USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM
Procurement and Supply Management

FISCAL YEAR 2023

ANNUAL REPORT

OCTOBER 1, 2022 TO SEPTEMBER 30, 2023

USAID FROM THE AMERICAN PEOPLE

PEPFAR U.S. President's Emergency Plan for AIDS Relief

PMI U.S. PRESIDENT'S MALARIA INITIATIVE LED BY USAID FROM THE AMERICAN PEOPLE CDC

FISCAL YEAR 2023

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Contract No. AID-OAA-I-15-00004

The USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project is funded under USAID Contract No. AID-OAA-I-15-00004. GHSC-PSM connects technical solutions and proven commercial processes to promote efficient and cost-effective health supply chains worldwide. Our goal is to ensure uninterrupted supplies of health commodities to save lives and create a healthier future for all. The project purchases and delivers health commodities, offers comprehensive technical assistance to strengthen national supply chain systems, and provides global supply chain leadership.

GHSC-PSM is implemented by Chemonics International, in collaboration with Arbola Inc., Axios International Inc., IDA Foundation, IBM, IntraHealth International, Kuehne + Nagel Inc., McKinsey & Company, Panagora Group, Population Services International, SGS Nederland B.V., and University Research Co., LLC. To learn more, visit ghsupplychain.org.

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ACRONYMS

3HP	isoniazid and rifapentine (combination treatment for tuberculosis)
3PL	third-party logistics
4PL	fourth-party logistics
ABC	activity-based costing
ABM	activity-based management
ACT	artemisinin-based combination therapy
AHD	advanced HIV disease
AIDC	automatic identification and data capture
AL	artemether-lumefantrine
AMC	average monthly consumption
AMF	Against Malaria Foundation
API	active pharmaceutical ingredient

ARPA	American Rescue Plan Act
ART	antiretroviral therapy
ARTMIS	Automated Requisition Tracking Management Information System
ARV	antiretroviral
ASTMH	American Society of Tropical Medicine and Hygiene
BHA	Bureau of Humanitarian Assistance
BMGF	Bill & Melinda Gates Foundation
CAB-LA	cabotegravir
CAD	Consumption Anomaly Detection
CAPA	corrective and preventive action
CARISCA	Center for Applied Research and Innovation in Supply Chain-Africa
CDC	Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative

CHAZ	Churches Health Association of Zambia
CHW	community health worker
CMS	central medical store
CO2	carbon dioxide
COE	Center of Excellence
COVID-19	novel coronavirus
CPAP	continuous positive airway pressure
CRS	Catholic Relief Services
CSI	Contraceptive Security Indicators
DAP	delivered at place
DCP	decentralized procurement
DDP	delivery duty paid

DMPA	depot medroxyprogesterone acetate
DNO	diagnostic network optimization
DOT	Dispatch Optimizer Tool
DRC	Democratic Republic of the Congo
E4H	Evidence for Health
DREAMS	Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe
DTG	dolutegravir
EID	early infant diagnosis
eLMIS	electronic logistics management information system
ENAP	Every Newborn Action Plan
ePOD	Electronic Proof of Delivery
EPI	Expanded Programme on Immunization

ePL	ePackingList
EPPQ	equipment planning and placement questionnaire
EPSS	Ethiopian Pharmaceuticals Supply Service
EUV	end-use verification
FASP	forecasting and supply planning
FDC	fixed-dose combination
Fe	fumarate
FMEA	failure modes and effect analysis
FP/RH	family planning/reproductive health
FTO	Francophone Task Order
FY	fiscal year
GDSN	Global Data Synchronization Network
GHS	Ghana Health Service

GHSC-PSM	USAID Global Health Supply Chain Program-Procurement and Supply Management project
GHSC-QA	USAID Global Health Supply Chain Program-Quality Assurance project
GHSC-RTK	USAID Global Health Supply Chain Program-Rapid Test Kit project
GHSC-TA	USAID Global Health Supply Chain Program-Technical Assistance project
GIS	geographic information system
GLN	Global Location Number
GMM	General Membership Meeting
GTIN	Global Trade Item Number
HDP	hypertensive disorders of pregnancy
HEW	health extension worker
HHR	household registration
HQ	headquarters
iCCM	integrated community case management

IDIQ	indefinite delivery, indefinite quantity
IMNHC	International Maternal and Newborn Health Conference
IPT	isoniazid preventive therapy
ITP	invoice-to-pay
IUD	intrauterine device
JMS	Joint Medical Stores
KSM	key starting material
LC	letter of credit
LGA	local government area
LLIN	long-lasting insecticide-treated net
LMIS	logistics management information system
LOX	liquid oxygen
LQAG	LLIN Quality Assurance Group

LMICs	low- and middle-income countries
MCH	maternal and child health
MEDS	Mission for Essential Drugs and Supplies
MHPR	Malawi Health Product Registry
MIS	management information system
MMD	multi-month dispensing
MMV	Medicines for Malaria Venture
MNCH	maternal, newborn, and child health
MOH	Ministry of Health
MOS	months of stock
MOSAIC	Maximizing Options to Advance Informed Choice for HIV Prevention
MPA-IM	medroxyprogesterone acetate injectable contraceptive
mRDT	malaria rapid diagnostic test

MSF	Médecins Sans Frontières
MTaPS	Medicines, Technologies and Pharmaceutical Services
NFO PMU	non-field office program management unit
NMCP	National Malaria Control Programme
NSCA	National Supply Chain Assessment
POC	oral contraceptive
ONPCC	National Office for Pharmaceutical and Chemical Products
OOS	out-of-specification
ORS	oral rehydration salts
OTD	on-time delivery
OTIF	on-time, in-full delivery
pALD	pediatric abacavir/lamivudine/dolutegravir
P&L	profit and loss

PBO	piperonyl butoxide
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PLHIV	people living with HIV
PMI	U.S. President's Malaria Initiative
PO	purchase order
PPE	personal protective equipment
PPH	postpartum hemorrhage
PPMRm	Procurement Planning and Monitoring Report for malaria
PQM+	Promoting the Quality of Medicines Plus
PrEP	pre-exposure prophylaxis
PSA	pressure swing adsorption
PSBI	possible serious bacterial infection
Q	quarter

QA	quality assurance
QAT	Quantification Analytics Tool
QC	quality control
RDC	regional distribution center
RFP	request for proposal
RHSC	Reproductive Health Supplies Coalition
RO	requisition order
RTK	rapid test kit
RUTF	ready-to-use therapeutic food
SAM	Sourcing Assistance Messenger
SC	subcutaneous
SCISMM	Supply Chain Information System Maturity Model
SCM	supply chain management

SDP	service delivery point
SMO	social marketing organization
SOP	standard operating procedure
SP	sulfadoxine-pyrimethamine
SPAQ	sulphadoxine-pyrimethamine + amodiaquine
SSA	semi-synthetic artemisinin
SSNBs	small and sick newborns
SSNC	small and sick newborn care
TA	technical assistance
TB	tuberculosis
TE	tenofovir/emtricitabine
TL	tenofovir/lamivudine
TLD	tenofovir/lamivudine/dolutegravir

TMD	temperature monitoring device
TO	task order
TOM	Task Order Malaria
TPT	TB preventive treatment
TWG	technical working group
TXA	tranexamic acid
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USG	U.S. Government
VAN	Global Family Planning Visibility and Analytics Network
VL	viral load
VMI	vendor-managed inventory

VMMC	voluntary medical male circumcision
VMS	vendor-managed solutions
VSI	vendor-stored inventory
WFD	workforce development
WHO	World Health Organization
ZAMMSA	Zambia Medicines and Medical Supply Agency

EXECUTIVE SUMMARY

The USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project, funded by the U.S. Agency for International Development (USAID), is pleased to present this report summarizing our work and performance for quarter 4 (Q4) fiscal year 2023 (FY 2023). The project provides lifesaving medicines and other health commodities. GHSC-PSM builds efficient, reliable, and cost-effective supply chains to deliver these drugs and health supplies for the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the U.S. President's Malaria Initiative (PMI), USAID programs in voluntary family planning and reproductive health (FP/RH), and the Agency's program in maternal, newborn, and child health (MNCH), which share the cost of the project. This report also describes USAID's response to the novel coronavirus (COVID-19).

GHSC-PSM Life of Project Fast Facts

- Delivered more than **22.5 million patient years of HIV treatment.**
- Delivered **532 million antimalarials to treat malaria infections**
- Delivered contraceptives to country FP programs to provide an estimated potential **102 million couple-years** of protection
- Delivered a total of **$27.7 million in MNCH commodities**
- Supported **46 countries** with technical assistance

Q4 PERFORMANCE AND PROGRESS HIGHLIGHTS

INTRODUCTION: REFLECTION ON FY 2023

GHSC-PSM's vision is to, "make quality health products consistently available by leveraging data to support supply chain transformation." As evidenced throughout this report, the project continues to advance this vision, achieving several milestones in FY 2023 and contributing to USAID's progress in meeting its health area program goals.

As of Q4, GHSC-PSM has delivered health commodities valued at $5.05 billion over the life of the project. The sheer volume of medicines and products moving through this system is astonishing, requiring stronger, more resilient health supply chains that ensure an uninterrupted stream of quality health products and services for millions of people worldwide. GHSC-PSM is also proud of its track record of meeting or exceeding on-time delivery (OTD) and on-time, in-full (OTIF) delivery targets for the 21st and 20th consecutive quarters respectively, a period of about 5 years.

As availability of a broad range of data grows, in FY 2023 the project continued to promote innovative ways to mine information for insights and informed decision-making. An example of the rich data the project drew upon was the Contraceptive Indicator Survey dataset, which includes data from 63 countries since 2010. While the survey itself has been an effective tool to monitor the status of key policies and practices, the project took this a step further, conducting an analysis of historical survey data to identify correlations with contraceptive prevalence, a strong determinant of health impact. This will help countries and global partners to prioritize those activities most likely to yield health benefits.

A downstream example of a tool assisting in day to day supply chain management is the Dispatch Optimizer Tool (DOT) that the project deployed in Zambia. DOT aggregates and processes data to assist distribution operations staff to continually adapt routes to changing factors, giving them visibility into facility order volumes, vehicle availability, driver availability, and seasonal road conditions. Staff in Zambia use the tool weekly for transportation planning and facilitate dispatches to all regional hubs and about 1,950 last-mile health facilities.

The project also undertook initiatives to deepen the way that countries monitor the performance of third-party logistics (3PL) service providers in country by including key performance indicators (KPIs) in service contracts (such as in Uganda) and by piloting KPI dashboards in Angola and the Democratic Republic of Congo (DRC).

Another major FY 2023 initiative was to contribute to the advancement of USAID's regionalization goal to promote Africa-based manufacturing and reduce dependence on imported health commodities. In Q3, GHSC-PSM hosted a regionalization workshop that brought together USAID, key participants in the global health supply chain sector, and all four task orders to discuss the critical considerations, challenges, opportunities, and suggested steps to realize this goal. Following the workshop, the project further refined its sourcing strategies for opportunities to procure through African manufacturers and wholesalers. This resulted in a creation of a weighted criterion for malaria supplier evaluation that prioritized Africa-based manufacturers and added a new African manufacturer to the project's strategic sourcing contract. In further alignment with the regionalization goal, FP/RH, and MNCH task orders jointly published a brief on the role of domestic wholesalers.

As evidenced throughout this report, GHSC-PSM achieved several milestones in FY 2023. Examples include:

- Added new innovator products to the catalog, working with global partners to introduce and scale up these products such as hormonal intrauterine devices (IUDs), subcutaneous depot medroxyprogesterone acetate (DMPA-SC), and cabotegravir (CAB-LA).

- Designed open source analytics tools for timely decision making and published them on Github. Examples include a shipment planning tool developed for Nigeria and a consumption anomaly detection tool developed for Zambia that was further expanded to Liberia and Malawi.

- Promoted the adoption of global standards in nine countries to reduce costs, enhance efficiency, and improve the availability of health commodities in public health supply chains. Published two GSI resources, *Technical Report: GS1 Global Location Number in Global Health* and GS1-Enabled Automatic Identification and Data Capture (AIDC) SOP Booklet.

- Promoted adoption of the Quantification Analytics Tool (QAT) by other global organizations. For example, the project received an expression of interest from the Global Fund in Gambia and began working with United Nations Children's Fund (UNICEF) to pilot QAT for supply planning of nutrition products.

- Implemented vendor-managed solutions with three antiretroviral (ARV) manufacturers holding inventory in Southern Africa and thereby reducing lead times and risk.

- Implemented a new vendor-stored inventory (VSI) strategy for first-line malaria treatment that was instrumental in fulfilling urgent orders during the year, proving to be a critical rapid fulfillment mechanism.

- Achieved a 43 percent price decrease against the median price of a 90-count bottle of TLD since procurement of the commodity began in 2019, equating to a first-line HIV treatment for an average cost of under $40 per person, per year.

- Completed several activities included in the FY 2023 HIV Task Order Technical Directive Memo through cross-cutting collaboration across the global supply chain and health systems strengthening teams, resulting in expanded vendor-managed solutions and more than 60 percent of ARV orders processed as D-Terms.

High-level officials were also interested in seeing the project in action. GHSC-PSM received and facilitated visits to:

- **Botswana**: A Congressional delegation and Maria Price Detherage, Deputy Assistant Administrator for Africa Bureau
- **Cameroon**: Dr. John Nkengesong, U.S. Global AIDS Coordinator from PEPFAR
- **Eswatini**: Ralph Titus, Phetsile Dlamini, GHSC-PSM'sTech Advisor for Eswatini, and Lesotho's National Drug Service Organization met with the Prime Minister, Principal Secretary, Cabinet and Ministry of Health of Eswatini
- **Namibia**: Tamera Cox, Deputy Principal from the Office of the U.S. Global AIDS Coordinator and Health Diplomacy (OGAC)
- **Zambia**: Dr. David Walton, PMI Coordinator

FY 2023 was not without its challenges. Inflation, political unrest, civil strife, extreme weather, and other unforeseen events tested the public health supply chain. The project continued to identify creative ways to surmount these challenges, including strengthening its relationships with local and global partners to ensure a continuous supply of products reach the people that need them most. For example, in Burkina Faso, GHSC-PSM subcontracted with a local NGO and provided it with capacity strengthening support, making it possible for the NGO to distribute on a larger scale and meet country needs. In Niger, GHSC-PSM is working with third-party logistics providers to prevent delays using alternate shipping routes and increasing air shipment for upcoming orders to prevent stockouts. This resilience is a testimony to the adaptability of the project's teams across the globe, and the strength of its relationships within countries as well as its suppliers, and logistics partners.

In FY 2024, GHSC-PSM will continue building on the initiatives highlighted in this report, with a vision of increasing countries' stewardship of their own supply chains, greater private sector engagement, more

commodities sourced from Africa and enhanced use of data to drive decision making at all levels of the supply chain.

TRANSITION PLANNING FOR NEXTGEN

GHSC-PSM continues to make progress in deploying transformative supply chain solutions while laying a strong foundation for a successful transition to the USAID Next Generation Global Health Supply Chain (NextGen) projects. Preparing for this transition was a focus area in FY 2023. Activities included conducting after-action reviews with countries that have already completed transition and closeout activities to document lessons learned, assembling a headquarters (HQ)-level inventory of information assets and convening a Global Supply Chain Transition Working Group with USAID to conduct regular deep dives into transition planning.

In Q3, the project hosted Country Directors in the Chemonics Washington office with 35 country representatives to prepare and discuss transition planning. In Q4, GHSC-PSM introduced templates for FY 2024 work plan country transition plans. The project also developed a model for post-project office support needed to cover headquarters support to countries in the gap between GHSC-PSM country office closures and completion of global procurement activities. The project routinely met with USAID in various transition working groups in which the teams furthered the development of HQ- and country-level data asset and intellectual property inventories, discussed country warehouse capacity, decentralized procurement, and sourcing transitions, among other topics to coordinate transition planning and risk mitigation.

GLOBAL SUPPLY CHAIN PERFORMANCE

Section C1 describes GHSC-PSM's global supply chain procurement and logistics activities and achievements. Highlights of the project's global supply chain performance in Q4 are below.

Delivered over $148.9 million in drugs, diagnostics, and health commodities in Q4, and over $5.05 **billion** to date.

Achieved OTD[1] of 88 percent and OTIF of 89 percent in Q4.

Additional delivery results, including OTIF, are discussed in each health area section.

[1] The project's delivery window is –14/+7 days. With this window, deliveries are considered on time if they are made within the period 14 days before or seven days after the agreed-to delivery date.

Exhibit 1. Monthly Indefinite Delivery, Indefinite Quantity (IDIQ) OTD

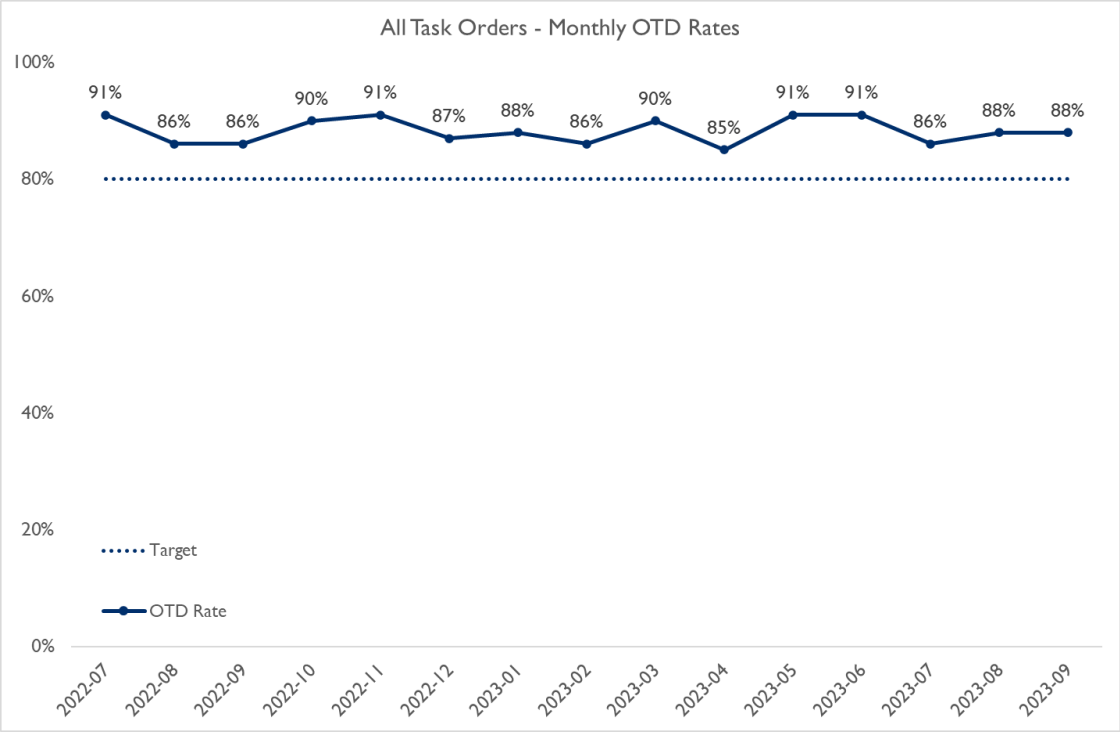
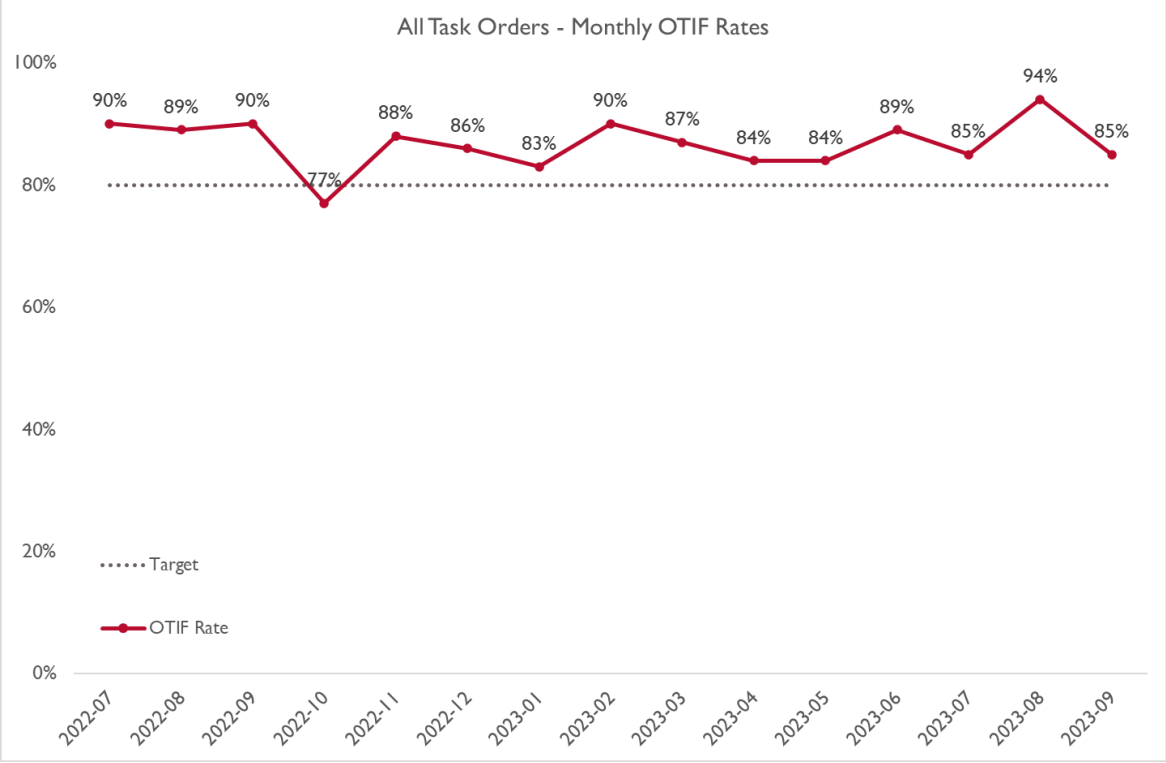


Exhibit 2. Monthly IDIQ OTIF



GHSC-PSM routinely conducts root-cause analyses of late deliveries to refine procurement and supply chain processes and continuously improve performance.

COST SAVINGS ON MEDICINES AND HEALTH COMMODITIES

GHSC-PSM conducts regular and detailed analysis to understand the markets for the medicines and health commodities we procure and to bring this knowledge to negotiations with suppliers. Through careful negotiation of long-term contracts with suppliers for major product groups including viral load testing, the project has saved $703 million on commodities over the life of the project, including $118 million in FY 2023. For more information, see section C1.

To produce long-term value and sustainability, GHSC-PSM achieved these cost savings by working to ensure suppliers maintain their interest in the market and by expanding the number of suppliers in many commodity categories, so the U.S. Government can benefit from a competitive supplier base. Additional savings also accrued as prices for these commodities rose more slowly than the general rate of inflation. This analysis is provided in section C1b.

COST SAVINGS ON LOGISTICS

GHSC-PSM saved $21.9 million on logistics in FY 2023 and $147.6 million over the life of the project. Cost savings are realized through :

- Open competition in freight lanes
- Optimization of the regional distribution center (RDC) network
- Strategic packing to reduce shipping costs
- Shipping of malaria commodities by ocean over air

See section C1b. Global Supply Chain for details.

HEALTH AREAS

GHSC-PSM provides procurement services and technical assistance to strengthen supply chains and promote global collaboration for HIV/AIDS, malaria, FP/RH, MNCH, and emerging health threat programs. Highlights of project achievements in Q4 FY 2023 are provided below.

HIV/AIDS

GHSC-PSM has **delivered enough antiretroviral therapy to provide more than 22.5 million patient years of HIV treatment to date.**

This includes over **17.6 million patient years of TLD treatment delivered to date.**

In FY 2023, the project used HIV/AIDS funds to support PEPFAR's goals to control the HIV/AIDS epidemic by ensuring an uninterrupted supply of HIV/AIDS prevention, treatment, and viral load testing commodities at all levels; implementing technical assistance and systems strengthening initiatives to promote country ownership of the HIV/AIDS response; participating in global policy dialogues; creating and disseminating global resources; supporting health supply chain research; and modifying supply chain data tools to improve procurement, management, availability, and quality of health commodities.

GHSC-PSM achieved OTD and OTIF. In Q4**,** the project continued to achieve OTD and OTIF above the target of 80 percent (87 percent OTD and 87 percent OTIF).

Impact indicators. Averted an estimated 40,000 deaths and more than 149,000 infections due to USAID support through the project in FY 2023, a total of 390,000 deaths and 1.36 million infections over the life of the project, highlighting the direct impact of the project's commodity procurements.

Delivering pre-exposure prophylaxis (PrEP). Delivered PrEP to 13 countries, totaling more than 1.6 million bottles in Q4. GHSC-PSM also shipped PEPFAR's first-ever order of the long-acting injectable PrEP product CAB-LA.

Delivering condoms. In FY 2023, GHSC-PSM delivered 453 million male condoms, 3.9 million female condoms, and 21.9 million lubricants to 28 countries in Africa (24), Asia (2), Europe (1), and Latin America and the Caribbean (1). More than 90 percent of the total volume of delivered condoms and lubricants was for African countries. The project achieved FY 2023 work plan objectives focused on expanding available condom production capacity within the portfolio. The project also published the Annual Comprehensive Agency Report on Condoms and Lubricants for FY 2022.

Delivering voluntary medical male circumcision (VMMC) kits. Delivered enough VMMC kits and devices to allow for up to 1 million male medical circumcision procedures across seven countries.[2]

Providing tuberculosis preventative treatment. Since 2018, GHSC-PSM delivered more than 7.9 million tuberculosis (TB) preventive treatment (TPT) courses to 19 countries on behalf of USAID, contributing to PEPFAR's goal of increasing TPT coverage for people living with HIV (PLHIV).[3]

Increasing private sector involvement in ARV delivery. Delivered 68 percent of eligible ARV purchase order lines released to suppliers under modified delivery duty paid (DDP) Incoterms, above the FY 2023 work plan target of 50 percent. GHSC-PSM targeted delivering D-Term orders to at least two countries in FY 2023, and exceeded this target by delivering 100 percent of D-Term ARV orders to five countries in 2023.[4]

Advancing the vendor-managed solutions (VMS) program. The project achieved significant milestones within its VMS program in FY 2023. All three eligible VMS suppliers pre-positioned 90-count bottles of TLD within their quality-assured bonded warehouses in South Africa for the first time. Apart from GHSC-PSM delivering TLD to Mozambique and Zambia from VMS warehouses, the Global Fund also benefited

[2] Eswatini, Malawi, Mozambique, Namibia, Tanzania, Uganda, and Zimbabwe.

[3] Angola, Burundi, Cameroon, DRC, Côte d'Ivoire, Ethiopia, Haiti, Kenya, Lesotho, Mozambique, Namibia, Nigeria, Rwanda, South Sudan, Eswatini, Tanzania, Uganda, Zambia, and Zimbabwe.

[4] Kenya, Nigeria, Tanzania, Uganda, and Zimbabwe.

from the VMS program when a VMS supplier urgently filled a Global Fund TLD order for Mozambique from their VMS warehouse.

Providing TLD and multi-month dispensing. Delivered more than 9 million bottles of TLD to 21 countries in FY 2023, 8 million of which were 90-count bottles and the remainder 180-count bottles.[5]

Transitioning to dolutegravir (DTG) 10 mg. Delivered more than 3.4 million bottles of DTG 10 mg valued at $15.4 million to 25 countries over the life of the project.[6]

Implementing viral load/early infant diagnosis (VL/EID) awards. Delivered 8.8 million VL/EID tests, representing $97.4 million spent and $25.3 million saved under the terms of the global service-level agreements compared to 2019 pre-global request for proposal (RFP) prices. Total savings for GHSC-PSM and other PEPFAR buyers since 2020 compared with pre-RFP prices are more than $137 million. GHSC-PSM executed updated global service-level agreements (SLAs) with three global diagnostics manufacturers to contractually document new all-inclusive pricing and service terms for Wave-2 PEPFAR-supported countries.[7]

Procuring viral load and laboratory supplies. Delivered VL/EID reagents and consumables to 21 countries.[8]

For more information, see section B1: HIV/AIDS.

MALARIA

GHSC-PSM has **delivered over $1.2 billion** in malaria medicines and commodities to 30 countries over the life of the project.

In Q4, GHSC-PSM delivered **23 million treatments** for malaria and **532 million over the life of the project.**

In Q4, GHSC-PSM **delivered 15 million** long-lasting insecticide-treated nets (LLINs) to 12 countries and **292 million** over the life of the project, potentially protecting **584 million people.**

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[5] Angola, Benin, Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, DRC, Eswatini, Gabon, Guatemala, Haiti, Honduras, Kenya, Mozambique, Nigeria, Panama, Tanzania, Togo, Uganda, Zambia, Zimbabwe.

[6] Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, DRC, Côte d'Ivoire, El Salvador, Eswatini, Ethiopia, Gabon, Haiti, Kenya, Mozambique, Namibia, Nigeria, Panama, Rwanda, Tanzania, Togo, Uganda, Ukraine, Zambia, and Zimbabwe.

[7] Wave-2 countries are AFRICA: Angola, Benin, Botswana, Burundi, Burkina Faso, Cameroon, Côte d'Ivoire, DRC, Eswatini, Ethiopia, Ghana, Lesotho, Liberia, Malawi, Mali, Namibia, Rwanda, Senegal, Sierra Leone, South Sudan, Togo, Zimbabwe; ASIA & EUROPE: Cambodia, India, Indonesia, Kazakhstan, Nepal, Papua New Guinea, Philippines, Thailand, Ukraine, Vietnam; LATIN AMERICA & CARIBBEAN: Bahamas, Brazil, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama.

