was an urgency to service this vast population with vaccines through an efficient supply chain. While daunting, vaccine distribution was a public health priority as the number of deaths from COVID-19 increased. The COVID-19 vaccine supply chain faced challenges addressing the ordering and distribution process, including maintaining an auditable paper trail and avoiding the emails initially used for vaccine orders. At its inception, there was no platform, process, or team to cope with the volume of vaccines that had to be distributed to multiple vaccination sites in different settings. In addition, the vaccine roll-out included both public and private sector stakeholders.

Together with the National Department of Health (NDoH), the United States Agency for International Development (USAID)-funded Global Health Supply Chain – Technical Assistance (GHSC-TA) program established the COVID-19 Vaccine Control Tower task team. An important innovation of this team was defining, developing, and implementing an ordering platform - the National Health Private/Public Vaccine System (NHPVS) - to improve efficiencies and cope with the volume

of vaccine orders. As of 30 September 2022, South Africa had received 55 million doses of COVID-19 vaccines. The team managed the entire ordering and distribution process of COVID-19 vaccines on behalf of the NDoH. The team developed the specifications, tested, and implemented the NHPVS in July 2021, within two months of the start of the vaccination program. The NHPVS is a web-based order management platform that collates all public and private sector purchase orders for COVID-19 vaccines and serves as an intermediary platform between the COVID-19 Vaccine Control Tower and the national vaccine distributors. It is the first ordering platform used in South Africa in both the public and private health sectors, making NHPVS an innovative technological solution. The NHPVS embraces the existing private sector ordering systems and collates orders from these various applications, allowing the private sector to order vaccines like any other product. The web portal allows public sector institutions to place orders directly on the NHPVS.

NHPVS streamlined the entire ordering process for both sectors, resulting in vaccines being distributed to vaccination sites more quickly and increasing the reach of the vaccines to a population in need. One of the most advantageous capabilities of NHPVS is its ability to maintain logs of all orders placed since the platform's inception. Details such as order dates, purchase order quantities, facility codes,

¹ Statistics South Africa



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and vaccine types are all captured and maintained in the historical logs on the system.

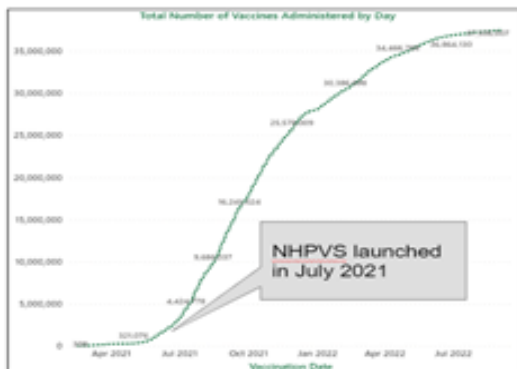


Figure 1: The Impact of the NHPVS can be linked to the Increase in vaccinations administered in South Africa

The NHPVS platform reduced the number of full-time staff required to focus on order-related activities within the control tower and enabled the team to focus on other vaccine-related activities.

Lessons Learned

Some of the lessons learned from the implementation of NHPVS are provided below.

- The NHPVS system can be implemented quickly and easily replicated in another

country or setting and used for COVID-19 vaccines or other products.

- The blueprint and logic used to develop NHPVS can be used to develop other enterprise resource planning (ERP)-like platforms/systems for optimal business performance.

The NHPVS platform is user-friendly and sustainable. It demonstrates the GHSC-TA team's successful using enabling technologies to optimize the supply chain. Its ability to maintain a historical database of all orders and deliveries enables this transactional data to be accessed at any time, audited, and used for future decision-making.

NHPVS contributed significantly to the rate of vaccinations in South Africa and was a successful display of public and private stakeholder engagement and collaboration with efficiency in vaccine distribution. NHPVS undergoes continuous improvements and enhancements, which have included additional functionalities to enable the platform to send orders to distributors in an automated fashion and allow copies of documents (e.g., invoices) to be stored on the platform. The NHPVS was key to facilitating the efficient distribution of COVID-19 vaccines to the people of South Africa and supported a resilient, and reliable health supply chain.

Figure 2: Screenshot of NHPVS - User Interface for public sector stakeholders to submit orders for COVID-19 vaccines



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