[8] Angola, Benin, Burkina Faso, Burundi, Cameroon, Cote d'Ivoire, DRC, Eswatini, Ethiopia, Guatemala, Haiti, Honduras, Kenya, Mozambique, Nepal, Nigeria, Senegal, Tanzania, Togo, Zambia, and Zimbabwe.

In Q4 FY 2023, the project used malaria funds to engage suppliers and expand market capacity for LLINs, promoted activities to reduce or mitigate stock risks, fostered the quality of malaria commodities, and added a scenario/sensitivity analysis to the modeling tool for inventory management in low-malaria-endemic settings that now enables users to compare the outcomes of multiple scenarios. Other goals GHSC-PSM met for the malaria program included:

Achieving OTD and OTIF. Continued to achieve OTD and OTIF at or above the target of 80 percent (87 percent OTD and 88 percent OTIF).

Engaging suppliers Hosted in-person and virtual meetings with suppliers of malaria rapid diagnostic tests (mRDTs), LLINs, and pharmaceutical products. In Q4, GHSC-PSM started extending sourcing contracts to a wider pool of Africa-based manufacturers and making known its intentions to grow its supplier base in Africa, so that suppliers could position themselves to meet the World Health Organization prequalification standards.

Expanding market capacity for LLINs. Reviewed the eligibility of three pharmaceutical products and found the products eligible for procurement.

Implementing quality assurance (QA) strategies and innovations. As part of the strategy to drive procurement and manufacturing regionally from the continent of Africa, the project collaborated with other global procurers and QA teams to gain an understanding of potential quality issues in products that the project seeks to procure, and set QA stipulations in place to avoid them. For more information, see Section C3, Global Collaboration.

Fostering quality in malaria products. Submitted a survey to existing LLIN suppliers to obtain critical information on the correlation between an LLIN's lifespan and its packaging. The project also initiated a risk-based analysis, using the failure modes and effect analysis (FMEA) tool, to evaluate whether two artemisinin-based oral products currently in its portfolio can be eligible for further randomized/reduced testing.

Identifying successful supply chain workforce development (WFD) activities: Drafted a report on the assessment of workforce development activities conducted in Malawi for internal review.

Testing an inventory management modeling tool for low-malaria-endemic settings. In response to country office feedback from Q3, in Q4, the project added scenario/sensitivity analysis to make the tool more user friendly and to aid in decision making.

Producing technical resources. Published the malaria community health worker (CHW) supply chain advocacy paper "Effective Community-Level Supply Chains for iCCM and Malaria" and produced the Malaria Commodity Accountability Guidebook and associated tools.

For more information, see section B2: Malaria.

FP/RH

Over the life of the project, GHSC-PSM has delivered contraceptives to country FP programs estimated to **provide a potential 102 million couple-years of protection**.

This includes **3.0 million couple years of protection** in Q4.

In Q4, the project used FP/RH funds to document and share project-supported research, expand contraceptive choice, participate in global dialogues, support initiatives to increase supply chain visibility, improve stakeholder collaboration, expand access to data tools to improve visibility for supply chain management, and engage social marketing organizations among other activities. Other FP/RH goals GHSC-PSM reached in Q4 include:

Achieving OTD and OTIF. Delivered 85 percent of FP/RH commodities on time and 81 percent on time and in full in Q4.

Implementing green packaging recommendations. Delivered the project's first order of medroxyprogesterone acetate injectable contraceptive (MPA-IM) 20 packaging configuration to Zambia.

Sharing best practices and lessons learned. The project launched a utilization survey for USAID Mission and GHSC-PSM country staff to understand how the Country Procurement Impact Briefs are used as an advocacy tool in countries and to inform future iterations of the briefs. GHSC-PSM also translated the Angola and Mozambique Impact Briefs into Portuguese and published them on the GHSC website. This marked the first time the Impact Briefs were available in Portuguese.

Enhancing the visibility of FP/RH supply data. Continued to improve FP/RH supply data visibility through the Global Family Planning Visibility and Analytics Network (VAN) platform and processes and trained partners in Liberia and Rwanda to use QAT and VAN to forecast and manage supplies.

Tracking contraceptive security. Rolled out the 2023 Contraceptive Security Indicators survey in more than 40 countries in Q4, achieving a 70 percent completion rate. GHSC-PSM anticipates receiving approximately 80 percent of surveys distributed.

Logistics landscape tracker for government and parastatal outsourcing. GHSC-PSM conducted a landscape analysis and created a tracker indicating government and parastatal outsourcing of supply chain services, either as the financier or contract holder. In Q4, the project presented the landscape analysis findings at several events, including the Promoting Results and Outcomes through Policy and Economic Levers (PROPEL) Health advocacy meeting and the PMI/PSM malaria meeting.

For more information, see section B3: Family Planning and Reproductive Health.

MNCH

The project published **five major MNCH resources** in FY 2023 and refactored **data analytics**

tools for advanced MNCH supply chain problem solving in **six project-supported countries**.

GHSC-PSM has procured over $28 million in MNCH drugs and commodities over the life of the project.

In FY 2023, GHSC-PSM used MNCH funds to document and share new MNCH supply chain information and data, including on newborn equipment and supplies, commodity financing strategies, and commodity availability for two areas of pregnancy risk—hypertensive disorders of pregnancy (HDP) and postpartum hemorrhage (PPH). The project also provided tailored support to countries to procure MNCH commodities, adjust MNCH supply chain policies and operations, improve supply chain data analysis capabilities for MNCH, and improve warehouse operations. Other MNCH activities in Q4 include:

Achieving on-time delivery. In Q4, MNCH OTD was 97 percent and OTIF was 100 percent.

Procuring MNCH commodities. Supported delivery of MNCH commodities to six countries in FY 2023, including an emergency delivery to address the cholera outbreak in Haiti. The project contracted with two local suppliers of child nutrition commodities in Nigeria; one supplier completed its first deliveries of 39,360 cartons to three states in Q4.

Supporting maternal health. In Q4, the project shared its technical leadership in multiple maternal health fora, including by facilitating a safe blood transfusion discussion at the PPH Hemorrhage Community of Practice Annual Meeting and leading two PPH workshops in Nigeria and Guinea. The project had also presented its Ghana HDP commodity assessment results at the Center for Applied Research and Innovation in Supply Chain (CARISCA) Summit earlier in FY 2023. Finally, in Q4, the project documented successful strategies for increased country financing of maternal health commodities in Ethiopia.

Supporting child health. Worked closely with partners in FY 2023 to develop, publish and disseminate a Call to Action to reduce child mortality from severe infections by increasing access to several key commodities.

Supporting newborn health. The project engaged and shared expertise with global partners at several policy dialogues focused on newborn health in FY 2023—on small and sick newborn care (SSNC) policies in Ethiopia and Ghana, on global financing of newborn care, and by working with partners to review six countries' newborn guidelines to ensure alignment with WHO equipment recommendations. The project also led discussions on newborn respiratory supplies at the International Maternal and Newborn Health Conference (IMNHC), presenting results from its newborn supplies assessment in Ghana. The report on this assessment was completed in Q4.

Providing MNCH supply chain support. The project provided MNCH supply chain support to 15 countries in FY 2023. Among these countries, six conducted the end-use verification (EUV) survey during this period. Each country uses this data to address gaps and challenges that impact availability and quality of MNCH commodities, and to create and implement solutions. Equipped with years of EUV data, seven project-supported countries had improved oxytocin cold chain storage by FY 2023. Project-supported countries are using other data tools to identify and address MNCH stock challenges. To support use of these tools, the project refactored country-recommended tools and helped six countries implement them. GHSC-PSM also drafted its Center of Excellence field guide to optimize warehouse operations in FY 2023.

For more information, see section B4: Maternal, Newborn and Child Health.

STRENGTHENING HEALTH SYSTEMS

GHSC-PSM's strategic goal is for every country to have a locally led health supply chain that is integrated, optimized, accountable, agile, lean, and able to sustainably supply quality products to all citizens. The project currently manages 29 country or regional offices, supplemented by headquarters-based experts; these offices provide wide-ranging technical assistance to strengthen national health supply chains.

Country highlights:

- In **Haiti, Nepal, Eswatini, and Kenya**, provided in-person training to strengthen capacity in forecasting and supply planning using the QAT tool. Participants included staff from ministries of health and supply chain implementing partners. (See section C2.)

- In **Cambodia, Laos, Malawi, and Thailand,** developed and facilitated the transition of analytic tools to in-country project teams. These tools improve efficiencies in warehouse management and are designed within each country's context while ensuring that the tools are repeatable, reusable, and adaptable so countries can repurpose them in a way that encourages and improves self-reliance.

- In **Zimbabwe**, installed temperature monitoring devices at six NatPharm warehouses following a temperature and humidity mapping at all six sites. The project also built the capacity of NatPharm staff to monitor and manage temperature conditions and ensure compliance with WHO standards for warehouse management practices.

- In **Ghana**, worked with two regional warehouses to review their second profit and loss (P&L) statement as part of the activity-based costing/activity-based management (ABC/ABM) implementation. These P&L statements provide detailed visibility into warehouse operational expenses and insights for improving resource planning.

For more information, see section C2: Systems Strengthening Technical Assistance.

Introduction

A1. BACKGROUND

The U.S. Agency for International Development (USAID) Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project works to ensure uninterrupted supplies of quality medicines and commodities to save lives and to create a healthier future for all. The project directly supports the following global health areas of importance to the U.S. Government (USG):

- The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) to help reach its HIV/AIDS global 95-95-95 testing, treatment, and viral-load suppression targets.
- The U.S. President's Malaria Initiative (PMI) to reduce malaria deaths and substantially decrease malaria morbidity toward the long-term goal of elimination.
- USAID's Family Planning and Reproductive Health (FP/RH) program to ensure that key RH commodities are available for safe and reliable voluntary family planning.
- USAID's maternal and child health (MCH[9]) program to prevent child and maternal deaths.
- Other public health threats as they emerge, with support for Zika and novel coronavirus (COVID-19) at this time.

The project procures and delivers medicines and commodities, offers comprehensive technical assistance (TA) to strengthen national supply chain systems, and provides global supply chain leadership to ensure that lifesaving health supplies reach those most in need. GHSC-PSM procured commodities or provided TA to more than 70 countries over the life of the project (see Exhibit 3 below).

A2. ABOUT THIS REPORT

We are pleased to present our performance report for quarter 4 (Q4) fiscal year 2023 (FY 2023) (October 1, 2022, through September 30, 2023). GHSC-PSM is a matrixed project that integrates work across two axes: health areas and technical objectives. Accordingly, the report is organized as follows:

- Section B summarizes major activities in each of the **five health areas**, including HIV/AIDS; malaria; FP/RH; maternal, newborn, and child health (MNCH); and other public health threats.
- Section C describes activities under **three main technical objectives** (global commodity procurement and logistics, systems strengthening, and global collaboration), including key indicator results for those objectives.

[9] To clarify, the program externally is referred to as the "Maternal and Child Health Program," which was the impetus to name the task order the "Maternal and Child Health" task order. However, we often refer to maternal, newborn, and child health when discussing the technical content because we have a particular emphasis on supporting newborns.

- Annex A describes the activities GHSC-PSM has undertaken with **COVID-19 funding** to respond to the pandemic.

- Annex B provides **performance indicators** for July 1, 2023, through September 30, 2023, with some indicators for October 1, 2022 through September 30, 2023.

Given the size and complexity of GHSC-PSM, this report summarizes its primary efforts and achievements. It reflects only a fraction of the project's efforts each day to help people around the world live healthier lives.

Exhibit 3. Countries for Which GHSC-PSM Procured Commodities (proc.) or Provided TA Over the Life of the Project (does not include COVID-19 procurements)[10]

	Proc.	TA		Proc.	TA
AFRICA:			ASIA:		
Republic of Angola	●	●	Islamic Republic of Afghanistan	●	
Republic of Benin	●		People's Republic of Bangladesh	●	
Republic of Botswana	●	●	Union of Burma	●	●
Burkina Faso	●	●	Kingdom of Cambodia	●	●
Republic of Burundi	●	●	Republic of Indonesia		●
Republic of Cameroon	●	●	Lao People's Democratic Republic	●	●
Democratic Republic of the Congo (DRC)	●		Nepal	●	●
Republic of Côte d'Ivoire	●		Islamic Republic of Pakistan	●	●
Kingdom of Eswatini	●	●	Independent State of Papua New Guinea	●	●
Federal Democratic Republic of Ethiopia	●	●	Republic of the Philippines	●	
Republic of Ghana	●	●	Kingdom of Thailand	●	●
Republic of Guinea	●	●	Socialist Republic of Vietnam	●	●
Republic of Kenya	●	●	LATIN AMERICA & CARIBBEAN:		
Kingdom of Lesotho	●	●	Antigua and Barbuda	●	
Republic of Liberia	●	●	Commonwealth of the Bahamas	●	
Republic of Madagascar	●	●	Barbados	●	●
Republic of Malawi	●	●	Federative Republic of Brazil	●	
Republic of Mali	●	●	Republic of Chile	●	
Islamic Republic of Mauritania	●		Republic of Colombia	●	
Republic of Mozambique	●	●	Dominican Republic	●	
Republic of Namibia	●	●	Republic of Ecuador	●	
Republic of Niger	●	●	Republic of El Salvador	●	●
Federal Republic of Nigeria	●	●	Republic of Guatemala	●	●
Republic of Rwanda	●	●	Co-operative Republic of Guyana	●	●
Republic of Senegal	●		Republic of Haiti	●	●
Republic of Sierra Leone	●	●	Republic of Honduras	●	●
Republic of South Africa	●		Jamaica	●	●
Republic of South Sudan	●	●	Republic of Panama	●	●
United Republic of Tanzania	●		Republic of Paraguay	●	
Togolese Republic	●		Republic of Peru	●	
Republic of Uganda	●	●	Federation of Saint Kitts and Nevis	●	
Republic of Zambia	●	●	Saint Lucia	●	
Republic of Zimbabwe	●	●	Saint Vincent and the Grenadines	●	
EUROPE & EURASIA:			Republic of Suriname	●	●
Republic of Kazakhstan	●		Republic of Trinidad and Tobago	●	
Kyrgyz Republic	●	●	MIDDLE EAST:		
Republic of Tajikistan	●	●	Hashemite Kingdom of Jordan	●	
Ukraine	●		Republic of Yemen	●	

[10]Procurement and technical assistance country count criteria have been refined and clarified. Country counts may vary from previous reports. Procurement countries include all countries for which GHSC-PSM has released a purchase or distribution order during the life of the project. The table below includes these countries for all routine product groups, with COVID-19 procurements excluded. Technical assistance countries include all countries where GHSC-PSM has conducted long- or short-term technical assignments, for all health areas. Countries with limited in-country logistics support only are not counted.

PROGRESS BY HEALTH AREA

This section summarizes GHSC-PSM's support in Q4 FY 2023 for HIV/AIDS; malaria; FP/RH; maternal, MNCH; and other public health threats.

B1. HIV/AIDS

GHSC-PSM has delivered enough antiretrovirals (ARVs) to provide more than **22.5 million patient years of HIV treatment over the life of the project**, including over **503 thousand patient years of treatment in Q4**.

To date, GHSC-PSM has delivered over **85.8 million bottles of tenofovir/lamivudine/dolutegravir (TLD)**[11] to 34 countries, which provided over **17.6 million patient years of treatment**.

Multi-month dispensing (MMD) of packages of TLD first-line treatment accounted for **100 percent of all quantities delivered** in Q4. Patients saved **an estimated 4.2 million trips** to the pharmacy in Q4 and **more than 125 million trips over the life of the project.** MMD saves patients time and money and gives clinicians more time with other patients in need.

In Q4, **29 countries**[12] procured HIV/AIDS medicines and commodities through GHSC-PSM**.**

28 countries[13] **received health supply chain systems strengthening** from GHSC-PSM with HIV/AIDS funding in FY 2023.

GHSC-PSM supports PEPFAR's goal of controlling the HIV/AIDS epidemic by procuring and delivering medicines and commodities to prevent infection and treat PLHIV, including viral load testing commodities to monitor treatment efficacy. This requires global collaboration with suppliers, other donors, the Global Fund, the USG, and supported country governments. GHSC-PSM implements data visibility initiatives to appropriately procure and distribute ARVs and diagnostics, linking patients with necessary health

[11] This total figure for TLD delivery includes 54.1 million 90-count bottles, 28 million 30-count bottles, and 3.4 million 180-count bottles. For more information, see Section B1. HIV/AIDS, TLD, and multi-month dispensing.

[12] GHSC-PSM procured HIV/AIDS commodities for the following countries: AFRICA: Angola, Benin, Burkina Faso, Burundi, Cameroon, Democratic Republic of Congo (DRC), Côte d'Ivoire, Eswatini, Ethiopia, Ghana, Kenya, Liberia, Malawi, Mozambique, Namibia, Nigeria, Senegal, Tanzania, Togo, Uganda, Rwanda, Zambia and Zimbabwe; CARIBBEAN: Haiti; CENTRAL/SOUTH AMERICA: Guatemala, Honduras and Panama; EUROPE & EURASIA: Ukraine; ASIA: Philippines.

[13] GHSC-PSM has provided HIV-funded TA support to the following countries in FY 2023: AFRICA: Angola, Botswana, Burkina Faso, Burundi, Cameroon, Eswatini, Ethiopia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mali, Mozambique, Namibia, Nigeria, Rwanda, Sierra Leone, Uganda, Zambia, Zimbabwe; ASIA: Myanmar, Indonesia; CARIBBEAN: Haiti, Honduras; CENTRAL/SOUTH AMERICA: El Salvador, Guatemala, Panama. Additional short-term assistance was provided in Jamaica.

commodities. Project activities support USAID's efforts to achieve 95-95-95 goals: 95 percent of PLHIV people know their status, 95 percent of these are on HIV treatment, and 95 percent of these have no detectable virus.

REFLECTIONS ON FY 2023

This year, PEPFAR marked the 20th anniversary of delivering an unprecedented impact on the global health crisis of HIV/AIDS. Through global collaboration and transformative partnerships, the global response to the epidemic has evolved to the point where HIV is no longer a death sentence. People living with HIV can now live long, fulfilling lives thanks to PEPFAR, USAID, and innovations in medication, testing, service delivery models, and government policies.

In FY 2023, the project integrated key technical direction from USAID around viral load/early infant diagnosis (VL/EID) diagnostics, vendor-managed solutions (VMS), logistics, TA priorities, and advanced analytics and data visibility into its work plan. The project set up systems to internally track and coordinate these priorities and to support communicating progress back to USAID. GHSC-PSM has risen to the challenge and partnered with governments and private-sector partners worldwide to build resilient health supply chains that provide access to lifesaving medication and services for those most in need.

GHSC-PSM exceeded private-sector engagement targets for FY 2023 through the project's revised ARV procurement strategy and the VMS program. The project revamped its sourcing strategies for health commodities across the HIV/AIDS portfolio, from ARVs and essential medicines to VMMC kits over the past 24 months to strengthen market health and product availability.

Through a dynamic and sophisticated strategic sourcing approach, GHSC-PSM has continued to drive down the cost of ARVs. Since procurement of TLD began in 2019, this approach has achieved a 43 percent price decrease against the median price of a 90-count bottle of TLD equating to a first-line HIV treatment for an average cost of under $40 per person, per year.

The project continues to transform the laboratory supply chain, transitioning to an all-inclusive services approach through strategic sourcing and adding services that include instrument leasing, data connectivity, and performance-based service and maintenance. In Q4, GHSC-PSM concluded the execution of service-level agreements (SLAs) for the 42 "Wave-2" countries. A major milestone in the work of the project, this initiative is enabling testing facilities to be more effective and efficient and building sustainable solutions that are a win-win-win for the government, for testing facilities, and, most importantly, for patients.

GHSC-PSM has achieved cost savings of $410 million on core HIV commodities over the life of the project through strategic sourcing and negotiation, including more than $49 million in FY 2023. It is important that the project acts as a responsible steward of U.S. taxpayer dollars and maximizes USAID's investment to improve global health outcomes. GHSC-PSM demonstrates this good stewardship by prioritizing cost-effectiveness, efficiency, transparency, accountability, and collaboration, ultimately ensuring that taxpayer dollars are used responsibly.

Cumulative savings for GHSC-PSM and other PEPFAR buyers on viral load and early infant diagnostic tests alone were more than $137 million under the global service-level agreements since 2020. USAID has reinvested these significant cost savings to expand viral load testing across partner countries.

The project proudly supported USAID's prevention strategy by accelerating the introduction and scale-up of new and emerging biomedical prevention products. GHSC-PSM issued PEPFAR's first-ever purchase order of the long-acting injectable pre-exposure prophylaxis (PrEP) product cabotegravir (CAB-LA) this year and provided commodity procurement and logistics support for USAID and PEPFAR programs to further strengthen PEPFAR's prevention strategy.

GHSC-PSM remains committed to supporting PEPFAR's strategy to end the epidemic through transformative partnerships that strengthen public health systems and continue to improve access to HIV prevention methods, lifesaving treatment, and routine viral load monitoring through differentiated care and optimized supply chains.

IMPACT OF GHSC-PSM PROCUREMENTS

GHSC-PSM estimates that approximately 40,000 deaths and 149,000 HIV infections were averted in FY 2023 by making ARVs available to adults and children who need them; and a total of 390,000 deaths and more than 1.36 million HIV infections averted over the life of the project.[14] This is a result of the project's deliveries of antiretroviral therapy—providing more than 22.5 million patient years of HIV treatment to date**.** When combined with proper counseling and correct use, these medicines save lives and prevent future infections, contributing to PEPFAR's goal of ending the HIV/AIDS pandemic as a public health threat by 2030. Calculating the estimated number of deaths averted due to USAID support through GHSC-PSM provides an important measurement. These indicators report actual direct impact, as opposed to output and outcomes, and are powerful messages highlighting the positive health impact of GHSC-PSM's commodity procurements on behalf of the U.S. Government.

HIV/AIDS SUPPLY CHAIN ON-TIME DELIVERY AND COST SAVINGS

Procurement

GHSC-PSM has procured more than $3.48 billion in HIV commodities over the life of the project, with $425 million worth of procurements in FY 2023. Adult ARVs made up 50 percent of all procurements by value.

Savings from strategic sourcing of HIV commodities

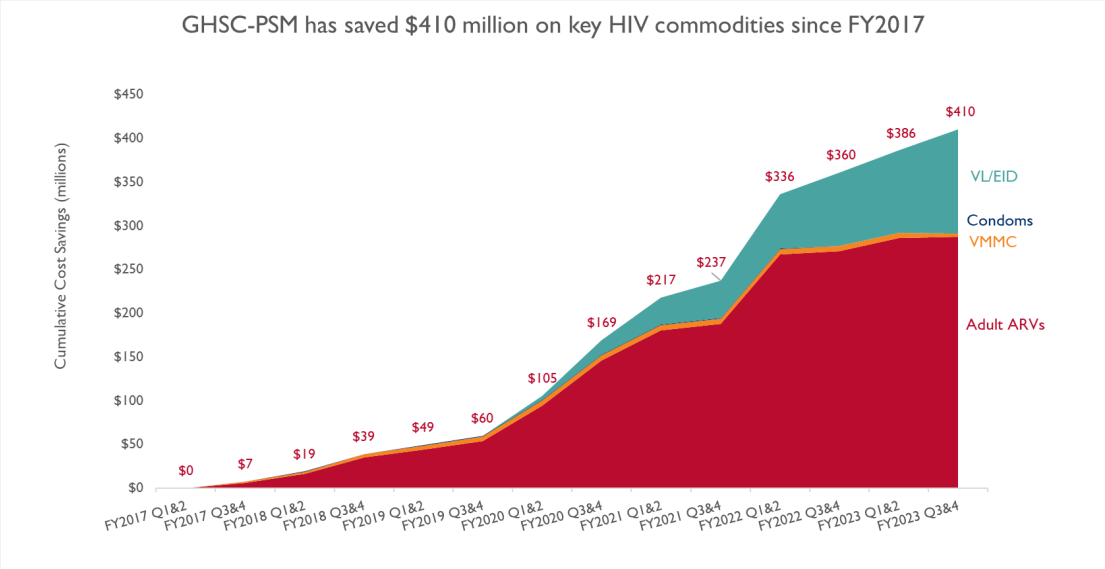
GHSC-PSM's strategic sourcing activities generated significant cost savings for PEPFAR and the countries and people served by its HIV programs. As shown in Exhibit 4, the project has saved $410 million on core HIV commodities over the life of the project compared to baseline prices, including almost $50 million in FY 2023.

[14] Methodology to support impact indicators.

Savings include a total of $287 million on adult ARVs, including $16 million in FY 2023, driven almost entirely by TLD procurement strategies. The price for adult ARVs is an annual fixed price, meaning there is no price change from one half of the year to the next. The average price of TLD decreased in FY 2023 compared to FY 2022 amid a healthy, competitive market. The average price this year is the lowest yet for TLD. Notably, these results exclude D-Term orders, which now make up most of GHSC-PSM's TLD order volume. D-Terms are excluded because unit prices include logistics costs and are therefore not strictly comparable to product-only baseline prices. That said, TLD prices have fallen far enough that even D-Term orders are priced below the 2018 baseline, meaning that TLD savings are likely even greater than those captured here. Recognizing that 68 percent of the FY 2023 ARV volume was procured under D-Terms, the project will explore opportunities to determine cost savings for D-Term orders in FY 2024.

Laboratory commodity cost savings have also topped $118 million since the launch of the global laboratory agreements in January 2020, continuing the trend of significant cost savings relative to baseline prices seen in previous years.

Exhibit 4. Life-of-Project Savings on HIV Commodities



DELIVERIES

In Q4, GHSC-PSM delivered over $78 million in HIV commodities to countries and over $3.5 billion in HIV commodities over the life of the project.

On-time delivery and on-time, in-full delivery

The timeliness of GHSC-PSM deliveries remained consistently strong for standard on-time delivery (OTD) over the reporting period, as shown in Exhibit 5. In Q4, OTD was 87 percent for HIV. GHSC-PSM's on-time, in-full (OTIF) rate measures the percentage of deliveries delivered on time and in full during a given period. Delivery of late orders in a subsequent month to the agreed-upon delivery date drives down the OTIF rate, as can delivery of split shipments, which helps explain the difference between OTD and OTIF rates. For OTIF, project performance continued to exceed the target of 80 percent, achieving 87 percent in Q4. See Annex A for further details.

Exhibit 5. HIV Commodities OTD

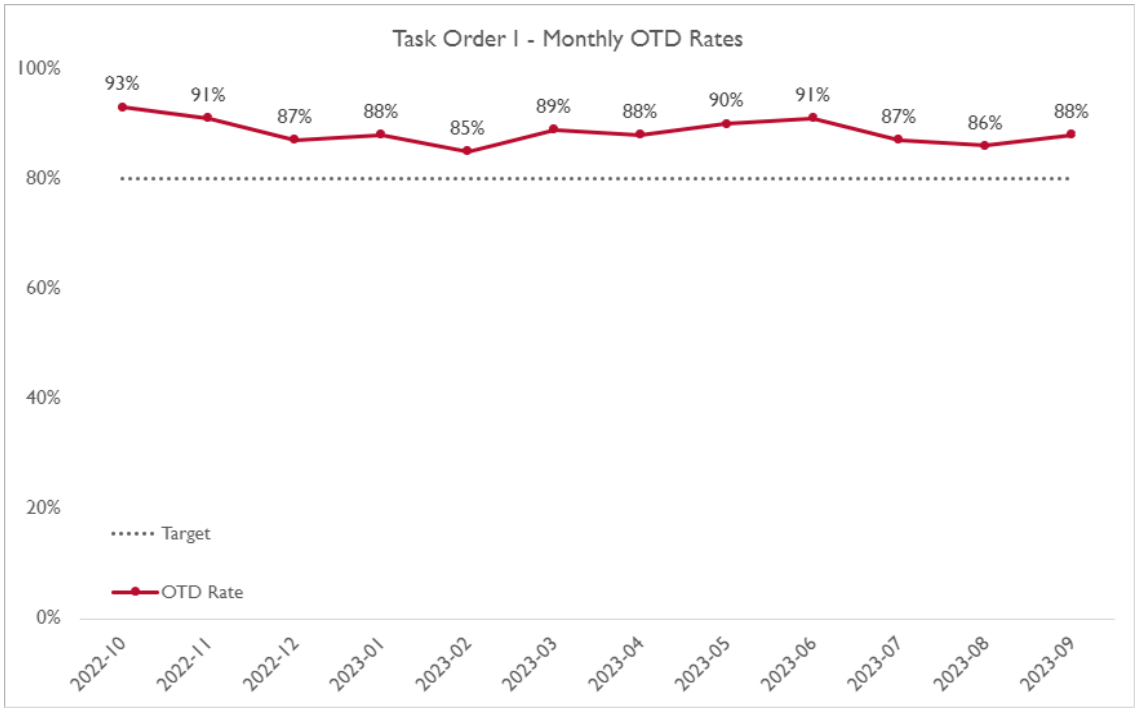
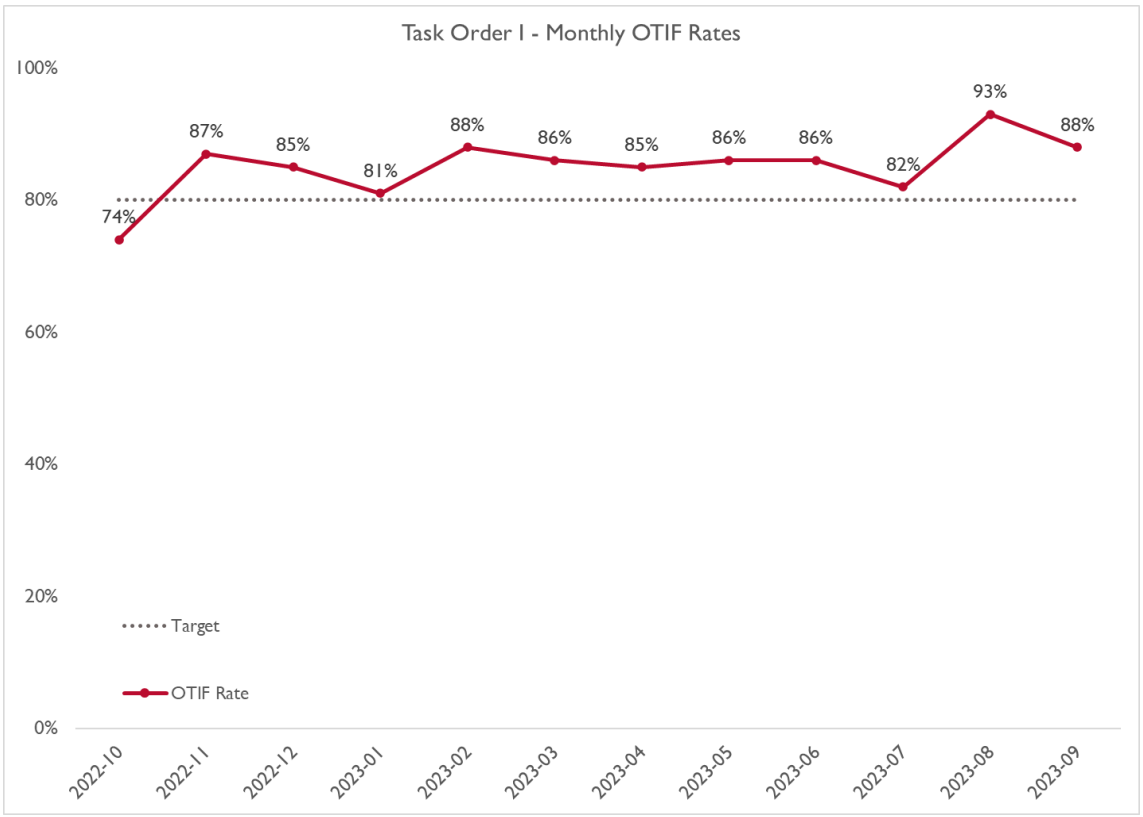


Exhibit 6. HIV Commodities, OTIF



SUPPORTING PEPFAR's HIV/AIDS AGENDA

Pre-exposure prophylaxis

Daily oral PrEP using the antiretroviral medicines tenofovir/emtricitabine (TE) or tenofovir/lamivudine (TL) dramatically reduces the risk of HIV infection in people who use it as directed. In FY 2023, GHSC-PSM delivered $19.56 million worth of PrEP to 27 countries, totaling over five million PrEP bottles. In Q4, GHSC-PSM delivered nearly 1.7 million bottles of PrEP products to 13 countries.[15]

GHSC-PSM monitors supply capacity and lead times for PrEP products listed in the catalog and tracks the delivery of PrEP commodities to 24 countries quarterly to determine the impact of the PrEP program. The project also actively tracks regulatory approval lead times for new PrEP commodities under development, such as the long-acting injectable PrEP product CAB-LA. Monitoring and tracking enable the project to adapt to the dynamics of each country's PrEP scale-up program by advancing or delaying shipments when necessary.

In Q4, GHSC-PSM received shipping documents for 25,650 vials of CAB-LA 600 mg/mL (3 mL) to be delivered in Q1 FY 2024, representing PEPFAR's first-ever CAB-LA purchase order. The project will pre-position this product at the Belgium RDC for delivery to Malawi, Ukraine, Zambia, and Zimbabwe to support PEPFAR PrEP programs.

GHSC-PSM provided commodity procurement and logistics support to the USAID Maximizing Options to Advance Informed Choice for HIV Prevention (MOSAIC) program throughout FY 2023. In Q4, the project delivered 7,200 dapivirine vaginal rings to the MOSAIC partner in South Africa. In total, GHSC-PSM delivered 17,968 vaginal rings to four MOSAIC countries in FY 2023.[16] The project is maintaining a stockpile of 14,256 rings in the Dubai RDC for the second phase of the MOSAIC study. Also, in Q4, GHSC-PSM delivered 1,200 rings to South Africa to support PEPFAR's Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe (DREAMS) program.

Condoms

Correct and consistent use of condoms and lubricants significantly reduces the risk of HIV transmission. USAID's support for the condoms program targets regions with high demand and supply gaps. In Q4, GHSC-PSM delivered 103 million male condoms, 783 thousand female condoms, and over 5.4 million sachets of lubricants to 20 countries.[17]

In FY 2023, GHSC-PSM delivered 444 million male condoms, 3.9 million female condoms, and 21.7 million lubricants to 28 countries in Africa (24), Asia (2), Europe (1), and Latin America and the Caribbean (1). More than 90 percent of the total volume of delivered condoms and lubricants was for African countries.

The project achieved FY 2023 work plan objectives focused on expanding available condom production capacity within the portfolio. GHSC-PSM assisted one supplier in gaining USAID Global Health Supply

[15] Burundi, DRC, El Salvador, Haiti, Kenya, Malawi, Mozambique, Namibia, Nigeria, Tanzania, Togo, and Ukraine.

[16] Lesotho, Kenya, South Africa, and Zimbabwe.

[17] Afghanistan, Angola, Burkina Faso, Cameroon, Côte d'Ivoire, DRC, Eswatini, Ethiopia, Ghana, Haiti, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Senegal, Sierra Leone, Uganda, Zambia, and Zimbabwe.

Chain Program-Quality Assurance (GHSC-QA) project approval to offer condoms from a second manufacturing site in India. GHSC-PSM also concluded a multiyear process to requalify an established male condom manufacturer, who will resume business with the project in FY 2024. These efforts provide USAID with access to more than 1.4 billion pieces of manufacturing capacity from eligible male condom suppliers.

GHSC-PSM delivered new color and scented options for the FC2 female condom in FY 2023. By the end of FY 2023, GHSC-PSM delivered red/strawberry, light brown/caramel, and purple/vanilla female condoms from the Female Health Company to Eswatini, Ethiopia, Malawi, Uganda, and Zimbabwe. These variants did not result in increased pricing.

In FY 2023, GHSC-PSM published the Annual Comprehensive Agency Report on Condoms and Lubricants for FY 2022. The report shows consistent funding support through USAID for the condoms program over the last four years.

Voluntary medical male circumcision (VMMC) kits

Male circumcision is cost-effective and reduces female-to-male sexual transmission of HIV by 60 percent.[18] The World Health Organization and UNAIDS support VMMC scale-up in 14 priority countries in sub-Saharan Africa with a high burden of HIV and low male circumcision prevalence. GHSC-PSM has delivered VMMC kits to 11 VMMC priority countries since the start of the project.[19] In Q4, GHSC-PSM delivered 115,986 VMMC kits to Malawi, Mozambique, Swaziland, and Zimbabwe.

In FY 2023, the total volume of VMMC kits and devices delivered by GHSC-PSM across seven countries[20] is enough to perform up to one million male medical circumcision procedures. In line with PEPFAR's call for country programs to shift toward the use of reusable instruments and the Shang Ring device, 95 percent of the kits and devices procured for the VMMC program in FY 2023 are for reusable instruments (83 percent) and the Shang Ring device (12 percent).

The Shang Ring device offers a less invasive alternative method of male circumcision, leading to a rise in demand for the Shang Ring in existing and new markets. GHSC-PSM seeks to reduce lead time and price for the device and is sourcing from additional suppliers with products registered for the Shang Ring circumcision procedure. GHSC-PSM has delivered Shang Ring devices to three VMMC priority countries, Malawi, Uganda, and Zimbabwe, since the start of the project, with 54,200 VMMC devices delivered to Malawi and Zimbabwe in FY 2023.[21]

In Q4, GHSC-PSM placed Shang Ring orders for Tanzania. To prepare for the FY 2024 scale-up of VMMC activities in Tanzania, GHSC-PSM led an in-country VMMC commodity quantification with implementing partners in FY 2023 on behalf of the interagency team—USAID, Centers for Disease Control and Prevention (CDC), and the Department of Defense. The project developed an FY 2024 supply plan for

[18] USAID 2022 Voluntary Medical Male Circumcision Fact Sheet

[19] Botswana, Eswatini, Ethiopia, Malawi, Mozambique, Namibia, Rwanda, South Africa, Tanzania, Uganda, and Zimbabwe.

[20] Eswatini, Malawi, Mozambique, Namibia, Tanzania, Uganda, and Zimbabwe.

[21] 271 200-count packs.

VMMC kits, Shang Ring devices, and local anesthetic products in collaboration with these stakeholders and subsequently placed orders in Q4.

In Q4, in line with the work plan objective to update the VMMC Kit Sourcing strategy, GHSC-PSM conducted a comprehensive analysis of its VMMC kit procurement strategy, released a request for proposal (RFP), and obtained approval to issue fixed-price awards to eligible suppliers. GHSC-PSM and GHSC-QA collaborate to ensure the continuous supply of quality-approved products for VMMC programs. A focus for the FY 2023 strategy was for the project to promote a healthy VMMC kit market. As outlined in the recent Sourcing Governance Board meeting, GHSC-PSM achieved this target, with all four suppliers continuing to maintain a presence and process orders.

Essential medicines

Following the regionalization workshop, GHSC-PSM continued to evaluate its sourcing strategy for opportunities to increase procurement through African manufacturers and African-based wholesalers. For more information, see Section C3, Global Collaboration.

As per the FY 2023 work plan, GHSC-PSM worked toward expanding collaboration with local wholesalers in identified African countries. In Q4, the project facilitated on-site onboarding and training for new USAID-approved local wholesalers in Malawi and Mozambique to establish expectations for these new USAID wholesalers, including procurement and quality requirements. GHSC-PSM provided a comprehensive walkthrough of the sourcing stages—from the initial request for information to proposal submission with requisite quality documentation, followed by evaluation, and concluding with award determinations. Additionally, the project worked to ensure delivery of the required essential medicines to support VMMC procedures in designated countries, as detailed in the work plan.

Among people living with advanced HIV, cryptococcal meningitis is one of the most dangerous opportunistic infections and significantly contributes to illness, disability, and mortality. Recent guidelines from the World Health Organization (WHO) recommend amphotericin B (liposomal) in combination with flucytosine for treating cryptococcal disease. Most low- and middle-income countries (LMICs) have adopted these WHO guidelines. However, despite being critical to saving lives, access to these medications remains scarce in many countries due to limited product availability and a lack of funding.

In line with GHSC-PSM's goal to ensure the availability of quality-assured advanced HIV disease (AHD) commodities, GHSC-PSM continued contract negotiations in Q4 with the manufacturer of amphotericin B liposomal, a critical AHD commodity. As detailed in the FY 2023 work plan, this path to direct procurement from the manufacturer will enable the project to procure the commodity at market access pricing, ensuring product availability at a reduced price for PEPFAR-supported countries. Simultaneously, while contract negotiations continued with the manufacturer to ensure there was no disruption in supply, the project identified an alternate source to fulfill the interim requirements for these PEPFAR-supported countries and placed orders for amphotericin B liposomal for Kenya and Tanzania.

In Q4, GHSC-PSM collaborated with the manufacturer of flucytosine to maintain a consistent supply of the commodity for AHD programs in PEPFAR-supported countries, which had been a challenge throughout FY 2023.

The project also conducted a comprehensive analysis of its essential medicine wholesaler procurement over the past contract cycle. GHSC-PSM and GHSC-QA collaborated to ensure the continuous supply of quality-approved essential medicines. The project will implement the new essential medicines strategy in FY 2024.

Tuberculosis preventive treatment (TPT)

As the leading cause of morbidity among PLHIV, tuberculosis (TB) causes over a third of all AIDS-related deaths. The WHO recommends that PLHIV who are unlikely to have active TB should receive TPT as part of a comprehensive package of HIV care, including pregnant women and those who have previously been treated for TB, regardless of the degree of immunosuppression, even if latent TB infection testing is unavailable. Completion of TPT for all PLHIV (including eligible household contacts of PLHIV with TB disease) is a PEPFAR Minimum Program Requirement.

Since 2018, GHSC-PSM has delivered more than 7.9 million TPT courses to 19 countries on behalf of USAID, contributing to PEPFAR's goal of increasing TPT coverage for PLHIV.[22]

Three months of weekly high-dose isoniazid and rifapentine (3HP)

The preferred PEPFAR TPT regimen for adults and adolescents is three months of weekly high-dose 3HP. In Q4, GHSC-PSM delivered eight orders of 3HP 300 mg/300 mg fixed-dose combination (FDC) tablets, a total of 157,543 36-count packs to five countries.[23]

GHSC-PSM continued to work with the two suppliers of rifapentine/isoniazid in FY 2023 to ensure timely product availability, in line with the project's goal to maintain two suppliers of 3HP FDC. In Q4, the project developed an updated sourcing strategy for 3HP FDC and issued an RFP to establish revised long-term, fixed-price agreements with the two eligible suppliers. The new sourcing strategy includes market share considerations to ensure market health and product availability. The project expects to sign these new supplier agreements in Q1 FY 2024. This continued emphasis on ensuring a strong two-source market for 3HP FDC supports USAID's continued emphasis on transition to 3HP in PEPFAR-supported countries.

Isoniazid preventive therapy (IPT)

Most GHSC-PSM countries transitioned from IPT to 3HP in FY 2022. However, the project continues to fulfill orders of isoniazid 100 mg pediatric tablets for countries that still implement IPT. In Q4, GHSC-PSM delivered one order of isoniazid 100 mg tablets, a total of 6,262 100-count packs, to Zimbabwe.

SUPPORTING THE FIRST 95: TESTING

To support rapid test kit (RTK) availability and reach the first 95 (HIV diagnosis), GHSC-PSM provides forecasting and supply planning as well as in-country logistics support to the USAID Global Health Supply Chain Program-Rapid Test Kit (GHSC-RTK) project (implemented by Remote Medical International), which undertakes the commodity procurement and international freight. GHSC-PSM promotes the management

[22] Angola, Burundi, Cameroon, DRC, Côte d'Ivoire, Ethiopia, Haiti, Kenya, Lesotho, Mozambique, Namibia, Nigeria, Rwanda, South Sudan, Eswatini, Tanzania, Uganda, Zambia, Zimbabwe

[23] Orders include 3,878 36-count packs to Burundi, 30,000 36-count packs to DRC, 90,000 36-count packs to Tanzania, 12,659 36-count packs to Zimbabwe, and 21,006 36-count packs to Zambia.

of HIV-RTK orders and deliveries through regional- and central-level stock data collection using the HIV/AIDS Data Visibility Dashboard. The project shares data monthly with GHSC-RTK to guide HIV-RTK procurement planning and data triangulation, and reviews HIV testing targets against HIV-RTK stock in countries with PEPFAR-supported HIV testing programs. Viral load testing has expanded rapidly since 2018, when 8.2 million viral load tests were performed across all PEPFAR countries. Since FY 2021, more than 51 million viral load tests are performed in PEPFAR countries each year, with the average number of tests per country increasing from 0.3 to 2 million. In Q4, the project reported eight stockout risks and resolved them through emergency orders, expedited shipments, and stock transfers.

SUPPORTING THE SECOND 95: TREATMENT

Increased private-sector involvement in ARV delivery

GHSC-PSM achieved key ARV private-sector engagement milestones in FY 2023, building strategic partnerships that reduce order lead times while shifting more accountability to ARV suppliers. Incoterms (short for international commercial terms) represent how international shipments may be organized, indicating when the ownership and freight, insurance, and customs costs transfer from the seller to the buyer. Under Group D Incoterms in D-Term arrangements such as delivered at place (DAP) and delivery duty paid (DDP), the seller pays most of the delivery charges to the destination country.

In FY 2023, the project targeted ten high-volume ARV countries as D-Term priority countries,[24] and qualified five suppliers as eligible to deliver ARVs on behalf of the program. In Q4, 68 percent of purchase order lines released to suppliers were under modified DAP or DDP Incoterms, having delivered 42 D-Term orders to 11 countries.[25]

In FY 2023, GHSC-PSM set a target to issue a minimum of 50 percent of purchase orders under modified DAP or DDP Incoterms. The project exceeded this target by issuing 251 of 371 (68 percent) purchase order lines under D-Terms. GHSC-PSM also exceeded its work plan objective of delivering 100 percent of eligible D-Term ARV orders to at least two countries in FY 2023. At the end of FY 2023, the project had allocated 100 percent of eligible orders to Kenya, Nigeria, Tanzania, Uganda, and Zimbabwe.

[24] DRC, Eswatini, Haiti, Kenya, Mozambique, Nigeria, Tanzania, Uganda, Zambia, and Zimbabwe.

[25] DRC, Eswaitini, Haiti, Kenya, Mozambique, Nigeria, South Africa, Tanzania, Uganda,Zambia, and Zimbabwe.

Supplying TLD

Over the life of the project, GHSC-PSM has delivered more than **85.8 million bottles of TLD**[26] to **34 countries**.

This is enough to provide over **17.6 million patient years of TLD treatment**.

As of Q4, GHSC-PSM has delivered over **54.1 million 90-count bottles of TLD to** 31 countries.

TLD and multi-month dispensing

To achieve HIV treatment goals, GHSC-PSM supports PEPFAR-supported countries' transition to TLD, the preferred first-line ARV. MMD of TLD is a high priority in the global fight against HIV. TLD is supplied in bottles of 30, 90, and 180 tablets. Over the life of the project, GHSC-PSM has delivered more than 85 million bottles of TLD to 34 countries, including more than 54.1 million 90-count bottles, 28 million 30-count bottles, 3.4 million 180-count bottles, and 200,000 28-count bottles.

In Q4, GHSC-PSM delivered more than 1.8 million bottles of TLD to 13 countries.[27] In line with PEPFAR policy, most deliveries were 90-count bottles of TLD except for 159,679 bottles of 180-count delivered to Burkina Faso, Haiti, and Zambia. These deliveries bring the GHSC-PSM total number of TLD bottles delivered to over 9 million to 21 countries in FY 2023.[28]

In FY 2023, GHSC-PSM significantly shifted its TLD procurement and fulfillment strategies. Previously, the project secured TLD orders through open competition and spot bidding and largely fulfilled these orders through the GHSC-PSM RDCs. However, in FY 2023, the project adapted to changing market conditions, including the emergence of new suppliers eligible to provide the product and a consistent demand from countries. The project transitioned to an annual allocation procurement approach for TLD, with market allocation distributed among five strategic suppliers. This strategic shift allowed suppliers to enhance their planning processes to ensure adequate stock levels of active pharmaceutical ingredients (APIs). Simultaneously, this approach streamlined the GHSC-PSM ordering process and reduced the order cycle time by seven business days.

In previous years, when the project transitioned to TLD across multiple countries, more than 50 percent of the TLD supply came through the RDC. With the TLD transition nearing completion, the project has achieved a significant milestone by reducing its dependence on pre-positioning TLD at the RDC. In FY 2023, approximately 80 percent of the total TLD delivery, which amounted to 9 million bottles, followed a more streamlined distribution approach. Specifically, 6.5 million bottles were delivered directly from suppliers, while an additional 645,000 bottles were delivered through the VMS program. GHSC-PSM delivered the remaining 1.9 million bottles from the Dubai RDC. This reduction in dependence on pre-

[26] This total figure for TLD delivery includes 54.1 million 90-count bottles, 28 million 30-count bottles, 3.4 million 180-count bottles, and 200,000 28-count bottles.

[27] Burkina Faso, Burundi, DRC, Eswatini, Gabon, Haiti, Kenya, Mozambique, Nigeria, Tanzania, Togo, Zambia, and Zimbabwe.

[28] Angola, Benin, Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, DRC, Eswatini, Gabon, Guatemala, Haiti, Honduras, Kenya, Mozambique,Nigeria, Panama, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

positioning streamlines operations while lowering costs and mitigating risks for USAID associated with TLD storage.

In FY 2023, GHSC-PSM achieved its work plan objective of establishing a regional VMS program in Southern Africa that encompasses three ARV suppliers staging TLD in quality-assured regional warehouses for delivery to PEPFAR countries in the region. Since the start of Q3, three supply partners have pre-positioned more than 1.2 million bottles of TLD 90-count, with nearly half this quantity delivered in four shipments to Mozambique (347,340) and Zimbabwe (298,080 bottles).

In line with FY 2023 work plan objectives, GHSC-PSM identified an opportunity through the VMS program to extend ARV vendor-managed freight services beyond the central warehouse level to include downstream delivery options. Historically, pharmaceutical deliveries in Zimbabwe were made strictly to the Central Medical Store (CMS) in Harare. The project identified an opportunity to have a VMS supplier split an existing VMS TLD order into two shipments, bypass the CMS, and deliver the order directly to regional depots in Bulawayo and Masvingo. Bypassing the distribution through the CMS resulted in approximately $7,000 in cost savings through transportation and warehousing costs. Furthermore, this reduces the delivery lead time and results in the product being positioned closer to the patient. GHSC-PSM intends to use this successful downstream delivery example to engage other countries in Southern Africa in the VMS program.

Also, in Q4, GHSC-PSM VMS supply partners experienced challenges importing products to bonded warehouses in South Africa. GHSC-PSM and USAID collaborated with the USAID Supply Chain for Health South Africa team and the South African Health Products Regulatory Authority (SAHPRA) to mitigate this risk for VMS suppliers and give SAHPRA confidence that quality products were being imported and exported through the VMS program. SAHPRA has since communicated its support for the program, and VMS partners have assurances that products can flow freely into and out of South Africa.

In FY 2023, GHSC-PSM initiated discussions with the Global Fund to collaborate on the VMS initiative. The Global Fund already benefited from the VMS program when a VMS supplier urgently filled a Global Fund TLD order for Mozambique from their VMS warehouse. This supported two key VMS program objectives: first, advocating for procurement service agencies to access stock from VMS warehouses to increase inventory turnover, and second, demonstrating to countries in Southern Africa the value of positioning stock closer to the client. GHSC-PSM has plans to extend the VMS program with the Global Fund and other partners in FY 2024. This collaboration could help higher-volume TLD countries improve stock rotation, minimize inventory and the associated holding costs at the central level, and pave the way for more routinized ordering patterns.

Supplying dolutegravir (DTG) 10 mg

Over the life of the project, GHSC-PSM has delivered 3.4 million bottles of DTG 10 mg to 25 countries.

In Q4, the project delivered 257,939, bottles of DTG 10 mg valued at $1,053,756 to 11 countries.

Pediatric ARVs

GHSC-PSM works with PEPFAR-supported countries to transition children living with HIV to DTG 10 mg—the preferred integrase strand transfer inhibitor, or INSTI, pediatric ARV. The project analyzes orders and supply plan data monthly to increase USAID and stakeholder visibility into the pace and progress of country transitions. In FY 2023, GHSC-PSM delivered more than 1.3 million bottles of DTG 10 mg valued at $4.9 million to 21 countries.[29] In Q4, the project delivered 257,939 bottles of DTG 10 mg, including 228,284 90-count bottles to 10 countries[30] and 29,655 30-count bottles to Mozambique. These deliveries assist countries in initiating or expanding DTG 10 mg transitions in line with their approved transition plans.

In FY 2023, GHSC-PSM worked with USAID in eight countries to analyze their readiness to transition to a triple fixed-dose combination of pediatric abacavir/lamivudine/dolutegravir (pALD) 60/30/5 mg.[31] The project created a forecasting tool to estimate demand for each product to prevent wastage and ensure sufficient stock before the expected transition in FY 2024. In Q4, the project distributed a pALD readiness survey to gauge expected transition dates and barriers for each country. A total of 12 countries responded to the survey, providing information on expected order dates and quantities.

SUPPORTING THE THIRD 95: VIRAL LOAD TESTING

GHSC-PSM's laboratory strategy focuses on strengthening and integrating data systems and stakeholder collaboration through technical support and project coordination to improve the availability and visibility of laboratory services and commodities. As part of its effort to foster country government ownership of resilient and robust diagnostic laboratory networks, GHSC-PSM uses a network approach to strengthen and scale up laboratory services, as described in Beyond Diagnostic Network Optimization: A Network Approach to Strengthening and Scaling Up Laboratory Services. The multi-pronged approach focuses on diagnostic network optimization (DNO), performance management, improvement of sample transport referral networks, accurate forecasting and supply planning, and cost-effective procurement and service agreements that include key performance indicator monitoring.

[29] Angola, Benin, Burkina Faso, Burundi, Cameroon, DRC, Côte d'Ivoire, El Salvador, Eswatini, Gabon, Haiti, Kenya, Mozambique, Namibia, Nigeria, Panama, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

[30] Burkina Faso, Burundi, DRC, Côte d'Ivoire, Eswatini, Haiti, Kenya, Togo, Uganda, and Zimbabwe.

[31] DRC, Eswatini, Haiti, Nigeria, Tanzania, Uganda, Zambia, and Zimbabwe

Implementing viral load awards

In FY 2023, GHSC-PSM delivered 8.8 million VL/EID tests, representing $97.4 million spent and $25.3 million saved compared to 2019 pre-global RFP prices under the terms of the global service-level agreements. In Q4, preliminary data analysis shows that GHSC-PSM delivered 1.45 million VL/EID tests, representing $14.3 million in expenditure and savings of approximately $4.7 million.

Cumulative savings on all orders for GHSC-PSM and other PEPFAR buyers since 2020 compared with pre-RFP prices are more than $137 million.[32] This represents significant cost savings compared to 2019 pre-RFP prices, averaging $2–$3 savings per test across the PEPFAR portfolio.

In FY 2023, GHSC-PSM refined the functionality of the Global Viral Load Dashboard ahead of the introduction of Wave-2 countries adding a geographic information system (GIS) feature for the Test Results Reporting module of the dashboard. The project works with suppliers to grant all new in-country stakeholders access to the dashboard. The feature allows users to access a GIS-enabled map to select a laboratory in a specific country and review site data, including the number of tests and error rates. The GIS map shows data for six countries: Eswatini, Kenya, Mozambique, Nigeria, Uganda, and Zambia, with plans to expand to include all Wave-1 and -2 countries.

Vendor-managed inventory (VMI) for VL commodities is a strategic initiative that streamlines inventory management and order fulfillment by improving collaboration among the supplier, the buyer, and distributors. In FY 2023, GHSC-PSM implemented a VMI pilot activity for VL commodities in one Mozambican laboratory, which faced challenges related to pre-existing excess inventory that hindered new order placement. The pilot in Mozambique highlighted the importance of communication and data visibility to facilitate stakeholder collaboration and seamlessly transition roles and responsibilities. GHSC-PSM worked with all three VL commodity manufacturers to improve communication and coordination between manufacturers and labs. GHSC-PSM negotiated with the VL commodity manufacturer and the Ministry of Health (MOH) to extend this program in Mozambique for FY 2024. Also, in Q4, the project made progress on the SLA modification in Nigeria to allow the VMI pilot to commence in Q1 FY 2024.

In Q4, GHSC-PSM attended the Suppliers' Summit on Diagnostics Forecasting organized by WHO and shared PEPFAR data analytics on historic procurement trends and supply plans for VL/EID. Earlier in FY 2023, the project participated in a meeting of the WHO Technical Working Group on Diagnostics Forecasts, along with USAID, UNAIDS, GHSC-RTK, CHAI, and other stakeholders.

Extending the global RFP for viral load and EID

In FY 2023, GHSC-PSM concluded the Wave-2 RFP process by executing updated global SLAs with three global diagnostics manufacturers to contractually document new all-inclusive pricing and service terms for the Wave-2 PEPFAR-supported countries.[33] This is a major milestone in the work of GHSC-PSM: with the

[32] Includes cost savings on VL/EID reagents globally plus savings on the service and maintenance of laboratory equipment in the six Wave-1 countries. It includes procurements by GHSC-PSM as well as other PEPFAR buyers who can benefit from the global agreements.

[33] Wave-2 countries are AFRICA: Angola, Benin, Botswana, Burundi, Burkina Faso, Cameroon, Côte d'Ivoire, DRC, Eswatini, Ethiopia, Ghana, Lesotho, Liberia, Malawi, Mali, Namibia, Rwanda, Senegal, Sierra Leone, South Sudan, Togo, Zimbabwe; ASIA &

conclusion of the Wave-2 RFP, all PEPFAR-supported countries now have access to competitive pricing for services, defined service levels, and transparent and accountable data on instrument and vendor performance. The project launched the all-inclusive service-level pricing for GHSC-PSM procurements in Wave-2 countries immediately following the execution of the SLAs and will continue to roll them out to other Wave-2 countries in FY 2024. Transforming VL testing through strategic procurement will impact the sector beyond GHSC-PSM, as project-negotiated terms and pricing will be available to other procurers in countries using public funds, such as MOHs and the Global Fund.

In Q4, in support of implementing the all-inclusive SLAs with manufacturers in the Wave-2 countries, GHSC-PSM conducted three comprehensive training courses on key aspects of the VL program for project staff from 18 country offices. These sessions were on 1) key performance indicator (KPI) management, 2) vendor and instrument management performance agreement and VL data platforms, and 3) orientation on VMI. GHSC-PSM also revised an existing standard operating procedure (SOP) for managing suppliers' KPI performance under the global SLAs to incorporate the Wave-2 countries and new data platforms, such as the global VL dashboard.

To assist stakeholders interested in implementing the all-inclusive reagent rental contracts outside of the GHSC-PSM umbrella (these may include other PEPFAR implementing partners, the Global Fund principal recipients, and MOHs in Wave-2 countries), the project developed a data collection survey and five modules of a technical assistance training for stakeholders attending a multi-day regional workshop in FY 2024.

Procuring viral load and laboratory supplies

In FY 2023, GHSC-PSM updated procurement strategies for general lab supplies and the Dried Blood Spot kits, resulting in amended Blanket Order Agreements and updated automation tools. In FY 2023, the project delivered laboratory supplies to 25 countries,[34] and delivered to 16 countries in Q4.[35]

In FY 2023, GHSC-PSM supported development of an invoice-to-pay (ITP) application, reducing the level of effort and cycle time needed to pay supplier invoices, increasing visibility into payment status, and allowing suppliers and procurement specialists to upload necessary documents. In Q4, the project piloted the application with key lab suppliers. Testing will continue in Q1 FY 2024 before being shared with a wider audience.

In Q4, GHSC-PSM updated and launched the requisition order automation tool for lab supplies. This latest update streamlined the process of evaluating bids, processing awards and negotiation memorandums, and providing suppliers with feedback on non-awarded bids. The enhancement allows GHSC-PSM to support a more competitive marketplace, with improved feedback leading to improved bids on future awards.

EUROPE: Cambodia, India, Indonesia, Kazakhstan, Nepal, Papua New Guinea, Philippines, Thailand, Ukraine, Vietnam; LATIN AMERICA & CARIBBEAN: Bahamas, Brazil, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama.

[34] Angola, Benin, Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, DRC, Eswatini, Ethiopia, Guatemala, Haiti, Honduras, Kenya, Mozambique, Nepal, Nigeria, Philippines, Rwanda, Senegal, Tanzania, Togo, Uganda, Ukraine, Zambia, and Zimbabwe.

[35] Angola, Burkina Faso, Côte d'Ivoire, DRC, Ethiopia, Guatemala, Haiti, Kenya, Mozambique, Nigeria, Philippines, Tanzania, Togo, Uganda, Zambia, and Zimbabwe.

In Q4, DRC faced a stockout of reagents from one manufacturer, triggering discussions between GHSC-PSM and the USAID Mission to identify the cause, which was determined to be lengthy cycle times due to the long waiver/importation process. The project and other supply chain actors amended supply plans to account for this delay, with stakeholders agreeing to order more frequently.

Also, early in FY 2023, GHSC-QA added a critical product to the eligible list for procurement, the 192 test kit configuration for HIV-1 testing on a specific diagnostic laboratory instrument. GHSC-QA approved this product in Q2 for use with ethylenediamine tetraacetic acid, or EDTA plasma, and in Q3 for use with plasma separation card specimens. This addition was pivotal as it will enable a faster transition from the previous generation of instruments and standardize products for this instrument globally.

Forecasting and supply planning (FASP)

Accurate FASP is key to a successful supply chain. To date, GHSC-PSM has facilitated the adoption of QAT in 36 countries for the management of forecasting and supply planning. In FY 2023, the project strengthened MOH capacity to forecast lab commodities in QAT through country-tailored support, remote training, and technical assistance to lab quantification workshops. To date, over ten countries are using QAT to forecast VL and EID commodities. For general information on QAT and the project's work in FASP, see section C2: Systems Strengthening Technical Assistance.

Data-driven lab network optimization using OptiDx

In line with the strategy to improve laboratory services, GHSC-PSM supports quality service delivery through data-driven laboratory network optimization and geographic information system data visualization. GHSC-PSM leads DNO through a stakeholder-driven process, including USAID, CDC, MOHs, implementing partners, and other donors. Together with stakeholders, GHSC-PSM develops objective-aligned optimization scenarios that can be modeled using DNO. The scenarios improve visibility into network performance and create opportunities to optimize laboratory equipment placement and multi-disease integrated testing, which can increase coverage and reduce costs. Once all data is collected and cleaned, the project used two tools—1) OptiDx™ and 2) supplemental interactive maps developed using the Python Library Folium™. See section C2: Systems Strengthening Technical Assistance.

Instrument placement process

In FY 2023, GHSC-PSM revised the Equipment Planning and Placement Questionnaire (EPPQ). The new version includes a capacity and utilization analysis tool to help standardize and determine the appropriate conventional polymerase chain reaction (PCR) devices needed for VL and EID testing to meet demand, to prepare labs for the instruments, and to establish service maintenance agreements. The project is the steward of the EPPQ and manages the preparation and submission of the questionnaire with input from the MOH and laboratory technical working group (TWG) in each country.

In Q4, GHSC-PSM rolled out the revised version to all country teams and shared a memo with the three global diagnostics manufacturers under the global SLA describing their role in the process. In Q4, GHSC-PSM developed a tracker to capture the placements of molecular equipment to enable better visibility and coordination across the project. See section C2: Systems Strengthening Technical Assistance.

HIV/AIDS SUPPLY CHAIN DATA VISIBILITY AND COMMODITY SECURITY

GHSC-PSM improves data visibility and analysis of HIV commodity inventories at all levels of the supply chain. The project reviews national inventory data monthly for more than 142 HIV medicines and commodities at the central, regional, and facility levels in 21 PEPFAR-supported countries to identify global stock imbalances. These data assist in monitoring commodity stock risks and progress toward specific initiatives, such as the success of the TLD and MMD transition, the transition to optimal PrEP and TPT regimens, and the scale-up of VL/EID programs. The reports help mitigate stock imbalances and avoid rationing and waste by raising awareness, identifying opportunities to shift GHSC-PSM shipments, and supporting redistribution within countries.

GHSC-PSM hosts monthly Proactive Stock Risk Management (ProStock) meetings. Building on the project's HIV/AIDS data analysis and reporting noted above, this meeting is a forum for GHSC-PSM, GHSC-RTK, and USAID to discuss actual and imminent gaps in HIV commodity access and implement action plans to address them. The project also presents potential HIV commodity stock risks in this forum, allowing for early action and mitigation on numerous longer-term stockout and expiry risks across all categories of HIV products, including adult and pediatric ARVs, PrEP, HIV-RTKs, and VL/EID tests.

In Q4, GHSC-PSM reported monthly on 38 HIV commodity stockout risks across 11 countries. The most common causes of stockout risks were late delivery (of host government-funded orders), product expiry, late order placement (of host government-funded orders), late delivery (of the Global Fund-funded orders), late order placement (of USAID-funded orders), and actual product consumption higher than forecast. The products most commonly reported as at risk of stockout were VL/EID (16 risks), pediatric ARVs (10 risks), and HIV-RTKs (eight risks).

The project mitigated most stockout risks through coordination with donors and suppliers, and by sharing bilateral data, facilitating inter-country transfers, and processing emergency orders. The project reported 17 commodity stockout risks resolved in Q4, with the most common resolution being deliveries by the Global Fund (seven), GHSC-PSM (four), or host governments (four).

COUNTRY SUPPORT

The HIV/AIDS task order funded supply chain systems strengthening activities in 28 countries in FY 2023. Below are some examples.

In **Burundi**, GHSC-PSM provided technical and financial support to the MOH, through the national AIDS control program, the Programme National de Lutte contre le SIDA, to implement a DNO approach to improve patient access to testing services. This DNO approach will help to reduce the distance between health facilities and testing sites, ensure equitable distribution of test equipment, and reduce the time to deliver results to improve VL, EID, and TB coverage. The DNO process began in 2021 with TWG meetings to plan the scale-up of viral load and early diagnosis of HIV in newborns in collaboration with the MOH. In FY 2022, GHSC-PSM, the national AIDS control program, the TB Program, and UNDP teams collected lab data on viral load and EID. In FY 2023, GHSC-PSM worked with the Ministry of Public Health and the directorate of biomedical laboratories to analyze and validate the data. Finally, in Q4 FY 2023, key stakeholders identified optimization scenarios for the viral load, EID, and TB diagnostic network for Burundi and the relocation of lab instruments to meet demand, leading to the transformation of 64 health

centers. A key enabler was the identification and establishment of champions who are leaders in their respective programs. Through this process, the ownership of the DNO was transferred to local institutions, and their leadership, with the support of GHSC-PSM, led to the project's success.

In **Ethiopia**, GHSC-PSM provided extensive support in the implementation of a new national logistics system for TB culture and DST products. This system, which is to be owned and operated by the Ethiopian Public Health Institute (EPHI), will improve the management of supplies at all testing sites across the country. The project undertook a comprehensive landscape analysis of TB culture and DST supplies management and developed SOPs and logistics management information system (LMIS) tools specifically for the supply management of these products at EPHI. The project's collaboration with EPHI has been instrumental in introducing an efficient and effective logistics system for TB culture and DST supplies management, that will ultimately improve the availability and accessibility of these critical supplies and contribute to the country's efforts in combating tuberculosis. The Director of the EPHI expressed their commitment to implementing the recommended system and the project is committed to providing continued support through ongoing training to ensure a successful launch in FY 2024.

In **Malawi**, ensuring the uninterrupted supply of health commodities at the service delivery point is a GHSC-PSM priority. The project provided financial and technical support to 19 districts in the north and southwest health zones to redistribute malaria, reproductive health, and HIV commodities and essential medicines[36] to improve commodity availability at understocked facilities and to reduce expiries. The project supported the redistribution of more than $470,000 worth of commodities that averted potential stockouts, including $43,646 in HIV and TB commodities.

In **Burma**, GHSC-PSM provided critical quarterly stock monitoring and supply planning support to the central and state/regional National Tuberculosis Program laboratories. The project provided feedback on the stock status of the CMS, Lower Burma Store, and 15 state/regional stores. The review found that the laboratories had improved their optimum stock status observations by 16 percent, from 55 percent to 71 percent, and planned Global Fund shipments were on schedule to arrive in Q1 FY 2024. Through this regular technical assistance from GHSC-PSM, the National Tuberculosis Program has been able to better manage its supply of lifesaving laboratory commodities.

Also, in **Burma**, GHSC-PSM led a stock monitoring meeting with the National AIDS Program, WHO, and UNOPS to support stock monitoring activities and address supply challenges. The project convinced partners that shipments of critical HIV medications such as TLE and TLD needed to be expedited to avoid stockouts and other shipments needed to be delayed to avoid expiry and loss. This was done by leveraging stock data from the nation's GHSC-PSM-supported electronic logistics management information system (eLMIS), mSupply, and supply plans drafted by the project using QAT to highlight the potential for stockouts. This technical assistance was crucial for averting acute supply disruptions and waste and

[36] Ethambutol 100mg, RHZ 75/50/150 mg, dolutegravir 10mg and 50mg, zidovudine/lamuvidine 150/300mg, TDF/3TC/DTG 300/300/50 mg 30s, isoniazid/rifapentine 300/300 mg, cotrimoxazole 960mg, emitricitabine, OraQuick, Determine HIV, Determine Syphilis, Unigold, cotrimozaxole 120mg, Bioline Syphilis, DBS, nevirapine suspension, RHZE 150/75/400/275, and Atvr/R 300/100mg.

demonstrated to partners and beneficiaries the benefit of using supply chain tools to effectively manage health commodity supply needs.

In **Zimbabwe**, GHSC-PSM led and participated in numerous technical working group meetings, workshops, trainings, and meetings with USAID, the MOH, and other partners in Q4. The project attended the quarterly VMMC Service Delivery TWG meeting convened by the MOH, participated in the MOH-led HIV/AIDS & TB TWG, the Differentiated Service Delivery (DSD) TWG, and represented in meetings between the Directorate of Pharmacy Services and the HIV program to discuss the transition plan to triple prophylaxis for HIV-exposed infants. The project also participated in several laboratory strengthening activities with the MOH Directorate of Laboratory Services at targeted facilities across Zimbabwe and led the viral load equipment transition process.

B2. MALARIA

Delivered more than **532 million** artemisinin-based combination therapies (ACTs) to treat **malaria infections over the life of the project**, including **23 million** in Q4 FY 2023.

23 countries[37] received health systems strengthening support with malaria funding in FY 2023.

A total of **26 countries delivered malaria medicines and commodities in Q4, 30 over the life of the project.**

Delivered enough long-lasting insecticide-treated nets (LLINs) to provide **protection from malaria for more than 30 million people in Q4 and 584 million people over the life of the project**.

Published an advocacy paper highlighting lessons learned and opportunities to better **integrate community health workers (CHWs) into the supply chain.**

REFLECTIONS ON FY 2023

GHSC-PSM's activities aim to support and accelerate the achievement of the five focus areas outlined in PMI's 2021–2026 strategy to end malaria faster: reaching the unreached, strengthening community health systems, keeping malaria services resilient, investing locally, and innovating and leading. The tangible progress made in these areas during FY 2023 demonstrates GHSC-PSM and USAID's dedication to this vital mission, as we relentlessly work toward eliminating malaria and saving lives.

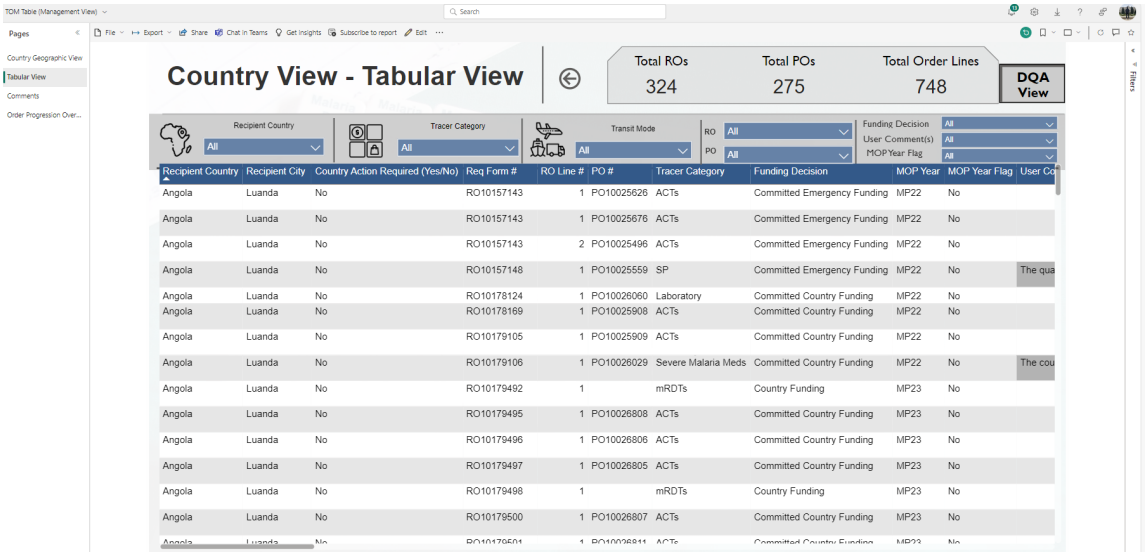
To innovate and lead, data plays a pivotal role. GHSC-PSM completed the launch of the updated Procurement Planning and Monitoring Report for malaria (PPMRm) website, improving upon the old platform and facilitating the monthly collection of stock availability information from countries to prioritize deliveries and prevent stockouts. The project also developed multi-year, multi-country consolidated datasets and a dashboard for end-use verification (EUV) survey information collected across countries

[37] GHSC-PSM provides health supply chain system strengthening support with funding for malaria for the following countries: AFRICA: Angola, Burkina Faso, Burundi, Cameroon, Ethiopia, Ghana, Guinea, Kenya, Liberia, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sierra Leone,Tanzania, Uganda, Zimbabwe; ASIA: Burma (Myanmar), Cambodia, Laos, and Thailand. Additional short-term assistance was provided in Madagascar.

since 2020. This data now informs an interactive dashboard and an analytical report summarizing key learnings intended to inform the project's approach to providing technical assistance.

Furthering efforts to support countries in adopting global standards for product and location identification through barcode data capture software, GHSC-PSM produced a technical report on the LLIN Verification pilot in Nigeria, aimed at capturing serialized LLIN campaign distribution data. The report will be published in early FY 2024 after PMI review and approval. (For more information see Section C2.) In FY 2023, the project took a transformative step by broadly rolling out the Task Order Malaria (TOM) management view dashboard, allowing GHSC-PSM and PMI to track and visualize the status of orders in real time to make informed supply chain decisions and efficiently manage the entire commodity procurement cycle.

Exhibit 7. Screenshot of TOM management view dashboard



Building on efforts to strengthen community health systems, the project achieved a significant milestone by developing and publishing an advocacy paper highlighting lessons learned and the challenges and opportunities that exist in better integrating CHWs into the supply chain. The paper is being disseminated to partners, donors, and key host government officials across PMI and USAID partner countries to encourage the inclusion and strengthening of the community-level supply chain.

To keep malaria services resilient and foster PMI's efforts to invest locally by engaging local suppliers, the project hosted a regionalization workshop in Q3 that resulted in a modified FY 2024 allocation strategy to further emphasize the inclusion of African manufacturers. In Q4, GHSC-PSM began extending sourcing contracts to a wider pool of Africa-based manufacturers and making known its intention to grow its supplier base in Africa, so that suppliers could position themselves to meet the WHO prequalification standards. In FY 2023, this effort resulted in the project identifying and bringing onboard one new African supplier for antimalarials. In addition, GHSC-PSM's implementation of a new vendor-stored inventory (VSI) strategy at the beginning of FY 2023 was instrumental in fulfilling three urgent orders for first-line malaria treatment during the year, proving to be a critical rapid fulfillment mechanism.

COST SAVINGS ON MALARIA COMMODITIES

GHSC-PSM's strategic sourcing activities generated significant cost savings[38] on malaria products, reaching $272 million over the life of the project, including $61 million in savings in FY 2023, as shown in Exhibit 8.

In FY 2023, the project amassed cost savings of $20 million on ACTs, contributing to the life of project cost savings of $114 million for these products. In the second half of the fiscal year, the project saw the lowest average price yet for AL 6x1 and 6x3 products due to active ingredient cost reductions and the project's redistribution of procurements between higher- and lower-cost providers. The need to fill emergency orders through a higher priced VSI supplier resulted in a small price increase for AL 6x4 products. The average cost of some ASAQ products also increased slightly due to the need to bundle orders with a higher priced supplier to meet contractual order minimums. Despite this increase, commodity cost savings for ASAQ grew in FY 2023 to $2 million.

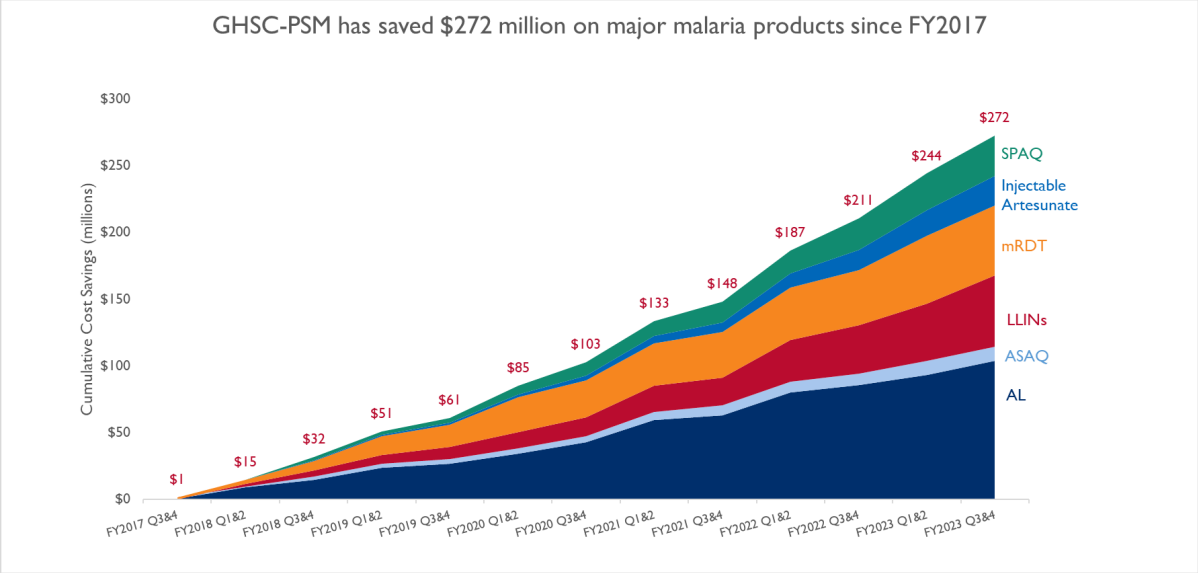
LLINs also saw continued savings, amassing $53 million over the life of the project, with $17 million during FY 2023 alone. These savings were driven almost entirely by piperonyl-butoxide (PBO) and dual active ingredient nets, as most countries are phasing out single pyrethroids. In the second half of FY 2023, the cost of PBO nets decreased due to the project awarding procurements to a lower-cost supplier and the project's strategic diversification of suppliers. The cost for dual AI net costs decreased due to increased competition, as it is no longer a sole-source market.

While the cost of malaria rapid diagnostic tests (mRDTs) increased slightly in FY 2023, the project still saw cost savings of $11 million compared to baseline, contributing to life of project savings of $52 million.

Injectable artesunate savings remained consistent this year due to increased competition among the supply base with a third vendor entering the market. The project amassed almost $7 million in savings, and $22 million over the life of the project. Sulphadoxine-pyrimethamine + amodiaquine (SPAQ) saw similarly consistent savings, primarily due to intentional diversification of suppliers, amassed about $6.5 million in savings in FY 2023, contributing to life of project savings of $30 million.

[38] Commodity cost savings are calculated using a comparison of the weighted average baseline cost of products when they were first procured to an average weighted cost of the product in the current review period, adjusted for inflation as determined by the consumer price index.

Exhibit 8. Life of Project Savings on Malaria Commodities



COMMODITY SOURCING, PROCUREMENT, AND DELIVERY

GHSC-PSM assesses market conditions and the sources of critical commodities—key starting materials (KSMs) and APIs, which then inform project strategies to ensure product availability and accessibility.

Strategic Sourcing and Supplier Relationship Management

In Q4, GHSC-PSM hosted in-person and virtual meetings with suppliers of mRDTs, LLINs, and pharmaceutical products (including ACTs and severe malaria products) addressing topics such as suppliers' organizational changes, GS1 compliance, and production capabilities.

GHSC-PSM completed tenders for ACTs, mRDTs, and severe malaria products. The Sourcing Governance Board approved sourcing strategies for FY 2024 volume allocations for LLINs, ACTs, mRDTs, severe malaria medications, sulfadoxine-pyrimethamine (SP), and seasonal malaria chemoprevention.

Procurement and Delivery

In Q4, GHSC-PSM procured malaria commodities, with a total value of $18 million, to 21 countries.[39]

In FY 2023, GHSC-PSM procured malaria commodities with a total value of $188 million to 29 countries.[40]

[39] Angola, Benin, Burkina Faso, Cambodia, Cameroon, Ethiopia, Ghana, Guinea, Guyana, Laos, Liberia, Madagascar, Malawi, Mali, Myanmar, Nigeria, Senegal, Tanzania, Thailand, Zambia, and Zimbabwe.

[40] Angola, Benin, Burkina Faso, Burundi, Cambodia, Cameroon, DRC, Côte d'Ivoire, Ethiopia, Ghana, Guyana, Kenya, Laos, Liberia, Madagascar, Malawi, Mali, Mozambique, Myanmar, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Thailand, Uganda, Zambia, and Zimbabwe.

In Q4, GHSC-PSM delivered a total of $59 million worth of malaria commodities, to 26 countries, and in FY 2023 a total of $179 million to 29 countries.

On-time delivery and on-time in full

The timeliness of GHSC-PSM deliveries remained consistent for standard OTD and OTIF. In Q4, the OTD rate for malaria commodities was 87 percent (see Exhibit 9). The OTIF rate in Q4 was 88 percent. The decline in OTD and OTIF performance in April 2023 can primarily be attributed to challenges with two commodity types. First, for lab products, challenges arose due to material shortages at the manufacturer. Shipments of mRDTs with April ADDs experienced setbacks due to a combination of transshipment issues, supplier delays, and a minor delay resulting from a system error.

Exhibit 9. Monthly On-Time Delivery Rates for Malaria Commodities

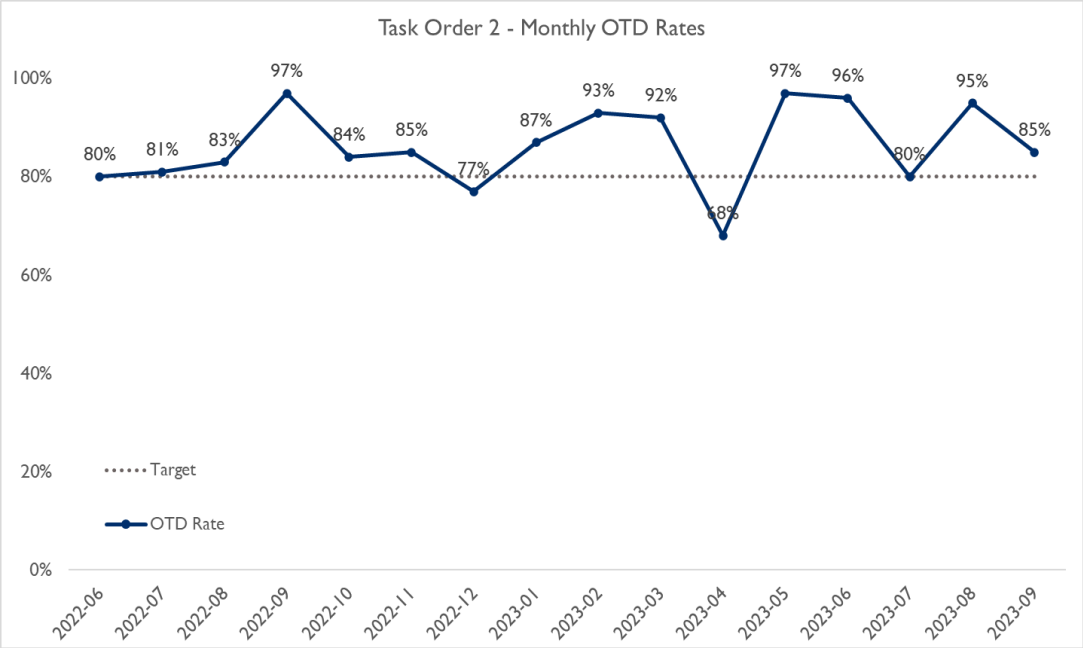
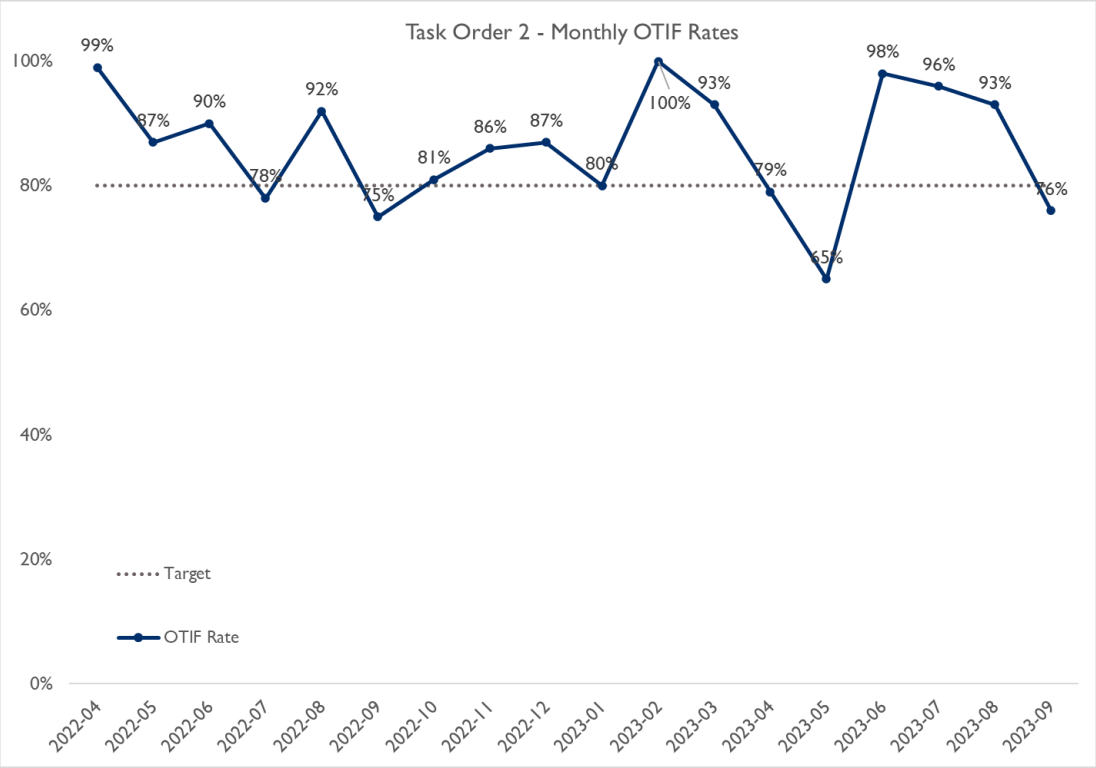


Exhibit 10. On Time In Full Rates for Malaria Commodities



Global Sourcing Collaboration

Throughout FY 2023, GHSC-PSM participated in the Malaria Pharmaceuticals (Pharma) Task Force,[41] mRDT Task Force,[42] Vector Control Access Task Force,[43] and LLIN Donor Collaboration meetings.[44] These groups provide a valuable forum to exchange information on market risks and promote improved collaboration across the global malaria community. They are supplemented by one-off working sessions and communications to discuss acute risks, issues, and opportunities.

GHSC-PSM also participated in the Malaria Pharma Task Force and the KSM/API working group that works to identify and mitigate risks related to upstream supply chains of finished malaria pharmaceutical products.

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[41] Malaria Pharma Task Force members include Clinton Health Access Initiative (CHAI), BMGF, GHSC-PSM, the Global Fund, Impact Malaria, the Malaria Consortium, Medicines for Malaria Venture (MMV), Médecins Sans Frontières (MSF), Pan-American Health Organization, PATH, PMI, UNICEF, and World Health Organization (WHO).

[42] mRDT Task Force members include CHAI, Foundation for Innovative New Diagnostics, BMGF, the Global Fund, the Malaria Consortium, MSF, PATH, PMI, GHSC-PSM, UNICEF, United Nations Development Program, Unitaid, and WHO.

[43] Vector Control Access Task Force members include the AMF, CHAI, BMGF, GHSC-PSM, the Global Fund, Innovative Vector Control Consortium, International Federation Red Cross, MMV, MSF, PMI, Population Services International, Results In Health, UNICEF, Unitaid, and WHO.

[44] LLIN Donor Collaboration calls include members from AMF, GHSC-PSM, PMI, the Global Fund, and UNICEF.

In Q4, GHSC-PSM, along with members of the Malaria Pharma Task Force, shared general order placement timelines to coordinate supplier production capacity. Discussions focused on sharing respective malaria commodity stock statuses in Niger, given the coup d'état and evolving border situation in the country. Members discussed two new injectable artesunate products manufactured by existing suppliers, one higher strength and one single solvent that were prequalified in Q4. Members also provided updates on progress toward prequalification of known Africa-based malaria pharmaceutical manufacturers. CHAI representatives shared their contribution to the RBM Global Malaria Dashboard, including updated short-term (2023–2025) malaria commodity forecasts and progress toward a long-term forecast that will span 10 years, which incorporates analysis on antimalarial drug resistance.

PATH also reported on the completion of a cost of goods analysis they conducted at the manufacturing location of the main semi-synthetic artemisinin (SSA) supplier. The supplier is amenable to supporting global procurers in incorporating SSA into their procurement strategies. Malaria Task Force members are exploring the most appropriate coordination mechanism to encourage SSA uptake. A partner organization confirmed their work with a manufacturer to simplify the chemistry of a critical API used in an ACT with the goal of making the improved chemistry available to new market entrants, as prequalified versions of the API and finished product are currently sole-sourced.

In Q4, the LLIN Global Donor Collaboration call focused on aligning on dual active ingredient LLIN production capacity to ensure global access to supply. The project contributed to topics related to environmental and social sustainability in support of UNICEF's upcoming sourcing strategy for LLINs. Logistics bottlenecks and issues relating to new pricing and other procurement processes were also discussed.

Commodity risk profiles

Commodity risk profiles visualize volumes shipped from suppliers by geographic region. GHSC-PSM reviews each commodity category to identify challenges or risks in a given period and shares updates on the status of active orders. In Q4, the project responded to the following challenges and provided updates to PMI:

- In Q4, order volumes for rectal artesunate did not meet supplier minimum order quantities for production. GHSC-PSM successfully negotiated terms with suppliers to meet country requirements. Due to the low volumes ordered by countries, the project included additional suppliers in the FY 2024 tender, and is working with the Global Fund to consolidate orders where possible to meet supplier minimum production requirements.
- A stock of SP intended to fulfill an emergency order was rejected by Ghana due to a change in waiver and import requirements and a subsequent lack of in-country registration. GHSC-PSM proceeded with a new expedited delivery order, shipped by air to meet this requirement.
- GHSC-PSM worked with the supplier to fulfill an emergency SP order that was needed by Malawi. The stockout risk was averted by shipping the order via air to ensure delivery in time.
- An order of LLINs for Niger was shipped on time, but due to the unstable political conditions in Niger and port closures, the product could not be delivered in Q4 and continues to await clearance.

RAPID FULFILLMENT MECHANISM STRATEGY

GHSC-PSM uses the Belgium regional distribution center (RDC) to pre-position products such as SPAQ and artemether-lumefantrine (AL). The project uses this stockpile to access critical commodities when countries need them, reduce fulfillment lead times, and to hedge against uncertainty and disruption in markets. The project rapidly moves these commodities by leveraging a rotating emergency loan fund to secure large volumes of supplier production capacity in markets with limited supply. GHSC-PSM places orders based on data-driven demand signals to secure production capacity earlier in the ordering process—often before receiving country orders.

Demand data—derived from quarterly country supply plans and the monthly PPMRm—partially inform these strategies, which the project translates into the country stock risk dashboards that illustrate the timing and scope of upcoming stock risks. The project designs these strategies to mitigate future stockout risks, ensure timely delivery in constrained markets, and avail favorable market conditions (favorable pricing, etc.).

In FY 2023, urgent SPAQ orders for Côte d'Ivoire, Ghana, and Cameroon, were fulfilled from supplier stock. The remaining quantity of SPAQ were shipped to the RDC and are available to fulfill urgent orders for FY24 SMC campaigns as needed.

In Q4, through the RDC stockpile, GHSC-PSM delivered two emergency orders of AL 20/120 mg dispersible tablets and AL 20/120 mg hard tablets to Niger and one emergency order of AL 20/120 mg dispersible tablets and AL 20/120 mg hard tablets to Senegal. To mitigate stockout risks, the project also fulfilled two urgent orders of AL 20/120 mg dispersible tablets and AL 20/120 mg hard tablets for Liberia.

In alignment with the work plan, at the end of Q1 FY 2023, GHSC-PSM began implementing a VSI strategy for AL to avoid stockouts. The use of the RDC stockpile and VSI are critical rapid fulfillment mechanisms that the project employs to take action in fulfilling emergency and urgent orders.[45] These strategies work in tandem. For emergency orders, the priority is to fulfill them fully or partially from the RDC stockpile. If the RDC stockpile is not sufficient to meet the need, GHSC-PSM has the option of fulfilling emergency orders through VSI. The project uses VSI as a first option in fulfilling urgent orders; however, in the event of dwindling shelf life at the RDC, the stockpile may be used.

In Q4, GHSC-PSM used VSI to fulfill one urgent order of AL 20/120 mg hard tablets for Uganda and another for Côte d'Ivoire.

QUALITY ASSURANCE

Collaborating

In Q4, the project visited one of its approved third-party analytical testing laboratories in Belgium to discuss lead times for testing pharmaceutical products procured by the project. GHSC-PSM toured the

[45] Task Order 2 (TO2) emergency orders: orders with less than four-month lead time from the requisition order entry date and the requested delivery date,
TO2 urgent orders: orders with more than a four-month lead time but less than the standard lead time to be met through routine procurement.

laboratory to gain a better understanding of their processes and handling of test orders, as well as to see firsthand how they manage the project's notification system. GHSC-PSM was gratified to see that the laboratory had implemented aggressive practices to restaff and retain its workforce, resulting in improved performance and lead times.

As chair of the LLINs Quality Assurance Group (LQAG), the project continued to play a leadership role among global stakeholders in the LLIN quality assurance (QA) space. In Q4, the working group held further discussions on post-market information gathering and feedback from the Innovation to Impact (I2I) Raising the Floor on Nets Convening.

Implementing strategies and innovations

In Q4, GHSC-PSM collaborated with other global procurers and QA teams to understand the potential impact of a quality issue on products the project was seeking to procure from a manufacturer in Africa, and as a result, recommended proceeding with enhanced quality control (QC) measures of testing and documentation review. PMI accepted the recommendation and the project successfully allocated procurement to the African manufacturer.

Fostering quality in malaria products

In Q4, in an effort to provide critical information to PMI on the correlation between an LLIN's lifespan and its packaging, GHSC-PSM engaged existing net suppliers through a brief questionnaire. The project is gathering this information and will provide a summary of the suppliers' responses to PMI in Q1 FY 2024.

In Q4, the project also initiated a risk-based analysis, using the failure modes and effect analysis (FMEA)[46] tool, to evaluate whether two artemisinin-based oral pharmaceutical products currently in GHSC-PSM's portfolio can be eligible for further randomized/reduced testing. The products chosen are historically procured in high volumes, which is expected to continue in FY 2024, giving this strategic activity the potential to save QA/QC costs and resources. GHSC-PSM will complete the analysis in Q1 FY 2024 and will share the conclusions with PMI for concurrence to proceed with additional risk-based randomization.

PRODUCT REVIEW FOR ELIGIBILITY

During Q3 and Q4, as part of the sourcing governance boards (SGBs), the project provided a QA perspective on products and suppliers and support for the allocation strategy for LLINs, mRDTs, and pharmaceutical commodities. This included a review of the new product dossiers, reports, and certification documents and the initiation of four analytical method transfers/verifications to make the products eligible for procurement in accordance with the allocation strategy. The method transfer/verifications should be completed in Q1 FY 2024.

In Q4, GHSC-PSM supported access to quality-assured commodities by completing a review of three pharmaceutical products (see Exhibit 11). These quality reviews facilitate the addition of products to the

[46] FMEA is a process of identifying all possible failures in the manufacturing process, or a product.

Restricted Commodity Waiver list governed by USAID Automated Directives System 312, making the product eligible for procurement.

Exhibit 11. New Products Eligible for Procurement in Q4

Product category	**Product subcategory**	**Product detail**
Pharmaceuticals	SP	Pyrimethamine BP 25 mg and sulfadoxine BP 500 mg
Pharmaceuticals	ACT	AL 20/120 mg tablets
Pharmaceuticals	Severe malaria / artesunate injection	Artesunate for injection (60 mg)

Key performance indicators

In Q4, GHSC-PSM:

- Completed a total of 99 percent of QA/QC processes within the required lead times, above the target of 85 percent. On-time QA/QC processes for FY 2023 were 94.6 percent.
- Achieved out-of-specification (OOS) findings of 0 (zero) percent of batches tested, below the target of 1 percent. OOS findings for FY 2023 were 0.12 percent.
- Generated cost savings of $11,446 as a result of using randomized testing in Q4 instead of testing all batches. The total cost savings accumulated as a result of randomized testing for FY 2023 was $161,925.40.
- No OOS reports were shared with PMI during Q4. During FY 2023, the project submitted 100 percent of reports on time.

ADOPTION OF STANDARD-BASED IDENTIFICATION, BARCODING, AND DATA SHARING

In FY 2023, GHSC-PSM continued implementing identification, barcoding, and data-sharing requirements for procured malaria products, creating an enabling environment for data exchange and visibility. In total, for the 227 malaria task order items in-scope (subject to requirements, actively procured in the past, and available for procurement in the future), by the end of Q4 total compliance scores by area were as follows:

- Identify Global Trade Item Number/Global Location Number (GTIN/GLN) collection: 100 percent
- Capture (Standards-compliant barcoding on labels): 94 percent
- Share (Global Data Synchronization Network (GDSN) data synchronization): 94 percent

In **Nigeria**, GHSC-PSM produced a technical report on the LLIN Verification pilot aimed at capturing serialized LLIN campaign distribution data in Calabar Municipality of Cross River State. 149,994 LLINs were distributed in piloted local government area (LGA) (Calabar Municipality), in which 110,445 net serials (73.6 percent) were scanned, captured, and verified across 65 distribution points. This represents 4 percent of the campaign distribution. Overall, 2,511,738 LLINs (97 percent) were distributed across the 18 LGAs in Cross River State (See section C2. for more information). The report will be published in early FY 2024.

For additional highlights and milestones related to these standards in Q4, see Section C.

PRIORITY SETTING AND REDIRECTION OF ORDERS

GHSC-PSM works with USAID to address country needs and market constraints, prioritize orders based on needs, and conduct commodity order transfers to improve stock status.

In Q4, the project completed the following activities:

- In **Rwanda**, identified an overstock of 18,865 vials of artesunate injectable (60 mg) and redirected it to Ghana. The stock was delivered to Ghana in Q4.

- A total of 29 countries submitted data to the PPMRm. The PPMRm collects and reports information on stock status and host governments' and other donors' shipments. Visibility into this stock status and shipment information enables PMI, the project, and countries to make decisions on prioritizing, expediting, or delaying procurements or shipments, and facilitates the review of forecasts and supply plans to optimize procurements. Based on PPMRm data, GHSC-PSM completed the following activities:

    - In **Cameroon**, initiated an order of artesunate injectable 60 mg to prevent potential stockouts.

    - In **Ghana,** advocated with the National Malaria Elimination Program to expedite a Global Fund order of artesunate injectable 30 mg and to expedite clearance of Global Fund AL 20 mg/120 mg 6x2 and AL 20 mg/120 mg 6x4 shipments to prevent stockouts.

- In **Nigeria**, advocated with the host government on the need to initiate SP shipments to prevent potential stockouts.
- In **Zimbabwe**, expedited shipments of AL 20 mg/120 mg 6x1 and AL 20 mg/120 mg 6x2 blisters to prevent stockouts.

MALARIA COMMUNITY HEALTH WORKER SUPPLY CHAIN ADVOCACY PAPER

In FY 2023, GHSC-PSM worked to support community health supply chains as one of PMI's strategic focus areas. In Q4, the project published the CHW advocacy paper "Effective Community-Level Supply Chains for iCCM and Malaria." The paper encourages the inclusion and strengthening of the community-level supply chain and highlights best practices for long-term investment and institutionalization of community health supply chains. The paper is being disseminated to partners, donors, and key host government officials across PMI and USAID partner countries.

DEVELOPMENT OF A MODELING TOOL AND GUIDANCE FOR INVENTORY MANAGEMENT FOR LOW-MALARIA-ENDEMIC SETTINGS

Low consumption of malaria products in low-malaria-endemic settings can result in product expiries and additional expenses incurred from product redistributions between facilities. To address this challenge, the project developed a Modeling Tool to optimize storage and distribution operations in low-malaria-endemic settings in Q2, which uses case information as a surrogate for consumption data. The tool allows users to plug in data to test stockpiling and distribution strategies and calculates the cost of these scenarios and their relative risk of leading to expiries or stockouts. GHSC-PSM tested the tool with sample data from Cambodia in Q2 and provided an orientation to Cambodia, Laos, and Thailand country offices in Q3. Based on their feedback, in Q4, the project agreed to add a scenario/sensitivity analysis that allows users to adjust variables and assess the results of multiple scenarios for more informed decision making. GHSC-PSM is working on this feature and expects to present it to country offices in Cambodia, Laos, and Thailand in Q1 FY 2024.

WORKFORCE DEVELOPMENT QUALITATIVE ASSESSMENT

In FY 2021, USAID funded country data collection to understand the scope of its financial investments in workforce development (WFD) between FY 2017 and FY 2020. With these data, USAID aims to identify WFD methods that achieved the most success and faced the most challenges and recommend which methods or activities to prioritize, expand, or adapt. GHSC-PSM used these data to assess WFD activities in Malawi in Q2 and Q3 through online surveys, one-on-one interviews, and a focus group discussion. The project drafted a report in Q4 for internal review and will submit it to PMI in Q1 FY 2024. Participants' recommendations include prioritizing supportive supervision, mentorship, and coaching; providing in-person and hands-on training; integrating monitoring, evaluation, and follow-up visits; and recruiting competent and experienced trainers for future considerations. In the meantime, the Zambia project office also participated in the assessment. In Q4, the project worked with the Zambia office to identify assessment participants.

MALARIA COMMODITIES ACCOUNTABILITY INITIATIVE

In accordance with the FY 2023 work plan, in Q4, GHSC-PSM produced the Malaria Commodity Accountability Guidebook and associated tools for pilot testing, to help country stakeholders identify discrepancies between the total number of malaria products consumed according to the logistics management information system (LMIS) and number of malaria services reported in the district health information system 2, DHIS2, during reporting periods. The tool provides stakeholders with the data needed to conduct root-cause analysis and determine interventions to improve accountability for malaria commodities.

In Q4, the project incorporated PMI's feedback to finalize the guidebook and is actively in discussion with two countries (Malawi and Nigeria) to pilot its use. This effort will contribute to PMI's 2021–2026 strategy focus areas "innovate and lead" (leveraging this methodology and tool will allow a targeted approach to the identified accountability issues) and "keep malaria service resilient" (enabling country programs to identify and address accountability challenges, keeping their services resilient and promoting efficiencies).

LLIN DELIVERY AND DISTRIBUTION SUPPORT

In Q4, GHSC-PSM delivered 15 million LLINs to countries for distribution as a malaria prevention measure (Exhibit 12), with a total of 38 million in FY 2023 and 292 million over the life of the project. Through this initiative, communities received nets before the rainy season through seasonal campaigns as well as year-round through continuous channels. In some countries, the project provided transportation support through third-party logistics (3PL) service providers to deliver LLINs from the central level to district or health facility levels for continuous distribution or mass distribution. In Q4, 13 countries[47] prepared for or launched LLIN distribution campaigns.

Exhibit 12. Quantity of LLINs Delivered to Countries in Q4 FY 2023

Country	Number of LLINs Delivered
Burkina Faso	520,000
Burundi	957,113
Cameroon	300,000
Ghana	660,000
Kenya	1,637,000
Malawi	1,200,000
Mali	1,180,000
Nigeria	2,725,250
Rwanda	870,000
Senegal	400,000
Tanzania	4,013,008
Uganda	598,000
Total	**15,060,371**

[47] Zambia, Ethiopia, Malawi, Mali, Burundi, RwandaSierra Leone, Angola, Guinea, Uganda, Thailand, Laos, and Nigeria.

In Q4, GHSC-PSM supported LLIN distribution activities:

- In **Zambia,** continued to collaborate with the National Malaria Elimination Centre (NMEC) and other key partners, such as Against Malaria Foundation (AMF), Evidence for Health (E4H), PAMO Plus, PMI Evolve, the Global Fund, and Churches Health Association of Zambia (CHAZ), in preparing for the 2023 mass campaign implementation. As of September, GHSC-PSM had provided warehousing services for over 4.2 million LLINs meant to be delivered to six of the 10 provinces (Eastern, Luapula, Muchinga, Northern, Northwestern, and Western).

  The project also identified three 3PLs to conduct the last-mile delivery of the LLINs for the 2023 mass campaign. Delivery of the LLINs was delayed because the project has not yet received the official allotments from NMEC and AMF. GHSC-PSM is working with NMEC, AMF, and other key stakeholders to confirm allotments and begin delivery. LLIN deliveries will be phased at provincial and district levels, depending on the household registration (HHR) data availability and clearance by all involved parties. So far, HHR for Luapula and Eastern provinces are complete and are awaiting clearance from AMF. GHSC-PSM worked with NMEC to complete and confirm the allotments for 2023 continuous distribution to three provinces (Eastern, Luapula, and Northern Provinces). NMEC directed the facilities to store these LLINs separately from the 2023 mass campaign LLINs to avoid mixed use while the mass campaign is ongoing. A total of 600,000 LLINs are expected to arrive in Zambia and be distributed to health facilities at the beginning of Q1 FY 2024.

- In **Ethiopia**, GHSC-PSM teams conducted LLIN distributions of PMI-supported nets in the remaining woredas of Afar and Benshagul-Gumuz regions in consultation with the National Malaria Control Program, PMI, and the respective regions. LLIN distributions had been delayed in some woredas of Benshagudl-Gumuz region due to security reasons.

  GHSC-PSM provided financial and technical support for an LLIN orientation for 151 people (16 female and 135 male) in five newly structured woredas of the Afar region to enhance the capacity of campaign actors at all levels. Also, the project provided an orientation to and supported travel for 32 health post-level supervisors so that they in turn could provide on-site support to health extension workers (HEWs) during net distributions. The supervisors, who are government staff working at woreda health offices, assisted the HEWs in filling in the distribution pads used to log proof of receipt of the LLINs and in distributing nets to households based on pre-identified family size. The supervisors also aggregated the daily distribution data and submitted reports to woreda distribution coordinators.

  GHSC-PSM, by availing vehicles, supported the distribution of 38,274 LLINs in woredas of the Afar region: 37,299 LLINs to 32 health posts and 37,299 nets to 12,557 households, benefiting 72,670 people.

  GHSC-PSM supported the transfer of 3,000 LLINs from the Afar region World Food Programme warehouse to the Afar Regional Health Bureau warehouse. Out of the 3,000 LLINs, 100 (two bales of 50) were found to be expired during a physical inspection of the expiry dates. HEWs distributed 2,400 LLINs in Dubti town and 500 LLINs in Semera-Logia town communities covering a population of 5,457.

COUNTRY SUPPORT

In FY 2023, GHSC-PSM supported the strengthening of supply chain systems for malaria medicines and commodities in 23 countries.[48] Some highlights from Q4 include:

In **Zambia**, GHSC-PSM collaborated with NMEC and other implementing partners to facilitate the visit of the U.S. Global Malaria Coordinator, Dr. David Walton. Dr. Walton visited four facilities in Chipangali, Chipata, Kasenengwa, and Mambwe districts. GHSC-PSM demonstrated its support in managing malaria commodities to ensure uninterrupted commodity availability. The itinerary included visits to selected CHWs who access commodities from those four health facilities; this demonstrated the flexibility of the supply chain system and the ease of access to health commodities for the CHWs. The project exhibited its role in the 2023 LLIN mass campaign during the visit to a 3PL warehouse, which stores the LLINs in preparation for delivery to health facilities.

GHSC-PSM and DHO staff in Zambia showing the eLMIS Facility Edition system to Dr. David Walton, U.S. Global Malaria Coordinator for the U.S. President's Malaria Initiative

In **Sierra Leone**, GHSC-PSM supported the MOH in conducting a baseline assessment for the community health supply chain. Results from the assessment revealed a 44 to 56 percent stockout of CHW malaria commodities (stockpiled) at the health facilities on the day of the visit. However, the report also revealed that the district stores were holding from 13 to 44 percent of CHW stocks and had not replenished the health facilities. The general objective of the assessment was to collect qualitative and quantitative baseline data to monitor, measure and evaluate the impact of community health supply chain interventions, and inform the design of a holistic strategy to improve product availability.

In **Burkina Faso**, GHSC-PSM provided technical and financial assistance to the National Malaria Control Programme (NMCP) for developing and printing 1,040 job aids to guide health workers in prescribing and dispensing Pyramax in Q3–Q4. All district health facilities in the Centre-West region had received the job aids by the end of Q4.

In **Niger**, the project collaborated with Catholic Relief Services (CRS, which oversees management of the Global Fund malaria grant in Niger) to develop a contingency storage plan following the July coup to proactively manage the expected increase in container arrivals following the reopening of the land borders (which were still closed at the end of Q4). The planning process incorporated several key elements, including warehouse availability data from the National Office for Pharmaceutical and Chemical Products (ONPPC), which is the National Procurement and Pharmaceutical Supply Center, at the central and regional levels; GHSC-PSM and CRS 3PL information detailing the number of pallets and cartons in each

[48] GHSC-PSM provided technical assistance to countries with malaria funding: AFRICA: Angola, Burkina Faso, Burundi, Cameroon, Ethiopia, Kenya, Ghana, Guinea, Liberia, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sierra Leone, Uganda, Zambia, and Zimbabwe; ASIA: Burma, Cambodia, Laos, and Thailand.

container to assess workload and equipment requirements for efficient unloading; and inventory data to prioritize cargo arrivals and ensure rapid distribution to the regions.

The primary goal of this initiative is to enable the ONPPC to efficiently meet its responsibilities for receiving and storing donor-funded health commodities. This contingency plan enables ONPPC to effectively manage offloading requirements, including human resources, equipment, and time per container, while ensuring the availability of sufficient storage capacity.

In **Mali,** GHSC-PSM continued analyzing the geographic information system (GIS) mapping data collected to provide government decision makers with visibility into facility locations in two regions—Kayes and Koulikoro. The data will also help optimize the distribution of commodities to these facilities. The project began developing a website that will serve as a centralized platform for disseminating critical facility-related information collected, including the GIS coordinates, vehicle restrictions for last-mile delivery during the rainy and dry seasons, and photos of the facilities and their storage spaces. Data collected will be instrumental in generating informative reports through Power BI and showing aggregated statistics.

In Q4, GHSC-PSM successfully concluded the mapping of road data acquired through the GIS mapping surveyors' efforts, leveraging the open-source mapping resource OpenStreetMap to improve data available for route planning for last-mile delivery in these regions. This accomplishment ensures that the road network information can be readily accessible for the project's planned route optimization analysis, as well as to any other government, nongovernmental organizations (NGOs), or commercial users of the open-source data on OpenStreetMap. GHSC-PSM began a last-mile route optimization analysis using the Dispatch Optimizer Tool (DOT), an open-source route optimization tool developed by GHSC-PSM. The report and a demo version of the tool will be available in early FY 2024. Results of the optimization analysis will show the MOH how centralized distribution from district warehouses to the last mile could be accomplished in four districts in these two regions now that the necessary data for data-driven planning are available.

In FY 2024, using the insights from the last-mile optimization analysis, GHSC-PSM will work with key stakeholders to implement a pilot of the DOT for last-mile distribution in one or more districts. This strategic undertaking aligns with the overarching implementation of a logistics management and distribution system in the Kayes and Koulikoro regions.

B3. FAMILY PLANNING AND REPRODUCTIVE HEALTH

To date, GHSC-PSM has delivered contraceptives to country FP programs estimated to provide a potential **102 million couple-years of protection**, including **3.0 million in Q4.**

Delivered FP/RH commodities[49] **to 17 countries**[50] in Q4, and provided **health supply chain systems-strengthening support** to **20 countries**[51] **in FY 2023** with FP/RH funding.

Continued timely fulfillment of USAID-supported countries' orders, **achieving 85 percent OTD** in Q4.

Launched a utilization survey for USAID Mission and GHSC-PSM country staff to understand how the FP/RH Country Procurement Impact Briefs are used as an advocacy tool in countries and to inform future iterations of the briefs.

The FP/RH task order (TO3) serves as the primary vehicle through which USAID procures and provides FP/RH commodities for its voluntary FP/RH programs; offers technical assistance to improve supply systems and contraceptive security in partner countries; and provides technical leadership to strengthen the global supply, increase financing, and introduce new FP/RH commodities.

REFLECTIONS ON FY 2023

GHSC-PSM continued its work to expand access to FP/RH methods of choice by meticulously analyzing the allocation of available stock in countries, using the strategic sourcing strategy, and collaborating with manufacturers, partners, and global organizations to secure a continuous supply of a broad variety of contraceptives. GHSC-PSM strengthened business partnerships with FP/RH suppliers and pursued relationships with new suppliers—with an eye to USAID's priority of identifying potential Africa-based suppliers—and maintained regular contact with current suppliers to address supply challenges. This year,

[49] Per USAID guidance, all condom procurements are counted under the HIV/AIDS task order.

[50] GHSC-PSM delivered FP/RH commodities to the following countries: Angola, Bangladesh, Benin, Burkina Faso, Congo DRC, Côte d'Ivoire, Ghana, Madagascar, Malawi, Mali, Mozambique, Rwanda, Tanzania, Togo, Uganda, Yemen, and Zambia

[51] GHSC-PSM provided technical assistance with FP/RH funding to the following countries in FY 2023: Angola, Burkina Faso, Burundi, Ethiopia, Ghana, Guatemala, Guinea, Haiti, Kenya (TO5), Liberia, Malawi, Mali, Mozambique, Nepal, Nigeria, Pakistan, Rwanda, South Sudan, Uganda, and Zambia.

GHSC-PSM worked with partners and multiple procurement agencies to ensure that clients had access to the high demand, but sole-sourced, one-rod implantable contraceptives. The project mitigated stockout risks due to a supplier shortage of combined oral contraceptives (OCs) and progestin-only pills by leveraging its RDC stockpiled commodities. GHSC-PSM sought to expand contraceptive options by collaborating with global stakeholders to introduce and scale up access to hormonal intrauterine devices (IUDs). Additionally, GHSC-PSM is analyzing the use of Fertility Awareness-based Applications (apps) in LMICs to better understand this method of choice that is growing in popularity.

GHSC-PSM promotes a culture of data-based decision-making across all technical areas that encompass the FP/RH portfolio to achieve greater contraceptive security. In FY 2023, the project continued to support the implementation of the National Product Catalog (NPC) based on the recommendations of the Supply Chain Information System Maturity Model (SCISMM) assessment in Malawi and Rwanda. The project also supported the operation of the NPC system in Zambia. (See Section C2. Health Systems Strengthening for details.). A significant achievement in FY 2023 was data integration between the Automated Requisition Tracking Management Information System (ARTMIS) and the Global Family Planning Visibility Analytics Network (VAN). The project also supported Liberia and Rwanda in their transition to VAN premium member status.

The project deployed its fourth round of the bi-annual Contraceptive Security Indicators (CSI) survey that assesses access to a wide range of affordable high-quality contraceptives in more than 40 countries. GHSC-PSM research based on the 2021 CSI results was accepted for presentation at the Reproductive Health Supplies Coalition (RHSC) General Membership Meeting (GMM) in FY 2024.

In total, over the life of the project, the contraceptives delivered globally equate to nearly 102 million (17 million in FY 2023) couple-years of protection. These are estimated to prevent approximately 1,046,000 deaths (156,000 FY 2023), including among women (102,500 over life of project and 12,500 in FY 2023) and among children (943,500 over life of project and 143,500 in FY 2023). The prevention of approximately 46,605,000 unintended pregnancies over the life of the project (7,605,000 in FY 2023) and 16,500,000 abortions (2,882,000 in FY 2023) drives the reduced mortality. This represents a meaningful contribution to the overall goal of preventing suffering, saving lives, and creating a brighter future for families. As a downstream consequence of contraceptive availability, not only are lives saved but also a considerable amount of money in these resource-limited LMICs. Thus far, a total of $3.3 billion in direct spending is estimated to have been saved on health care, much-needed resources that can be reinvested in the overall health system.

To support a smooth transition to NextGen, the FP/RH task order has been developing a framework for countries to help with supply security during the transition, which will be rolled out during the first half of FY 2024. In collaboration with the Hormonal IUD Access Group, the project will continue to support the introduction of hormonal IUDs in USAID priority countries. GHSC-PSM aims to strengthen partnerships with the United Nations Population Fund (UNFPA) and members of the RH community through participation in the VAN Steering Committee, the Consensus Planning Group, and other convening mechanisms.

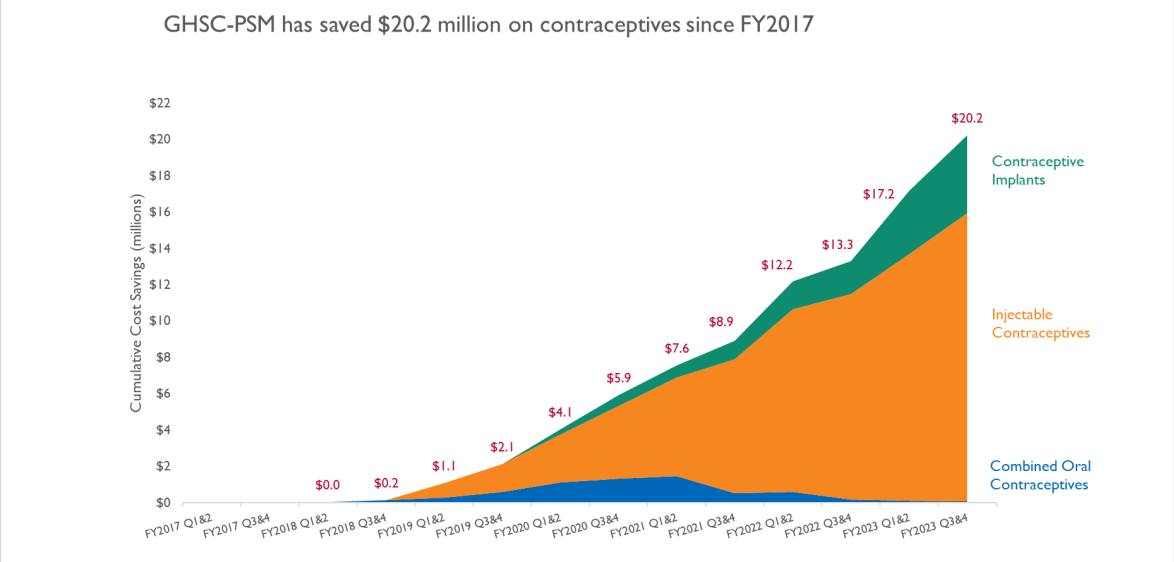
COST SAVINGS ON CONTRACEPTIVES

GHSC-PSM's strategic sourcing activities generated significant cost savings[52] for family planning (FP) products and the countries and people served by its FP programs. Commodity cost savings on core FP products have reached more than $20 million over the life of the project, including $7 million in savings this fiscal year, as shown in Exhibit 13. The greatest cost savings drivers are the injectable contraceptives, having accumulated nearly $16 million in cost savings over the life of the project.

Procurement of MPA-IM continues to yield savings over baseline prices, amassing $4.5 million savings in FY 2023. Savings growth slowed in the second half of the year due to less generic procurement in the vendor mix. Despite this slight slowing, the average cost of the product at the end of FY 2023 was lower than the cost of the product at the end of FY 2022.

Two-rod implants amassed $2.5 million in cost savings in FY 2023, contributing to the life of project cost savings of $4 million for the product. Combined oral contraceptives (COCs) saw a price increase this term, due to the need to combat overall supply constraints and bottlenecks by pre-positioning the commodity using product from a higher-cost supplier to stock the RDCs.

Exhibit 13. Life-of-Project Savings on Contraceptives



ADDRESSING FP/RH PRIORITIES

Securing reliable supply and maintaining high on-time performance

In Q4, GHSC-PSM maintained its commitment to achieving commodity security despite challenging market conditions.

[52] Commodity cost savings are calculated using a comparison of the weighted average baseline cost of products when they were first procured to an average weighted cost of the product in the current review period, adjusted for inflation as determined by the consumer price index.

Procurement of one-rod implantable contraceptives, a high-demand sole-source product, was challenged by continued supply shortages throughout FY 2023. GHSC-PSM worked with the Consensus Planning Group to coordinate supplier allocations of available supply among multiple procurement agencies and prioritize needs while ensuring fair and reliable access to the product.

Production backlogs associated with minimal manufacturing output during the pandemic persisted into Q4, resulting in extended lead times for combined OCs and progestin-only pills. The impact was felt most in countries with few registered suppliers. GHSC-PSM mitigated the impact by stockpiling these commodities at the Belgium RDC. The backlogs were cleared in Q4 and are not expected to persist into FY 2024.

Achieving OTD and OTIF

Timeliness of GHSC-PSM deliveries remained strong in Q4 for FP/RH commodities at 85 percent OTD. OTIF numbers remained strong at 81 percent.

Exhibit 14. FP/RH Commodities, OTD

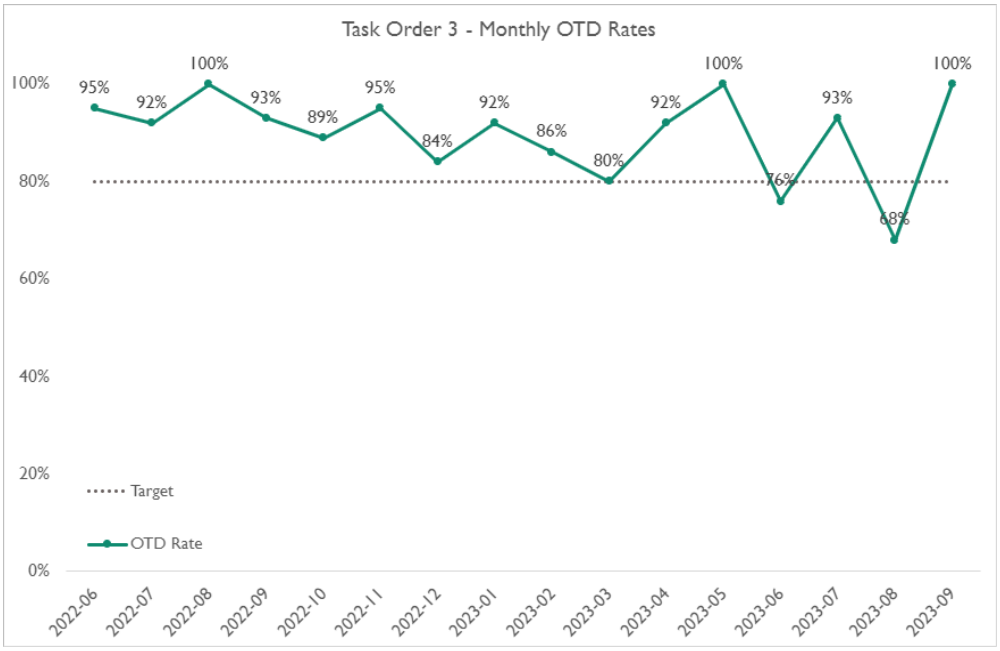
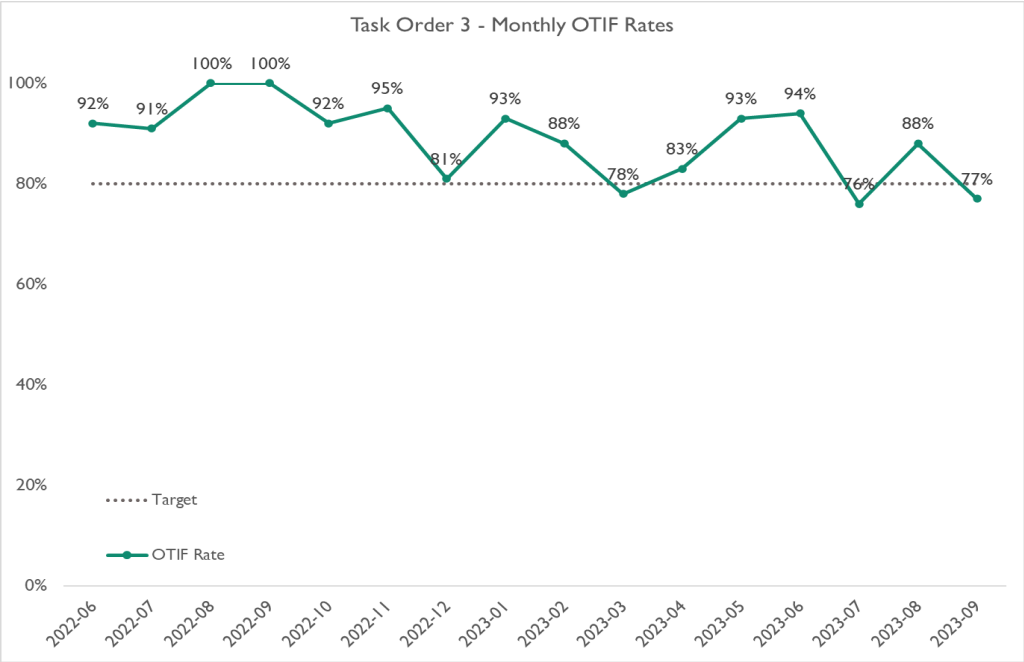


Exhibit 15. FP/RH Commodities, OTIF



Supporting the movement toward local manufacturing of injectable contraceptives in sub-Saharan Africa

To support diversifying the geographic supply of hormonal contraceptive manufacturing to mitigate future supply risks and enhance contraceptive security in sub-Saharan Africa, GHSC-PSM is assessing the potential of sub-Saharan Africa–based manufacturers for hormonal contraceptive manufacturing. In FY 2023, the project built upon a modeling exercise conducted in FY 2021–2022, implementing the Updated Business Case for Local Manufacturing in sub-Saharan Africa activity and drafting an implementation roadmap. The roadmap outlined the critical steps needed to overcome key barriers in support of the movement toward local manufacturing of injectable contraceptives. These recommended steps included convening a stakeholder meeting to bring together relevant actors and encourage groups to self-identify which role they are best suited to lead. Other steps included leveraging the Partnerships for African Vaccine Manufacturing Framework for Action and assessing the impact and potential of modular factories on hormonal production. As part of the roadmap development, the project conducted key informant interviews, including participants from international manufacturers and a development finance institution. In Q4, GHSC-PSM presented the draft roadmap to USAID and gathered additional feedback, which GHSC-PSM will incorporate into a final document in FY 2024.

Analyzing fertility awareness-based applications in LMICs

In FY 2023, GHSC-PSM conducted research on Fertility Awareness-based Applications (apps) in LMICs. This activity's goal is to establish a more comprehensive understanding of contraceptive decision-making

and unmet family planning needs by examining a portion of the reproductive-age population that is often left out of contraceptive research. This activity will provide insight as to how they use fertility awareness apps. The project assessed which apps are most popular and how women are using them for contraceptive decision-making. In Q4, GHSC-PSM analyzed fertility awareness app data from the previous 12 months, which included app downloads per country, monthly active users, and other indicators of popular fertility apps and their use in LMICs for contraceptive decision-making. The analysis focused on the 26 USAID FP/RH priority countries where the mobile data intelligence company obtained data, and revealed a consolidated fertility awareness app market, where nine apps accounted for 82 percent of downloads and 90 percent of monthly active users. Six of the nine apps were global and had a solid user base across multiple geographical locations, while the remaining apps focused on a particular region.

Following this analysis, GHSC-PSM prepared a market landscape review outlining the most popular apps and shared the findings with USAID. The project recommended conducting further research and analysis of monthly active users over a more extended period and exploring opportunities for collaboration between donors and fertility awareness app developers, especially in those LMICs where the apps are increasingly popular.

Supporting social marketing engagement activities

As in previous years, GHSC-PSM engaged with social marketing organizations (SMOs) in FY 2023 and worked with MOHs to customize FP/RH commodity labeling according to their country's requirements. In Q4, the project assessed SMO consumption trends and demand for 2023 and 2024. This effort supported procurement activities and assisted countries in planning for the transition to the NextGen suite of contracts. This will be a priority activity throughout FY 2024. In FY 2023, the project continued to support SMOs transitioning from ferrous fumarate (Fe) to non-ferrous fumarate OCs due to changes in the WHO prequalification status of COCs containing Fe since the amount of Fe in the placebo pill is considered a non-therapeutic dose. To deliver customized FP/RH commodity labeling that meets country requirements, GHSC-PSM undertook activities such as ensuring compliance with local and supplier regulatory requirements, addressing overbranding needs resulting from brand transitions, and managing brand updates effectively. In addition, GHSC-PSM conducted a mapping exercise of all SMOs, providing a comprehensive overview of critical elements such as contract dates, points of contact, and program activities-looking into family planning contraceptive procurement volumes and cost to SMOs, and what volumes and products have actually been overbranded or distributed unbranded from project start to 2022. This exercise will inform future strategic sourcing, procurement planning and logistics activities.

Landscape tracker for government and parastatal outsourcing

In FY 2023, GHSC-PSM implemented the Landscaping of Supply Chain Outsourcing activity under the Last Mile Technical Priority Area. The project conducted a landscape analysis of 41 countries (32 GHSC-PSM partner countries and eight non-field office (NFO) countries) and created a tracker of government and parastatal outsourcing of supply chain services to private-sector 3PLs. The landscape analysis indicated across various health areas, that of the countries sampled, only nine—Botswana, Burma, Democratic Republic of Congo, Indonesia, Kenya, Mozambique, Nepal, Pakistan, and Sudan—outsourced services at various levels of the supply chain in FY 2022.

The tracker is a robust centralized data resource providing end-to-end visibility into countries' outsourcing. This activity supports USAID's goal to strengthen the use of local systems and increase country government supply chain expertise as stewards and leaders in managing and strengthening these systems through private-sector partnerships. In Q4, the project presented its findings at several events, including the Promoting Results and Outcomes through Policy and Economic Levers (PROPEL) Health advocacy meeting and the PMI/GHSC-PSM malaria meeting. Stakeholders and key participants at these meetings included representatives from USAID Commodity Security and Logistics Division, Africa Health Business, Bill and Melinda Gates Foundation, Global Fund, and VillageReach. These findings give these organizations a better understanding of where governments outsource supply chain services.

As a follow-on activity, in FY 2024, GHSC-PSM will create an advocacy video highlighting the benefits of government outsourcing based on evidence from Botswana and Mozambique.

Finalized and published FP/RH procurement Impact Briefs on the website

In FY 2023, to support USAID Missions in their efforts and contribute to advocacy for contraceptive security and commodity procurement in priority countries, GHSC-PSM updated the project's Impact Briefs with revised data and information summarizing the potential country-level health and economic impacts of USAID's contraceptive procurements. In Q4, GHSC-PSM translated the Angola and Mozambique Impact Briefs into Portuguese and published them on the GHSC website. This marked the first time the Impact Briefs were available in Portuguese in support of promoting local dissemination efforts. GHSC-PSM published a listicle, The Transformative Impact of Investments in Contraceptives: How USAID is Helping Advance Women's Health, on the usaid.gov website to promote the potential impact of the USAID investment through GHSC-PSM's procurements.

GHSC-PSM also finalized and disseminated a utilization survey for project staff and USAID Mission respondents. The project designed the survey to understand how key stakeholders use the Impact Briefs as an advocacy tool in the country and to inform future iterations of the briefs. GHSC-PSM will analyze and present survey results in FY 2024.

Preparing for the RHSC General Membership Meeting

In Q4, GHSC-PSM finalized preparations for the RHSC GMM taking place in Accra, Ghana, in Q1 FY 2024. RHSC is a key partner in GHSC-PSM's global collaboration, and this meeting is a strategic opportunity to engage with the RHSC global community. The meeting's theme is resilience in the face of COVID-19's impact on access to RH supplies. Two abstracts were accepted for the meeting: "Protecting Access to Contraceptives during the COVID-19 Pandemic: An Assessment of Contraceptive Security and Supply Chain Resilience," which focuses on all countries that responded to the Contraceptive Security Indicators Survey administered by GHSC-PSM, and "Enhancing Technology in Support of Malawi Ministry of Health Resilience to FP/RH Commodity Supply Chain Challenges." In addition to the presentations, GHSC-PSM will participate in the RHSC systems strengthening working group meeting and other relevant sessions at the conference.

Tracking contraceptive security

In Q4, GHSC-PSM continued to manage the 2023 CSI survey, which assesses access to a wide-range of affordable high-quality contraceptives in more than 40 countries. Surveys arrived from Q3 through the end of Q4, resulting in a 70 percent completion rate. GHSC-PSM anticipates receiving approximately 80 percent of the surveys distributed. In countries where GHSC-PSM does not have an office and MOH staff or partners were unable to complete the survey, GHSC-PSM hired an external consultant to complete data validation, as observed in Guinea, Senegal, and the Kyrgyz Republic. Additionally, GHSC-PSM trained and onboarded five data specialists to validate the surveys while simultaneously providing ongoing support to data validators, addressing queries, and ensuring comprehensive and efficient completion of data validation. In FY 2024, GHSC-PSM will finalize the validation of survey results before commencing data aggregation, analysis, reporting, and dissemination. By conducting the survey and disseminating results, GHSC-PSM will contribute to the global knowledge base regarding the range of FP policies, approaches, and enabling environments to reduce the unmet need for FP, increase access to and use of contraceptives, and ultimately enable clients to plan their families and prevent unintended pregnancies.

Participating in the Hormonal IUD Access Group

GHSC-PSM participates in the Hormonal IUD Access Group, including Operations, Partners Exchange, and Steering Committee subgroups, to support the goal of coordinating with global stakeholders to facilitate introduction and scale-up of hormonal IUDs in priority countries. In Q4, GHSC-PSM participated in the Hormonal IUD Access Group Partners Exchange, Hormonal IUD Steering Committee, and Hormonal IUD Technical/Supply Side Workstream meetings.Leveraging global market intelligence to inform supply planning

In FY 2023, GHSC-PSM closed out this activity with a webinar to increase awareness of and access to reproductive health market intelligence tools among GHSC-PSM country office FP/RH focal points and USAID Mission staff to inform country supply plans. FP/RH focal points and USAID Mission staff can now leverage the Contraceptive State of Supply, VAN, and downloadable Reproductive Health Catalog to support supply planning activities.

Dissemination of wholesaler white paper

Many factors contribute to ensuring access to and availability of quality, affordable health commodities at service delivery points, including reliable and efficient health supply chains to facilitate the movement of products between manufacturers and consumers. In many countries, domestic wholesalers are the crucial intermediaries in public and private health supply chains, responsible for multiple supply chain tasks, including procurement, importation, warehousing, and distribution. In FY 2023, the FP/RH and MNCH task orders jointly developed and published the white paper, The Role of Domestic Wholesalers, which describes how domestic wholesalers operate in public, private not-for-profit, and private for-profit sector markets and their added value to each. The paper identifies opportunities to increase domestic wholesaler contributions and improve the availability of quality FP/RH and MNCH commodities in LMICs. The paper explores the determinants of wholesaler quality, challenges, and specific barriers encountered. GHSC-PSM will continue dissemination activities in FY 2024.

Implementing green packaging recommendations

In FY 2023, GHSC-PSM built on USAID's FY 2019–2022 investments in packaging harmonization and optimization of key FP/RH products by implementing green packaging recommendations for medroxyprogesterone acetate injectable contraceptive (MPA-IM), and hormonal and non-hormonal IUDs and explored green packaging opportunities for additional product categories. In Q4, in support of this goal, GHSC-PSM delivered the project's first order of MPA-IM 20 packaging configuration to Zambia. Previously, the country supply chain faced a challenge where syringes required for these injectable contraceptives were separated from the medical vials, which presents the risk of products not arriving at their end destination in matching quantities or at the same time. This packaging solution includes 20 vials and 20 syringes bundled in a small inner box, designed to ensure that injectable contraceptives that require a syringe and a vial are delivered together in equal quantities. In FY 2024, GHSC-PSM will collect feedback in Zambia from health facility workers who handle and use the new packaging and develop recommendations for future procurements and broader availability based on their experiences.

Overview of Contraceptive and Condom Shipment Report

In FY 2023, GHSC-PSM published the FY 2022 Overview of Contraceptive and Condom Shipments Report summarizing the delivered quantities and value of contraceptives and FP funded condoms supported by USAID. In FY 2022, USAID provided FP/RH commodities through missions to 24 countries in Africa, Asia, and Latin America and the Caribbean (LAC). There were no shipments to Europe, Eurasia, or the Middle East as in previous years. Overall, the total delivered value for contraceptives and condoms increased from $39 million in FY 2021 to $53.6 million in FY 2022, which represented an increase of 37 percent. Injectable contraceptives and contraceptive implants continued to account for the highest delivered value combined. Together, they made up 75 percent of the delivered value globally and were delivered to the majority of countries that received FP commodities from USAID.

Enhancing the visibility of FP/RH supply data

GHSC-PSM is a key contributor in supporting the strategic development and scale-up of the VAN platform and processes. The VAN is the RH community's pioneering initiative to increase supply chain visibility, improve stakeholder collaboration, and ensure the availability of timely and complete VAN data for collaborative decision-making. In Q4, the project focused on supporting GHSC-PSM Premium Member VAN countries and those selected in FY 2022 as candidates to transition to Premium membership. Activities included:

- Managed the ARTMIS-VAN integration, conducting regular reviews and data quality process checks to ensure timely updates to the VAN. At the same time, GHSC-PSM performed root-cause analysis of any issues that arose related to data integration.
- Tracked cross-organizational and project use of the VAN and presented to USAID CSL Topical Tuesday on VAN use cases and usage trends across different VAN membership types and GHSC-PSM support levels. The usage trends show increased collaboration among funders, procurers, suppliers, and MOHs, enhancing data visibility for RHSC and MOH stakeholders.

- Coordinated with the GHSC-PSM Nigeria country office in beginning stakeholder engagement and planning sessions to support integrating the Nigeria health LMIS and the VAN.
- Helped Liberia and Rwanda transition to Premium membership by working with RHSC to support these country offices as they hosted Premium member in-country training sessions.
- Participated in the VAN Steering Committee (GHSC-PSM is a non-voting member) and provided input to the manufacturing subcommittee on GHSC-PSM's key supply chain data definitions and opportunities for standardization across the FP community.
- Participated in regular VAN working groups, including the following task forces: data management, technical management, data sharing, systems strengthening, and super user and analytics.

Updating the TO3 Product Catalog

GHSC-PSM is updating the 2022 TO3 Product Catalog to reflect changes to the product portfolio and product pages, including supplier profiles, volumetrics, logistics, stock planning, and warehousing data, as required. The TO3 Product Catalog aims to inform and aid stakeholders' decision-making when planning for the procurement, supply, and distribution of contraceptives. In Q4, GHSC-PSM finalized updates and translated the catalog into French and Portuguese. The project will publish and disseminate the translated versions to relevant stakeholders in Q1 FY 2024.

COUNTRY SUPPORT

In **Angola**, GHSC-PSM provides technical and logistical assistance to the MOH's Sexual and Reproductive Health Program on Supply Chain, including conducting supportive supervision to prevent stockouts, strengthen the national logistics system, and ensure efficient FP/RH supply chain management.

In Q4, GHSC-PSM conducted supportive supervision and found that the province of Malanje had yet to implement long-term contraceptive implants in all municipalities due to a shortage of trained health professionals, restricting their availability to the General Hospital in the capital.

GHSC-PSM collaborated with other implementing partners to train 74 health workers, encompassing 54 from the Malanje municipality and 20 from the Cangandala municipality. This initiative aimed to expand access to long-term contraceptive implants beyond the capital city. The training focused on imparting skills related to insertion techniques for the implant method and enhancing effective client engagement and communication.

Following the supportive supervision and training follow-up, four health facilities in Malanje municipality and one health facility in Cangandala municipality started providing contraceptive implant services to clients. Notably, within one week, these facilities served 100 clients.

In **Ethiopia**, implant and injectable contraceptives faced frequent shortages, with national stock levels falling below two months. In response, GHSC-PSM conducted a national stock risk analysis, using supply chain data from the Ethiopian Pharmaceuticals Supply Service (EPSS) central and subnational branches' warehouse inventory management system, as well as the EPSS central procurement data system. Following a stock risk analysis, a root cause analysis was conducted, identifying issues such as fragmented volume of

quantity delivery, procurement delays due to lack of timely and adequate financing, and absence of letter of credit (LC) permits, contributing to the shortages.

GHSC-PSM shared these findings with the MOH, EPSS, and USAID, incorporating their feedback to enrich the root cause analysis through a collaborative approach. Furthermore, the analysis was presented in the USAID Implementing Partners TWG platform, fostering discussions on supply chain challenges. GHSC-PSM worked with EPSS to implement a collaborative problem-solving approach to address issues arising from fragmented shipment deliveries and delays in LC processing.

GHSC-PSM also conducted a comprehensive Funding Gap Analysis, quantifying financial needs to address stock shortages and supporting the MOH in advocating for additional funding. Collaborating with the MOH, GHSC-PSM presented evidence from the root cause and funding gap analyses to donors such as USAID, UNFPA, World Bank, and the Bill & Melinda Gates Foundation (BMGF). This advocacy led to the procurement of 3.2 million injectables by BMGF, 1 million injectables and 200,016 implants by UNFPA, expedited deliveries, and increased government allocation through a multi-donor compact agreement.

GHSC-PSM's collaborative efforts, which include advocacy and strategic problem-solving, contributed to a substantial increase in the national stock level of implant and injectable contraceptives. Stock levels now exceed 4.5 months, indicating a stable supply chain capable of meeting demand without significant risks of stock shortages

B4. MATERNAL, NEWBORN, AND CHILD HEALTH

15 countries[53] received MNCH supply chain strengthening support in FY 2023.

Two countries received deliveries of MNCH medicines and commodities in Q4. Over the life of the project, GHSC-PSM project has delivered a total of **$28.1 million in MNCH commodities**, including **$2.3 million in Q4.**

Shared newborn health supply chain expertise at **five global policy dialogues** in FY 2023, aimed at **improving newborn health outcomes** and strengthening strategic global and national partnerships to achieve the Sustainable Development Goals.

Developed **two reports** on increasing **sufficient and sustainable funding for MNCH medicines**, including cross-country experiences and an Ethiopia case study in Q4.

GHSC-PSM supports USAID's efforts to prevent child and maternal deaths by increasing access to quality-assured medicines and supplies under the maternal and child health (MCH) task order. The project provides global technical leadership on MNCH commodities and ensures that supply chain management considerations are included in global dialogue and initiatives.

This section of the GHSC-PSM report summarizes achievements under the priority areas of the MCH task order—for global MNCH dialogue, global procurement and supply chain operations, and the work of GHSC-PSM country offices. The MCH task order objectives are as follows:

- **Maternal health**: GHSC-PSM supports mothers through pregnancy, delivery, and beyond by ensuring availability of health products to address the primary causes of maternal death: high blood pressure during pregnancy and severe bleeding following childbirth.

[53] GHSC-PSM provided MNCH technical assistance to 15 countries in FY 2023: AFRICA: Burkina Faso, Ethiopia, Ghana, Guinea, Kenya (TO5), Liberia, Malawi, Mali, Mozambique, Nigeria, Rwanda, and Zambia; CARIBBEAN: Haiti ASIA: Nepal, Pakistan.

- **Child health:** GHSC-PSM aims to reduce preventable child mortality by ensuring availability of products to treat pneumonia, diarrhea and severe infections, the leading causes of death for children under five years old.

- **Newborn health:** To address the needs of small and sick newborns, the project contributes to global guidelines for medicines, consumables and equipment to prevent newborn morbidity and mortality.

- **Supply chain support and collaboration**: GHSC-PSM guides and coordinates with national governments on MNCH commodity planning, procurement and supply chain management. GHSC-PSM develops and shares globally recognized best practices with these countries.

- **Ad hoc strategic procurement and delivery** to increase the availability of quality-assured MNCH commodities in project-supported countries.

REFLECTIONS ON FY 2023

We are at a crucial point for impacting maternal and child health outcomes. In the wake of the COVID-19 pandemic, data show stagnating and, in many cases, declining trends in maternal health. Child and newborn mortality remain staggeringly high. Resources to address the leading causes of child and maternal deaths are often overlooked and underfunded. GHSC-PSM has an important role in turning this tide, by supporting global and national health supply chains to manage MNCH medicines and supplies. In FY 2023, the project focused on increasing availability and appropriate use of key MNCH commodities by sharing information and tools with countries and partners.

GHSC-PSM and its partners published a Call to Action Paper to address severe infections in young children and updated two practical resources on use and procurement of postpartum hemorrhage (PPH) medicines and other key MNCH commodities. As research on medicines to treat and prevent PPH and hypertensive disorders of pregnancy (HDP) advances, the project continues to shape its resources and objectives to incorporate new information about the most effective commodities to save mothers' lives—this includes drugs like tranexamic acid (TXA) and heat-stable carbetocin. In FY 2024, the project will continue to share information on these commodities and how they can be used. Notably, the project also translated these updated resources into multiple languages so they can be used and understood by more individuals across the globe.

The project and Monash University also shared PPH commodity information and discussed maternal health policy with the governments of Guinea and Nigeria during PPH workshops in FY 2023. More than 270 attendees learned about considerations for PPH commodities, and planned next steps to improve availability and management of these products in their countries. GHSC-PSM will continue to work closely with these countries as they carry out their plans. As a result of the workshops, Guinea is working to integrate oxytocin into its Expanded Programme on Immunization (EPI) cold chain. More countries will be reached through similar workshops in FY 2024.

Another focus for the project in FY 2023 was pharmaceutical wholesalers—these private sector actors are crucial for MNCH commodities and often relied upon to supply countries' essential medicines. In FY 2023, GHSC-PSM's MCH and FP/RH teams collected and published insights on the role of domestic wholesalers

and wholesaler associations in support of USAID's goal to source products domestically and ensure a sustainable supply of medicines.

GHSC-PSM also made progress in data systems for MNCH commodities in FY 2023—expanding the project's data analytics tool catalog and refactoring several tools for use in multiple countries. This catalog has a wealth of information and resources for project-supported countries poised to advance their LMISs and resolve stock challenges using technology solutions. Six countries are currently employing, or preparing to employ, refactored tools.

Another data milestone for the project in FY 2023 was achieved through the EUV survey. By collecting data on how temperature-sensitive oxytocin is stored, **seven project-supported countries** identified and addressed gaps, and **improved their cold chain storage of oxytocin** at health facilities; one country improved by 47 percent.

The project and partners conducted several landmark MNCH assessments in Ghana this year, yielding data on the newborn health landscape and oxygen ecosystem, HDP commodity availability and management, and private sector supply of MNCH commodities. The project disseminated the results in various fora, discussing how such information can help inform MNCH supply chain decisions. In FY 2024, GHSC-PSM will share the assessment tool used so other countries may conduct similar assessments.

Newborn health, and particularly the respiratory ecosystem for small and sick newborns, was a new focus in FY 2023. GHSC-PSM participated in many fora and policy discussions to emphasize the importance of appropriate newborn care, and informed countries and partners of the supplies and supply chain considerations critical to ensuring appropriate care—including sharing the experiences and realities of newborn care in the countries GHSC-PSM supports.

In a similar vein, the project documented the experiences of many project-supported countries in the area of financing MNCH programs and commodities. MNCH is often underfunded, but many of GHSC-PSM's country teams have made strides alongside their government counterparts—learning key lessons along the way—in securing domestic funding to meet the MNCH needs of their citizens. The project collected these learnings in two papers that will be published in FY 2024. Engaging national governments in this way is a key to sustaining MNCH services and supplies in the long term.

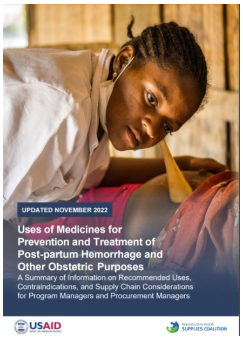
Finally, while GHSC-PSM does not procure significant quantities of commodities, the project did support strategic procurements in seven countries in FY 2023, including emergency orders for DRC and Haiti, and equipment for newborns in Rwanda. More on these procurements is described below.

Looking forward to FY 2024, GHSC-PSM seeks to advance its data analytics tool refactoring, dissemination of key MNCH commodity information, and leadership in global maternal and newborn policy discussions, helping countries and partners to reduce maternal and child mortality through well-informed and data-supported MNCH supply chain decisions.

MATERNAL HEALTH

Strong health systems that ensure availability of quality maternal health products such as uterotonics, TXA for PPH, and medicines that address HDP are important in reducing maternal mortality. In keeping with the global PPH roadmap, GHSC-PSM supports the improved availability of these products through assessments, workshops on quality of medicines, and global technical leadership. In Q4, GHSC-PSM facilitated a virtual discussion among technical experts from Boston Consulting Group, Results for Development (R4D), USAID and others on safe blood transfusions, participated in the virtual Postpartum Hemorrhage Community of Practice Annual Meeting, and planned a global meeting with WHO to prioritize maternal and newborn health products, to take place in Q1 FY 2024.

In addition to these global policy dialogues, GHSC-PSM also creates and disseminates global guidance. In FY 2023, the project updated two important documents: the Manual for Procurement and Supply of Quality-Assured Maternal, Newborn and Child Health Commodities and the Uses of Medicines for Prevention and Treatment of PPH and Other Obstetric Purposes in collaboration with the RHSC. The updated *Manual* includes new chapters on antihypertensives, heat-stable carbetocin, and TXA. Both documents highlight key characteristics and supply chain considerations for individual medicines and are available in multiple languages.



Assessment of Hypertensive Disorders in Pregnancy in Ghana

In contexts where supply chain data are limited or unavailable, GHSC-PSM conducts assessments to understand the availability of medicines. In FY 2023, GHSC-PSM conducted an assessment of 12 HDP products in 135 public health facilities across six regions in Ghana. The report found:

- Stockouts of products were relatively low with the exception of magnesium sulfate, which was 50 percent stocked out across all health facilities.
- Few facilities managed HDP products; especially among lower-level facilities that employ midwives. For example, less than half of Community-based Health Planning and Services (CHPS) facilities managed magnesium sulfate due to health personnel's lack of understanding of national guidelines and provider preference to refer clients experiencing HDP to other facilities.
- Approximately 44 percent of HDP products found in health facilities had not been registered, demonstrating the need for regulatory strengthening.

In FY 2024, GHSC-PSM in Ghana will support the MOH, Ghana Health Service (GHS), the National Health Insurance Scheme, and health supply chain managers to implement recommendations from the report. Also in FY 2024, the project plans to conduct the assessment in additional countries and to collaborate with Monash University in sampling and testing HDP medicines to gauge quality.

GHSC-PSM will modify and share the assessment tool in FY 2024 so that it can be used in other contexts. Assessment results, including HDP sampling data, and the assessment tool will all be made publicly available on the GHSC website.

Postpartum hemorrhage workshops in Guinea and Nigeria

In coordination with Monash University, GHSC-PSM held two workshops on quality and availability of PPH commodities (uterotonics and TXA) in FY 2023, to discuss challenges and solutions in Guinea and Nigeria. Participants included 270 staff from the MOH and its public and private supply chain partners. Participants reviewed data, current policies, and global recommendations to improve the procurement and management of PPH commodities to reduce maternal mortality.

In Q4, GHSC-PSM worked with the USAID/Nigeria Mission and the National Primary Health Care Development Agency (NPHCDA) to expand cold chain infrastructure, ensure proper oxytocin management, and increase advocacy with government counterparts to urgently address availability of PPH commodities. And in Guinea, the MOH, GHSC-PSM, and relevant stakeholders began developing guidance to ensure the integration of oxytocin into the EPI cold chain. These partners are considering a funding gap analysis in FY 2024 to inform future investments for cold chain equipment.

Increasing sufficient and sustainable funding for MNCH medicines

Essential medicines such as antibiotics to provide quality care for MNCH and nutrition are often country-financed and purchased by governments through centralized public procurements or through a decentralized system by subnational government structures. However, given constrained health budgets, it is difficult for governments to procure the necessary quantities of quality essential medicines. GHSC-PSM partners with governments to develop strategies and tools to advocate for and monitor allocated funding of MNCH medicines to address this challenge. In FY 2023, GHSC-PSM documented these efforts in a cross-country compendium of experiences including:

- In **Mali**, GHSC-PSM ensures effective coordination by holding bi-monthly working sessions with all departments within the Pharmacie Populaire du Mali, the entity responsible for procuring, storing, and distributing essential health commodities. As a result, stakeholders in Mali are aware of supply plan implementation details and can avert supply issues.
- In **Mozambique**, GHSC-PSM and the MOH conducted a commodity gap analysis using eLMIS data. As a result of this analysis and follow-up advocacy, subnational stockouts decreased significantly and there were **no stockouts** of amoxicillin at the central level in 2021.

Case study: Improving financing for maternal health commodities in Ethiopia. Since 2018, GHSC-PSM has worked with the Government of Ethiopia to increase resources for maternal health medicines. The project developed a case study in Q4 to document the impact of this work. Key results include:

- Ethiopian government funds exclusively earmarked for lifesaving maternal health commodities were increased from $307,692 in 2021–2022 to $943,396 in 2023–2024, increasing 67 percent in just two fiscal years. This represents a notable enhancement in the government's funding contributions, increasing from 4 to 11 percent of the total annual funds required to supply maternal commodities.

- The stockout rates for several maternal health commodities decreased—magnesium sulfate stockouts decreased from 14.6 percent in 2017 to 0.9 percent in 2023 and oxytocin stockouts decreased from 15.3 percent to 1.9 percent.

In Q1 FY 2024, GHSC-PSM will publish and disseminate the case study so that the project's experiences and lessons learned may inform the evolving landscape in health commodity financing.

CHILD HEALTH

GHSC-PSM lends its MNCH supply chain expertise to global dialogues on child health, including active participation in the Child Health Task Force (CHTF). In FY 2023, the project participated in the launch of USAID's Preventing Child and Maternal Deaths Framework (launched March 2023). Despite the efforts of child health coordination bodies and achievements laid out in USAID's framework, major challenges persist with access to and appropriate use of pediatric amoxicillin and gentamicin injection to treat pneumonia and other respiratory infections.

In FY 2023, GHSC-PSM worked with child health partners—United Nations Children's Fund (UNICEF), USAID, Promoting the Quality of Medicines Plus (PQM+), and Medicines, Technologies and Pharmaceutical Services (MTaPS)—to develop and publish the Call to Action Paper to address pneumonia and possible serious bacterial infection (PSBI) in young children. Pneumonia and PSBI are leading killers for children when they are not addressed quickly with the right treatments. These treatments, amoxicillin and gentamicin, are common, affordable antibiotics that should be available at all levels of the health system. This paper helps key actors understand what steps to take to make those treatments available.

Delivering emergency supplies to treat cholera in Haiti

GHSC-PSM also works to address another leading cause of child deaths under five years old, diarrhea. In FY 2023, GHSC-PSM supported the Government of Haiti to manage the cholera outbreak (leading to severe diarrhea) by delivering oral rehydration salts (ORS), zinc, and select antibiotics to facilities. Despite a complex humanitarian crisis, GHSC-PSM, due to its warehousing and data system capabilities, was selected by donors and USAID's emergency response teams—the Bureau of Humanitarian Assistance (BHA) and Disaster Assistance Response Team (DART)—to store, distribute and track urgent deliveries of cholera commodities. In FY 2023, the project distributed 166 pallets and procured approximately $500,000 of additional cholera commodities to support Haitian health facilities.

Procuring ready-to-use-therapeutic-food (RUTF) for Nigeria

To address severe acute malnutrition in children under the age of five in Nigeria, GHSC-PSM collaborated with the USAID/Nigeria Mission to source quality-assured RUTF for three northern states: Bauchi, Kebbi and Sokoto. GHSC-PSM also collaborated with GHSC-QA to prequalify Nigerian manufacturers and launched a sourcing event for procurement and delivery of RUTF to the states. GHSC-PSM's evaluation of offers resulted in awards to two Nigerian manufacturers.

In Q4, GHSC-PSM executed a contract with one Nigerian manufacturer and issued orders for three separate tranches of RUTFs totalling 39,360 cartons. GHSC-PSM delivered the first tranche segmented across the three states as follows:

- Sokoto State CMS: 4,806 cartons
- Bauchi State CMS: 3,269 cartons
- Kebbi State CMS: 3,269 cartons

The second and third tranches will be delivered in Q1 FY 2024. The contract with the second Nigerian manufacturer, and subsequent deliveries through this manufacturer, will be executed in FY 2024.

NEWBORN HEALTH

In FY 2023, GHSC-PSM increased global discussions on newborn health in coordination with USAID and other partners including UNICEF, NEST360, and WHO. With the growing consensus that achieving the Sustainable Development Goals (SDGs) requires increased focus on newborn care, particularly for small and sick newborns (SSNBs), GHSC-PSM supported policy dialogues and newborn care supply chain assessments at global and national levels.

Supporting Every Newborn Action Plan (ENAP) and global newborn care initiatives

In FY 2023, GHSC-PSM reviewed WHO standard guidelines for newborn care, including on medical devices and consumables, and classified the products as either "essential" or simply "priority" supplies. The activity included an assessment of newborn guidelines in Bangladesh, Ghana, India, Nigeria, Sierra Leone and Tanzania, to determine their level of alignment with WHO guidelines. GHSC-PSM captured the results in a matrix and shared it with the co-leads of ENAP's commodities-focused technical working groups (ENAP-C), including experts from USAID, WHO and UNICEF. GHSC-PSM will continue to provide technical assistance to ENAP-C in FY 2024 to update the list of desirable and essential commodities for newborn health.

Assessing medical devices and consumables for SSNBs in Ghana

In FY 2023, GHSC-PSM assessed newborn medical devices and commodities, and providers' capacity to use these supplies, in Ghana. The assessment featured a landmark analysis of the newborn oxygen ecosystem. The assessment was designed to:

- Determine data gaps regarding the availability of resuscitation devices for SSNBs.
- Investigate health worker capacity to manage and maintain devices critical to ensuring adequate care for SSNBs.
- Evaluate maintenance protocols for medical devices used for newborn care.
- Assess the respiratory ecosystem for SSNBs at health facilities.

GHSC-PSM coordinated with stakeholders including GHS; JHPIEGO's Reaching Impact, Saturation, and Epidemic Control project (RISE) in Ghana; and the USAID/Ghana Mission to develop a harmonized assessment tool for use in targeted geographic regions. The project collected data, including through interviews with the Biomedical Engineering Division and the Family Health Division at GHS. The assessment identified challenges related to human resources, the availability of medical devices for newborn care, and maintenance. The project made recommendations for supply chain actors to consider based on the assessment results, including:

- ***Establishing effective maintenance practices to ensure the longevity of the medical devices***. Staff should be adequately trained to regularly maintain the equipment.
- ***Expanding infrastructure for maternal and newborn care*** in health facilities to ensure equitable access to all levels of services critical for protecting the health of SSNBs as well as individuals seeking maternal health services.
- ***Supporting health facilities to acquire and ensure effective use of newborn care devices and equipment,*** including continuous positive airway pressure (CPAP); pulse oximeter; and safe oxygen sources that are recommended for use in neonatal intensive care units, and advocate to development partners and stakeholders to provide this critical equipment to optimize treatment and management of newborns.

The project will publish a full assessment report in Q1 FY 2024.

Participating in policy workshops for newborn care in Ghana and Ethiopia

GHSC-PSM participated in the NEST360 small and sick newborn care (SSNC) Policy Dialogues in Accra, Ghana and Addis Ababa, Ethiopia in FY 2023. Both workshops, organized by USAID and the respective MOHs, focused on strengthening and scaling up SSNC. The country workshop objectives were:

- Summarize country targets and health sector policy related to SSNC Level-2+, including CPAP.
- Review the current status of SSNC scale-up using health facility assessment results.
- Share SSNC tools and learnings from the ENAP global guidance.
- Determine immediate priorities for SSNC and identify strategies to close the implementation gap.
- Map stakeholders to streamline current and future investments in SSNC, including how to best support the national SSNC agenda.

GHSC-PSM discussed strategies to improve SSNC in Ghana and Ethiopia, particularly in financing, forecasting and procurement, and warehousing and distribution. The project also recommended developing national maintenance protocols for SSNC medical devices and data management systems for adequate performance monitoring at health sites.

Presenting at 2023 International Maternal and Newborn Health Conference (IMNHC)

In Q3, GHSC-PSM participated at IMNHC in Cape Town, South Africa. The project coordinated and presented on the panel "Innovations in the respiratory ecosystem to support safe oxygen use with CPAP for SSNC to achieve ENAP Target 4." GHSC-PSM and fellow presenters from USAID, UNICEF, Systems Approach for MNCH focusing on Vulnerable Geographies (SAMVEG), Diamedica UK, Kamuzu University of Health Sciences in Malawi, and Aga Khan Health Services in Tanzania discussed oxygen use and medical device innovations for SSNC. The presentation focused on the need for aligned policies, appropriate equipment at health sites, and innovations in medical devices to improve newborn care. GHSC-PSM presented results from its newborn oxygen ecosystem assessment in Ghana (see earlier in this section).

Participating in SSNC Deep-dive Finance Workshop

In FY 2023, GHSC-PSM participated in a workshop focused on financing strategies for SSNC. The objectives of the meeting were as follows:

1. Understand three SSNC costing tools developed by the Global Financing Facility (GFF), UNICEF, and NEST360 and brainstorm how these might be used to support ENAP country acceleration plans to scale up SSNC.
2. Determine the feasibility of coordinated support to countries to integrate these costing tools into country acceleration plans.

GHSC-PSM shared its experiences and advocated to participants, including USAID, World Bank, UNICEF, WHO, and the MOMENTUM project, for increased attention to MNCH work in francophone and lusophone countries in Africa, given current trends of maternal, newborn and child mortality rates and highlighted the need for translated guides, global guidance, technical briefs, research papers, etc., in multiple languages. The group will continue to meet in FY 2024 and ultimately draft a resource to share best practices around financing for MNCH projects.

MNCH SUPPLY CHAIN SUPPORT AND COORDINATION

Domestic wholesalers resource

GHSC-PSM provides global technical leadership on MNCH commodities and supply chain needs in many ways, including by funneling the knowledge and experiences of its country teams, and its global partners, into practical and informative resources. In FY 2023, GHSC-PSM published a brief on the role of domestic wholesalers. The document acknowledges that domestic wholesalers are a valuable channel for increased localization and contribute to USAID's goal to localize manufacturing and sourcing of products whenever possible, and to ensure sustainable supply of essential medicines. The document also spotlights the opportunity presented by wholesaler associations—to improve availability and quality of commodities. Wholesalers take part in national pharmaceutical associations to collectively address challenges, partner with governments, and operate as proactive, solution-oriented, standard-setting organizations. By engaging with these organizations, and helping them thrive, we can improve supply for the commodities needed to save mothers and children's lives.

Warehousing Center of Excellence resource

The Center of Excellence (COE) initiative is designed to accelerate change management across warehouses and warehouse systems through continuous operations improvement using "lean" methodology. The COE prepares the supply chain and warehouse management systems for activity-based costing (ABC) to become more efficient and cost effective, allowing country governments to focus on other priority initiatives to improve the health of their citizens.

During Q4, GHSC-PSM drafted the COE field guide, "How to Operate the Center of Excellence: Winning the Logistics Game." The guide focuses on overcoming constraints, eliminating excess travel and labor, and enabling different warehouse teams to work and complete their tasks simultaneously (rather than waiting on other teams to finish), ultimately reducing warehouse order cycle times. GHSC-PSM tested the methodology by implementing a daily planner at the Zambian Medicines and Medical Supply Agency (ZAMMSA) in Lusaka. The project collected volumetric outbound data during this Zambia activity and included the data in the field guide as a real-life example and an illustration of lean warehouse product slotting methodologies. GHSC-PSM will publish the guide in FY 2024.

Support for data-informed health supply chain decision making

GHSC-PSM assesses the availability of malaria, FP/RH, and MNCH commodities at health facilities using the EUV survey to collect data on attributes that contribute to commodity availability, including storage conditions, staff capacity, and stock management. The project presents findings to Missions and MOHs and helps facilitate conversations and activities to improve commodity availability. The survey gathers qualitative data, which provides insights into the reasons for stockouts. EUV data can be used to triangulate LMIS results and identify stock availability trends. EUV data collection is an important opportunity for GHSC-PSM country teams to provide on-site capacity strengthening for health facility staff without increasing the burden on staff.

In FY 2023, GHSC-PSM published a briefer on how the EUV survey has been used to improve cold chain management of oxytocin. Project-supported countries use the EUV to assess the availability and proper storage of oxytocin, identifying gaps and potential solutions. The EUV data and visits targeting oxytocin cold storage allowed country teams to improve oxytocin management at their health facilities, progress that was documented in the most recent EUV reports. By improving proper storage and handling of oxytocin, facilities can ensure it is both adequately available and effective when used.

In FY 2023, six countries collected EUV data and submitted EUV reports to USAID/Washington and in-country stakeholders: Burkina Faso, Ghana, Guinea, Liberia, Mali and Nigeria.

Results from the recent EUV in Guinea. In Q4, Guinea's EUV report demonstrated several key findings across commodities:

- From July 2022 to June 2023, the oxytocin (10 IU) stockout rate decreased from 53 percent to 14 percent. This sharp decrease can be attributed in part to the increased availability of the product at regional depots, and to GHSC-PSM training of stock managers at the district level.
- Improvement in oxytocin storage at the regional warehouse level, with 64 percent of usable oxytocin stored in the cold chain, compared to 33 percent reported in December 2022.
- GHSC-PSM's regional and district-level training and support on ordering and monitoring MNCH stocks have been key to reducing stockout rates across commodities.

In FY 2024, GHSC-PSM in Guinea will continue to work with the MOH to reduce stockout rates and improve commodity quality through an increase in cold storage access and a more proactive stock ordering process.

Improving data analytics and information systems for MNCH commodity decision making. In FY 2023, GHSC-PSM updated its catalog of robust data analytics tools that supply chain staff use alongside eLMISs to analyze MNCH commodity data and inform management decisions. The catalog, available to GHSC-PSM staff and some partners, describes each tool, its platform, and the data it requires to function. The catalog is beneficial to project-supported countries with nascent eLMISs, providing a blueprint of analytics tools that already exist and have proven effective to support critical supply chain decisions. GHSC-PSM also refactors select tools from the catalog, or makes the tools' code more widely usable, and helps countries implement these refactored tools in their health and logistics systems. With the recent additions to the catalog, 44 unique tools are now available.

In FY 2023, the project supported six countries to adopt these tools; highlights include:

- In **Burkina Faso**, following the development of the Data Capture and Data Analytics tools and corresponding user guides in French and English, the project engaged the Burkinabe MOH and the CMS (CAMEG) to improve stock monitoring and forecasting through the use of both tools. GHSC-PSM then demoed the tools to the MOH. The project facilitated tool adoption, including organizing a workshop to train supply chain actors on tool use. The country office is working to align refactored tools with ongoing efforts to set up an eLMIS in the country.

- In **Liberia**, following the integration of country-specific data into the Data Extraction and Consumption Anomaly tools and the development of user guides for in-country staff, GHSC-PSM presented the refactored tools to the USAID Mission and MOH, who are considering deploying both tools in FY 2024 to increase supply chain visibility and ameliorate tracking of persistent stock challenges. The MOH is evaluating the potential benefits of integrating the refactored tools into Liberia's eLMIS. Discussions about the best ways to leverage the tools to improve visibility and analysis for the supply chain will continue in FY 2024.

- In **Malawi**, after the USAID Mission approved refactoring the Consumption Anomaly Detection (CAD) tool, GHSC-PSM deployed the refactored tool, streamlined stock data for analysis, created a user guide, and trained in-country users in FY 2023. CAD uses a methodology that flags or detects anomalies in consumption that might warrant review or monitoring. Before launch, the project tested the tool using historical data from Malawi's eLMIS and demonstrated that deployment is feasible and beneficial to track MNCH commodities, analyze consumption, and detect anomalies for improved commodity management. The refactored tool was designed and launched to complement the eLMIS and the country's current data ecosystem.

AD HOC STRATEGIC PROCUREMENT TO INCREASE AVAILABILITY OF QUALITY-ASSURED MNCH COMMODITIES

In FY 2023, GHSC-PSM supported the procurement processes for **seven countries** for MNCH essential medicines and consumables. This included:

- Select **essential medicines** that were in critically short supply on behalf of USAID/**DRC**
- Medicines for **cholera** patients in **Haiti**
- Oral rehydration salts and zinc copacks (**ORS/zinc**) for CHWs in **Guinea** and **Mozambique**
- Select medical equipment, including **newborn devices** for **Rwanda**
- **Essential medicines** for the Drug Revolving Fund in **Nigeria**
- **Amoxicillin** dispersible tablets to treat pneumonia in children in **Zambia**

GHSC-PSM supported four of these countries' MNCH procurement processes in Q4[54].

[54] GHSC-PSM supported procurement processes of MNCH commodities for 4 countries in Q4 FY 2023: DRC, Guinea, Haiti, and Nigeria.

Procurement of child health products for community health workers in Guinea

To support the Government of Guinea and its national integrated community case management (iCCM) program implemented by CHWs, GHSC-PSM began procuring ORS/zinc and a pediatric version of amoxicillin on behalf of USAID/Guinea in Q4. These are used to treat diarrhea and pneumonia in children under five years old. Due to lack of commodity availability, Guinea's current iCCM program provides only select malaria prophylactics and treatment. The MNCH products that the project is now procuring, and adding to available iCCM products, are expected to be delivered in FY 2024.

PROGRESS BY OBJECTIVE

C1. GLOBAL COMMODITY PROCUREMENT AND LOGISTICS

Delivered $148 million in health commodities in Q4. Total value over the life of the project is over **$5.05 billion**.

Delivered 1,171 line-item orders in Q4, with a value of **$148 million**.

Delivered 87 percent of line items on time, based on the defined on-time window (within the period 14 days before or seven days after the agreed delivery date). **Delivered 88 percent on-time and in-full.**

REFLECTIONS ON FY 2023

GHSC-PSM has consistently maintained high operational effectiveness within the global health supply chain, evident through its impressive track record of achieving on-time delivery rates above the contractual target of 80 percent for 20 consecutive quarters. The project has also realized significant cost savings of almost $703 million by optimizing commodity costs.

In FY 2023, the project continued to refine its strategic initiatives, emphasizing sophisticated sourcing strategies aimed at improving market health and transitioning GHSC-PSM from being mere "market takers" to "market shapers."

Each year, unforeseen events often disrupt the global supply chain, requiring swift responses from key players. In FY 2023, GHSC-PSM faced challenges such as the war in Ukraine, shifting weather patterns, and the incessant changes in global logistics patterns due to adjustments made by shipping lines and air freight companies in response to rising costs and fluctuating demand. A major challenge in global commodity procurement in the early part of FY 2023 was the relaxation of COVID-19 restrictions in China, triggering a resurgence of the disease and the subsequent imposition of stricter regulations. The impacts of the resultant lockdowns and port congestion, some of which extended into the Chinese New Year, caused disruptions in the shipment of raw materials and delays in manufacturing and shipment of commodities. To proactively respond to these challenges, GHSC-PSM continued to aggressively and proactively manage the affected shipments and maintained open and transparent communication with USAID and other supply chain partners.

In the face of these challenges, the project remained committed to enhancing operational excellence and supplier relationship management to improve performance and derive more value. For example, GHSC-PSM's market dynamics, strategic sourcing, and supplier relationship management for VL testing have contributed to transforming the laboratory landscape in PEPFAR-supported countries. In the past year, the project also executed vendor-managed solutions, which require ARV manufacturers to offer additional value by holding ARV inventory as close as possible to the destination country.

This year, GHSC-PSM served as a strong thought partner on the USG's strategic goals on regionalization. In Q3, the project hosted a regionalization workshop with USAID partners to identify key areas of synergy and coordination, as well as opportunities and challenges for a supply chain strategy that aligns with USAID's regionalization initiative across three themes: enabling environment, regulatory and quality assurance landscape, and strategic sourcing and research.

Looking ahead to FY 2024, GHSC-PSM remains committed to working closely with USAID to advance its regionalization agenda. In addition, the project will continue to refine its strategy to further enhance operational effectiveness within the supply chain. One of the ways the project hopes to do this is by leveraging GS1 standards and advanced analytics to drive greater automation and efficiency in operations.

C1a. GLOBAL SUPPLY CHAIN: FOCUSED ON SAFE, RELIABLE, CONTINUOUS SUPPLY

GHSC-PSM's procurement strategy focuses on three primary objectives:

1. Maintain on-time deliveries, despite the war in Ukraine, the military coup in Niger, and several natural disasters.

2. Balance price, delivery, and quality to achieve the best value.

3. Reduce response/cycle times, lead times, and transaction costs.

The project focuses on performance and management of overall commodity and supply chain costs through the following initiatives:

MORE HEALTH COMMODITIES THROUGH MARKET DYNAMICS, STRATEGIC SOURCING, AND SUPPLIER MANAGEMENT

GHSC-PSM works across project teams and external stakeholders to understand markets for the medicines and health commodities it procures. The project develops sourcing strategies, builds strategic relationships with suppliers that shape markets, enhances project performance, and achieves greater value for USAID within each product category. GHSC-PSM conducts market analyses, leads strategy development, employs sourcing best practices, contributes to process improvements, and negotiates and proactively manages contracts with suppliers and 3PLs. The project executes sourcing activities for products under each health area in line with the strategic sourcing calendar and undertakes additional sourcing for products to support USAID's COVID-19 response. See sections B1, B2, B3, B4, and Annex A for details.

Notable highlights this quarter include:

- Placed orders for 25,650 vials of CAB-LA to support PEPFAR PrEP programs in Malawi, Ukraine, Zambia, and Zimbabwe as directed in the PEPFAR FY 2024 (Country Operational Plan 23) Technical Consideration for HIV Prevention Programming. The orders will be delivered to the Belgium RDC and dispatched to the four countries in Q1 FY 2024.

- Collaborated with GHSC-QA to complete a product and supplier eligibility process for RUTF suppliers in anticipation of FY 2024 procurement needs. (See section B4 for more information.)

- Completed a semi-annual rate-refresh for freight and logistics 3PLs using an updated evaluation criterion. The revised criterion includes a comprehensive assessment of factors such as on-time performance, electronic data interchange (EDI) efficiency, invoice timeliness, and quality considerations on shipments. This refined approach guarantees that the selection of 3PL providers remains aligned with the overarching goal of delivering the best service to countries and the project.

- Concluded a sourcing event to identify and evaluate third-party Software as a Service, or SaaS, solutions for the EDI between the GHSC-PSM ecosystem (ARTMIS, InfoNexus, and D365) and health commodity suppliers. The project is exploring EDI with commodity suppliers to enhance operational efficiency and supply chain visibility. Using standardized EDI messages to automate business transactions lowers cost, reduces errors, increases processing speed, and enhances the amount and quality of data available to trading partners to support operations. GHSC-PSM will leverage GS1 standardized messages incorporating GS1 standardized identifiers–Global Trade Item Number (GTIN), Global Location Number (GLN), and Serial Shipping Container Code–and data to enhance efficiency and visibility/traceability for all global health supply chain participants. The project shared results of the sourcing event with USAID in Q4 and will use the feedback received to determine how to proceed in FY 2024.

Supplier relationship management

GHSC-PSM prioritizes building strong relationships with suppliers by encouraging honest dialogue on procurement and logistical challenges. In addition to scheduled calls to manage ongoing orders, routine business meetings with suppliers keep the project up to date on products, production capacities, delivery schedules, and quality matters, while commodity and supplier risk profiles inform performance assessments and order allocation strategies. In Q4, the project conducted in-person and virtual business reviews with five suppliers for TO1 and eight suppliers for TO3. Additionally, the project held an ARV supplier conference in Q4 to discuss sourcing objectives before releasing a global RFP to the suppliers.

Operational excellence

In Q4, GHSC-PSM developed, rolled out, and enhanced the following operational cost reduction initiatives:

- **Invoice-to-pay tool:** Completed development and user acceptance testing (UAT) for version 1.0 of the ITP tool designed to significantly reduce operational costs and lead time in processing invoices. Version 1.0 leverages optical character recognition, or OCR, technology when scanning

documents from the supplier (packing list, invoice, bill of lading) and pre-populates fields in the tool, hence reducing potential errors from manual data entry. The tool then uses Generative Pre-trained Transformers, or GPT, technology to verify the information based on the algorithm of the field parameters. The project began testing version 2.0 of the tool, which includes an additional feature that pushes the data and supporting documents from the ITP tool directly into GHSC-PSM's D365 platform, thus eliminating manual data/file transfer.

- **ePackingList (ePL):** Completed development of the tool's extraction logic, design/creation of the table to receive/store ePL data in the OpEx Dataverse, and technical implementation of the emailing system (to receive dispatch advice XML[55] files from suppliers and push these to the InfoNexus platform). Two ARV suppliers have implemented the mapping/message in their systems and successfully generated and forwarded sample test files.

- **Electronic Proof of Delivery (ePOD):** Developed criteria to determine which ePL suppliers, shipping lanes, and 3PLs to include in the ePOD pilot. The ePOD system automates and simplifies the process of documenting deliveries. It eliminates the need for paperwork and instead records essential data and images to confirm the complete or partial delivery of an order and to document any damage. GHSC-PSM defined data strategies and flow for inbound ePOD data from 3PLs to various target systems and will launch the pilot in Q1 FY 2024 with 3PLs.

- **Sourcing Assistance Messenger (SAM):** Updated user guides based on feedback and deployed the tool with project procurement teams. SAM works as a virtual assistant to help procurement teams perform simple tasks, such as promptly following up on approvals to avoid delays or exceeding service-level agreements.

- **Order allocation tools:** Maintained and enhanced order allocation tools for commodity groups such as essential medicines, lab (including HIV and malaria), condoms, and ARVs, and developed communication and auditability features for the lab allocation tool. In Q4, these automation tools collectively processed over 260 requisition orders (ROs), generated over 400 email communications to suppliers (request for information, intent to award, letter of decline, etc.), and recommended allocations for more than 310 RO lines.

Regional distribution center operations

In FY 2023, GHSC-PSM leveraged the Belgium, Dubai, and South Africa RDCs to deliver more than $52 million worth of commodities to 38 destination countries with 86.7 percent OTD for RDC orders. In Q4, the project delivered more than $5.8 million worth of commodities to 22 countries with an average OTD of 81.8 percent. Throughout FY 2023, the project used RDCs to deliver more than 23 percent of TLD, with about 3.4 percent delivered in Q4. Leveraging RDCs for TLD delivery has declined due to the increased use of D-Term and VMS shipments.

In FY 2023, GHSC-PSM contracted external auditors to perform annual stock counts at two RDCs (Belgium and South Africa). These inventory audits reported an accuracy rate of over 99.99 percent at each RDC. An audit of the Dubai RDC is scheduled for FY 2024.

[55] XML - Extensible Markup Language - is a markup language and file format for storing, transmitting, and reconstructing arbitrary data. It defines a set of rules for encoding documents in a format that is both human and machine-readable. *Source-Wikipedia*

In Q4, GHSC-PSM completed the disposal of damaged and expired products at the South Africa and Belgium RDCs and initiated the approval process to dispose of the expired and damaged products at the Dubai RDC through proper export and destruction outside the United Arab Emirates.

Decentralized procurement (DCP)

In Q4, GHSC-PSM achieved 87 percent OTD for orders managed through the DCP channel; the OTD for all of FY 2023 for orders managed through the DCP channel was 89.

In line with the project's strategy to maintain decentralized procurement capability in Africa, in Q4, the team in Kenya procured laboratory commodities for Kenya and Tanzania and procured test kits for VL testing equipment in support of the transition to a new VL testing platform in Kenya.

In Q4, the project conducted an annual DCP training in Kenya for 14 staff—12 from six DCP countries (Burundi, Ethiopia, Haiti, Mozambique, Zambia, and Zimbabwe) and two staff based in Kenya in charge of the Kenya and Tanzania non-field office procurement. The training covered how to source and procure lab supplies under the headquarters-established long-term agreements and provided an opportunity to update existing and new SOPs, including the "Procedure for Requisition Orders at Risk of Failing Remaining Shelf-Life Requirements."

GLOBAL STANDARDS

GHSC-PSM operationalizes its procurement requirements for pharmaceuticals, medical devices, sterile kits, laboratory reagents, and LLIN suppliers to adopt standardized product identification and labeling, and exchange product master data leveraging GS1. These supplier requirements include:

- *Identification:* Assigning Global Trade Item Numbers (GTINs) that identify trade items and Global Location Numbers that identify business entities and locations.
- *Capture:* Labeling specified packaging levels with barcodes encoded with GTIN, batch/lot, expiration date, serial shipping container code, and (for pharmaceuticals and LLINs) serial number.
- *Share:* Exchanging standards-based, descriptive product master data through the GDSN.

In Q4, the project continued to engage with suppliers and the global health community to advance adoption of these standards across the GHSC-PSM portfolio, thus laying the groundwork to use these data in global and national supply chain processes and systems. Advancing compliance requires regular engagement with suppliers for existing and new items. In FY 2023, through this ongoing engagement, the project:

- Collected, validated, and added GTINs for 415 items to the GHSC-PSM catalog.
- Collected master data for 219 items through the GDSN and maintained data on existing items. In Q4 alone, the project sent and received more than 1,650 messages in the GDSN.

As of Q4, the GHSC-PSM catalog had a total of 1,193 in-scope items (subject to requirements, actively procured in the past, and available for procurement in the future).

Quality assurance

GHSC-PSM streamlines and optimizes QA and QC business processes and procedures to rapidly address product incidents and failures as they occur, ensuring quality products reach the consumer. Highlights in Q4 included:

- Facilitated collaboration of QA activities between GHSC-PSM and stakeholders (suppliers, clients) to manage quality incidents by expediting product quarantines to ensure patient safety and facilitating product replacement to avoid stockouts.
- Received 24 new incidents across HIV/AIDS, FP/RH, and MNCH health areas and completed 24 cumulative incidents, leaving about 15 open incidents as of the end of Q4.
- Engaged with GHSC-PSM country offices to enforce on-time reporting of quality incidents and adherence to SOPs. This process ensures that only quality products are distributed to the end user.
- Began implementing the product complaint and adverse reaction/medical event SOP to manage incident reporting and facilitate communication of such incidents with GHSC-QA, suppliers, and the complainant to expedite resolution and ensure patient safety.
- Continued working with the USAID Transition Working Group and GHSC-QA to facilitate and support a smooth transfer of QA-related data, documentation, processes, and activities to applicable NextGen Procurement Service Agent and/or Qualifying, Testing, and Issuing Project partners.
- Worked with GHSC-QA to implement a corrective and preventive action (CAPA) activity related to holding suppliers responsible for compliance against good storage and good distribution practices during product shipment or storage at the pick-up location while the product is in their custody. The project validated and approved all product pick-up locations for HIV, malaria, and FP/RH task orders in Q4 and continued to optimize internal processes accordingly (i.e., automation of systems so that only approved locations can be selected).

For QA for malaria commodities, see section B2: Malaria.

IMPACTS OF GLOBAL CHALLENGES ON FREIGHT AND LOGISTICS

Global challenges

Civil strife and extremist attacks culminated in a coup d'etat in Niger in Q4 forcing the Economic Community of West African States, or ECOWAS, to impose a number of restrictions on cargo transit within the West Africa region.

Climate change remained a significant logistical obstacle, particularly in Europe, where low Rhine River levels hampered trucking and container operations. The Panama Canal was also affected by low water levels, which resulted in limits on bigger draft vessels traveling through the canal and a backlog in cargo.

The global cargo market continued to decline in Q4, causing shipping companies to cancel sailings and change their schedules to meet demand. The ocean industry also continued to experience fuel shortages,

increased fuel surcharges, and capacity constraints due to International Maritime Organization regulations on emissions. These events began to have a combined negative impact on the cost of shipping.

Air freight

Air freight capacity continues to rise, with international widebody capacity up by 13–14 percent in Q4 compared to FY 2022. The FY 2024 outlook for air freight capacity is stable in capacity and price.

Labor shortages and strikes persisted in Q4. The anticipated increase in travel volumes over the summer was less than expected, causing only minor disruptions in major European air hubs.

Airlines continued to focus their routes on popular destinations, often switching to using various (often smaller) aircraft types to adjust to demand. Although overall airline scheduling is rebounding, the limited capacity for already underserved locations remains a concern, as fewer freighter aircraft serve these routes.

Air freight to Africa remains expensive and less dependable due to the post-COVID-19 airline business landscape.

Ocean freight

In Q4, adverse weather affected ocean freight from India and China. Shipping companies continued to manipulate capacity, cancel sailings, and bypass ports, resulting in bookings with increased costs, longer itineraries, infrequent booking revisions, and transshipment delays. Drought across Europe and Latin America prompted airlines to levy additional fees on affected itineraries.

Destination challenges

Security and instability remain a concern, particularly in Africa and Haiti. In Q4, tensions continued in Niger, DRC, and Rwanda, affecting GHSC-PSM shipments on domestic flights in DRC. Ocean shipments to Niger were affected by the closure of land borders from the arrival port in Benin. Shipments that had arrived after the coup were stuck in Benin are being shipped by air. The continuing conflict in Eastern DRC along the border with Rwanda has impacted the project's ability to fly shipments from the arrival port to the remote locations along DRC's eastern border. These flights are frequently commandeered to fly military gear and personnel to the conflict zone. Extremist activity continued to cause security concerns in West Africa.

EMERGENCY ARV PROCUREMENTS

In Q4, to avert a potential stock-out risk for pediatric ARVs in **Guatemala**, GHSC-PSM delivered two orders of lamivudine 10 mg/ml solution w/syringe (240 mL) and zidovudine 10 mg/mL solution, (240 mL).

See section B1: HIV/AIDS for more information.

C1b. PROJECT PERFORMANCE

This section summarizes findings on key indicators of GHSC-PSM global supply chain performance. More detail on these and other indicators is provided in Annex B.

DELIVERY TIMELINESS

GHSC-PSM measures OTD in two ways:

- OTD, the number of on-time deliveries as a percentage of expected deliveries in the period
- OTIF, the number of on-time deliveries as a percentage of all actual deliveries in the period

OTD is a more accurate reflection of recent performance, while OTIF is a lagging indicator, as late orders due in prior periods get delivered.

In Q4, GHSC-PSM OTD was 88 percent and OTIF 88 percent, the 20th successive quarter that OTD has been above 80 percent (see Exhibits 16 and 17).

Exhibit 16. July 2022 through September 2023 Monthly Indefinite Delivery, Indefinite Quantity (IDIQ) OTD

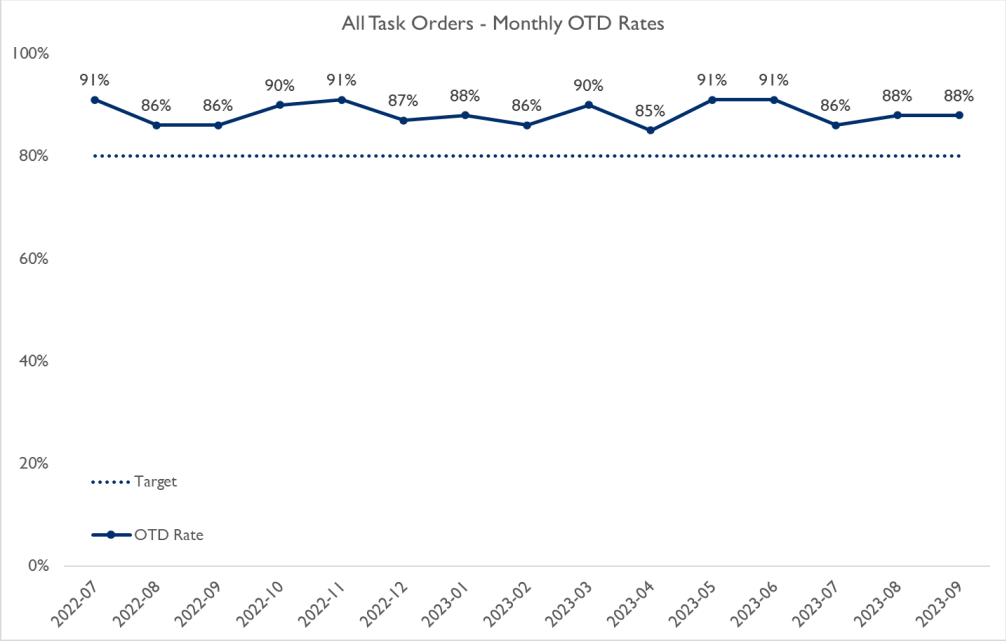
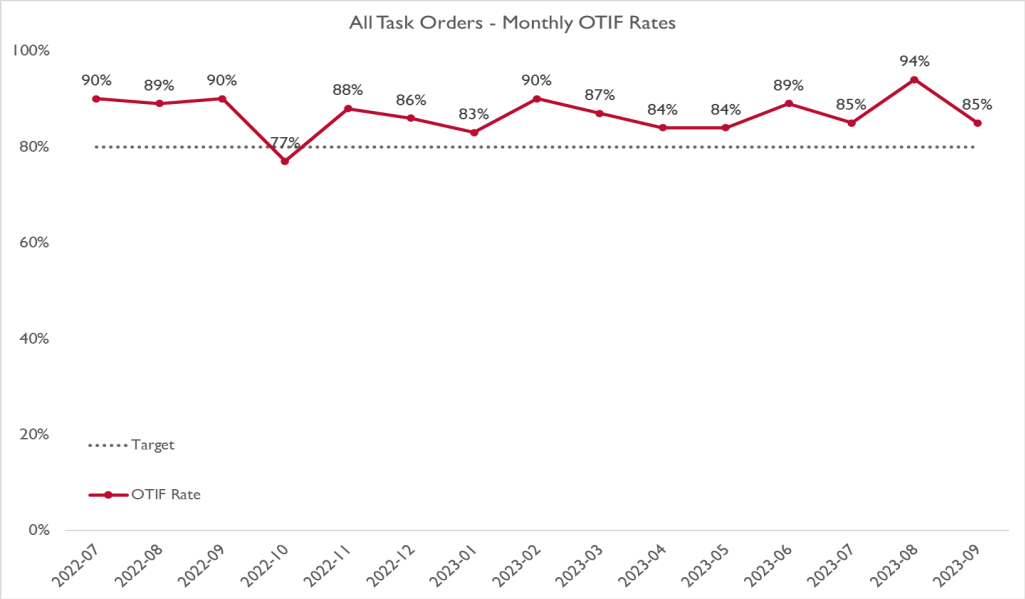


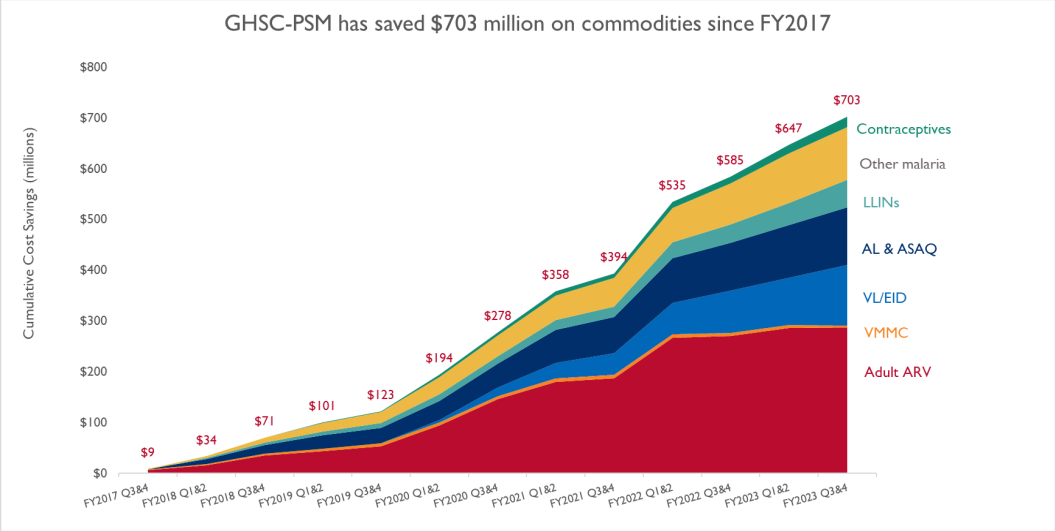
Exhibit 17. July 2022 through September 2023 Monthly IDIQ OTIF



COST SAVINGS ON MEDICINES AND HEALTH COMMODITIES

GHSC-PSM conducts regular and detailed analysis to understand the markets for the medicines and health commodities it procures and to bring this knowledge to negotiations with suppliers. Through careful negotiation of long-term contracts with suppliers for major product groups, including VL testing this year, the project saved $703 million on commodities over the life of the project, as shown in Exhibit 18.

Exhibit 18. Life-of-Project Savings on Medicines and Health Commodities[56]



To produce long-term value and sustainability, GHSC-PSM achieved these cost savings while working to ensure healthy and competitive supply markets. Additional savings have also accrued, as prices for these commodities have risen more slowly than the general rate of inflation.

COST SAVINGS ON LOGISTICS

Open competition in freight lanes

GHSC-PSM saves money on shipments by managing through a 4PL model that competes lanes between 3PL shipping companies to improve service and reduce costs. This leads to cost savings on shipping rates versus an alternative approach with limited or no competition for shipping lanes (a simple 3PL approach) through scale and competition. Over the life of the project, GHSC-PSM has saved $49.6 million on shipments.

Exhibit 19. Cost Savings Through Open Competition in Freight Lanes

Task Order	Benefits of Competing Freight Lanes
Task Order 1: HIV/AIDS	$37,551,641
Task Order 2: Malaria	$10,482,885
Task Order 3: FP/RH	$1,177,639
Task Order 4: MNCH	$339,593
Grand Total	**$49,551,758**

As of Q3 2019, logistics savings were calculated as the difference between the rates awarded to the selected 3PL and the average of the two most expensive 3PLs. This method provides a comparison for all shipping lanes and simulates the rates that would likely be obtained under a non-competitive, 3PL model. The project uses shipping data and annual 3PL rates for the specific timeframe of the shipment being measured to calculate these cost savings. At times, annual 3PL rates were not available due to market conditions; adjustments[57] were made to past rates to track more accurately these savings with the available information.

Starting April 2023, the project conducted a freight rate card refresh. The April 2023 rates were used to calculate the cost savings for Q3 and Q4 FY 2023.

Optimizing the RDC network

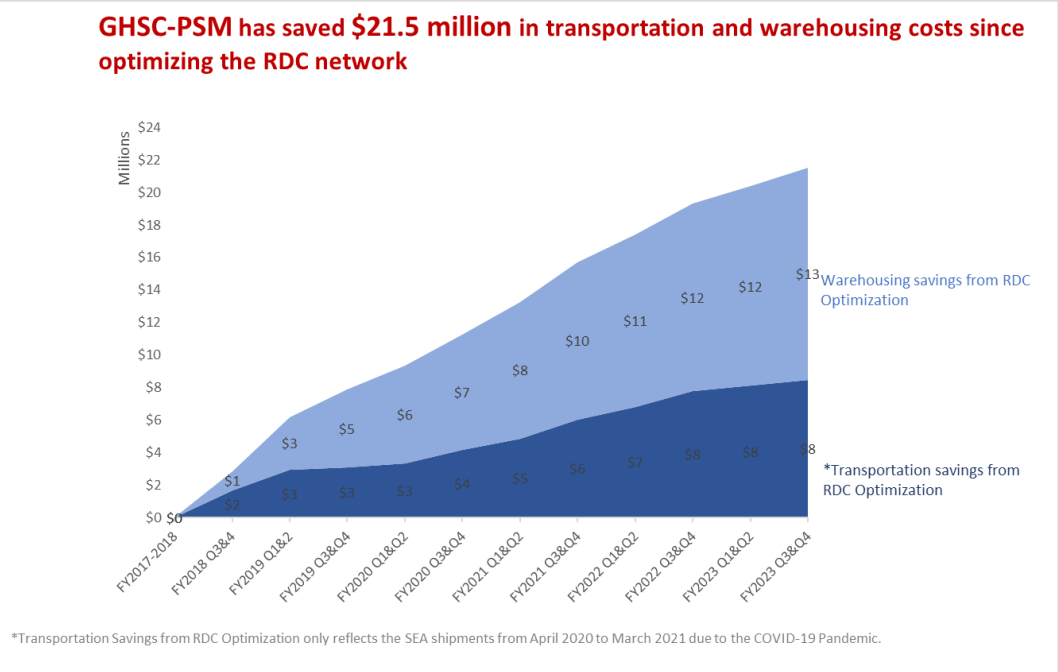
GHSC-PSM saves money on logistics by optimizing the project's network of RDCs. Savings are generated through:

- Warehousing savings from lower costs at the project's three RDCs (Dubai, Belgium, and South Africa)
- Transportation savings from shipping costs on actual commodities that moved through the three RDCs, compared to what shipping would have been for those commodities under the previous, five-warehouse model (Ghana, Kenya, Netherlands, Singapore, and South Africa). These savings are in addition to cost savings generated from negotiating lower shipping rates.

[57] In early Q3 2020, GHSC-PSM recognized that air freight market rates were rising rapidly because of the COVID-19 pandemic. During this time, the project placed a hold on the annual 3PL rate refresh for air shipments and extended ocean rates until the end of November 2020. As a result, the project, in consultation with USAID, decided to manage air shipment pricing under a spot-bid model and review ocean shipments case by case with the expectation that the impact on pricing would be nominal. In December 2020 the project refreshed ocean freight rates and used them to calculate ocean cost savings from December 2020 to the end of Q2 2021. In Q2 FY 2022 GHSC-PSM IDIQ report, the project, in consultation with USAID, adjusted the FY 2019 rate cards to account for the shift in the market, determined by taking the average of all spot bids acquired per shipment to arrive at a market increase rate per shipment. This rate was then applied to the FY 2019 rates per shipment to adjust the quotes to market values at the time of booking the shipment. Using these adjusted rates, the project calculated final cost savings figures as the difference between the rates awarded to the selected 3PL and the average of the two most expensive 3PLs, similar to previous years.

GHSC-PSM saved $21.5 million in transportation and warehousing costs since optimizing the RDC network. Exhibit 20 shows cost savings from RDC optimization; the light blue indicates warehouse savings and the dark blue, transportation savings.

Exhibit 20. RDC Optimization Cost Savings



Strategic packaging to reduce shipping costs

GHSC-PSM saves money on logistics by reducing the weight and shipping containers needed to transport TLD products. In FY 2019, the project began procuring TLD in carton-less packaging and introduced larger pill counts in TLD bottles. Carton-less is a term global health procurement agents use to refer to ordering and handling pharmaceutical products by the bottle and without the external boxes around each individual bottle. Before FY 2019, GHSC-PSM standardized the TLD pack size to 30-tablet bottles.

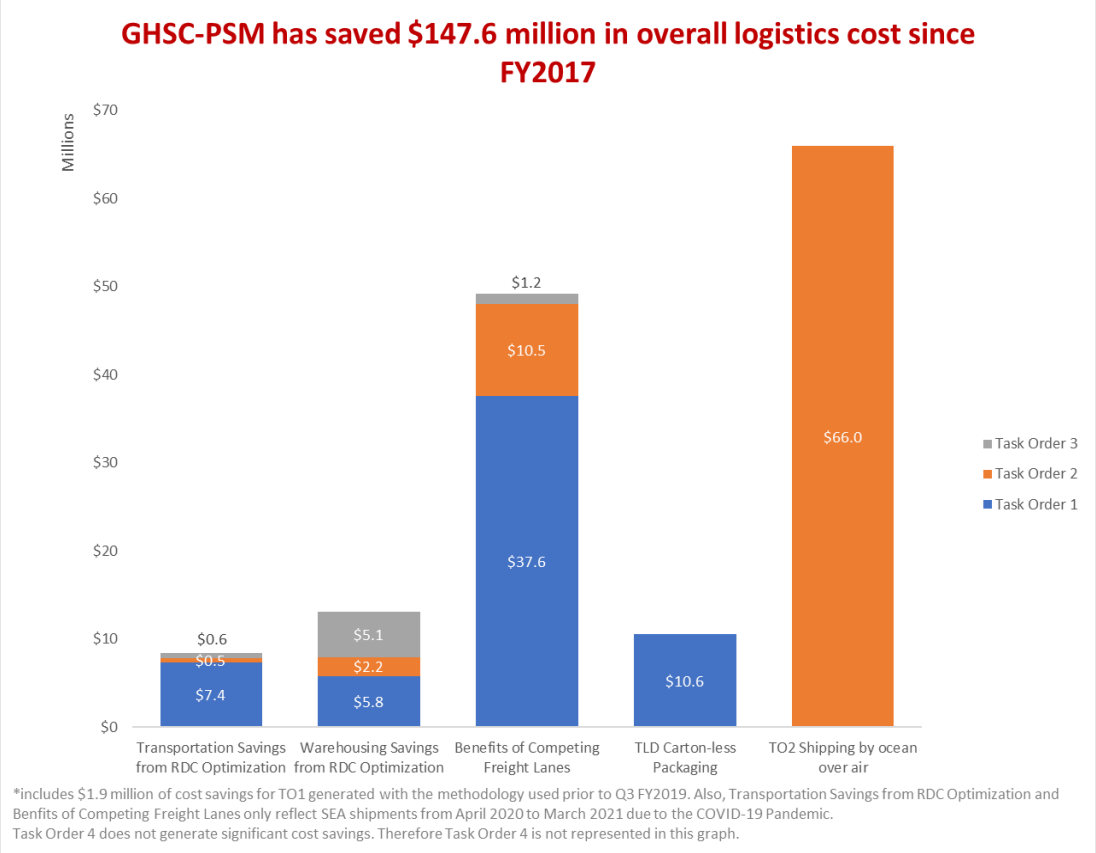
In FY 2019, GHSC-PSM shifted to procuring 90- and 180-tablet bottles. These changes allow suppliers to fit more total tablets in shipping containers, thus reducing the total number of shipping containers needed and saving $3.9 million in logistics cost by sea. This also reduces total shipment weight, saving $6.7 million to date in logistics costs by air.

TO2 shipping by ocean over air

Since FY 2019, the malaria task order has tracked cost savings from orders shipped by ocean that would have historically been shipped by air. The methodology for tracking these savings is to compare the selected ocean rates quoted by the awarded 3PL against the cheapest of all 3PL air rates quoted in the annual 3PL rate refresh. GHSC-PSM generated $66.0 million in cost savings since FY 2019 by shipping orders by ocean instead of air. These cost savings have been tracked in the malaria task order semi-annual report since FY 2019. However, this is the first IDIQ annual report to include these cost savings. These savings were added to the cumulative cost savings as depicted in Exhibit 21.

Total cost savings on logistics to date was $147.6 million, which includes $21.5 million in transportation and warehousing costs from optimizing the RDC network, $10.6 million from strategic packaging of TLD, $49.6 million from competing freight lanes, and $66.0 million from TO2 shipping by ocean over air. (See Exhibit 21.)

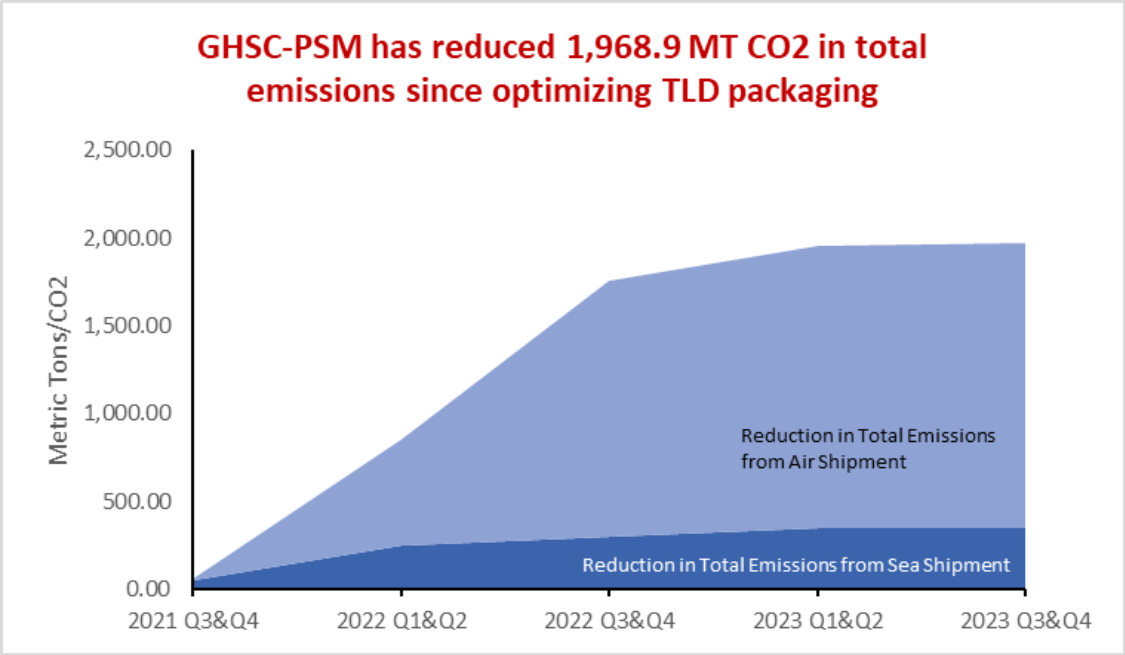
Exhibit 21. Logistics Cost Savings Breakdown



REDUCTION IN CARBON EMISSIONS

Beginning in August 2021, GHSC-PSM focused on reducing carbon emissions on TLD order shipments as part of the green initiative effort. Carbon emission reduction in sea shipments is calculated by comparing the estimated actual containers shipped when using carton-less TLD packaging versus how many containers would have been needed using 30-tablet bottles packaged in cartons. Since August 2021, total emissions produced would have been 7,775.92 metric tons/carbon dioxide (CO_2) had the project continued shipping TLD in packs of 30-tablet bottles packaged in cartons. Since the project changed from carton to carton-less packaging and increased pack size to 90 or 180 tablets per bottle, the actual emission was 5,807.04 metric tons/CO_2. Therefore, total emission reductions due to this change was 1,968.88 metric tons/CO_2 (the equivalent of 438 gasoline powered passenger vehicles driven for one year). This was an emission reduction of 25 percent between August 2021 and October 2023.

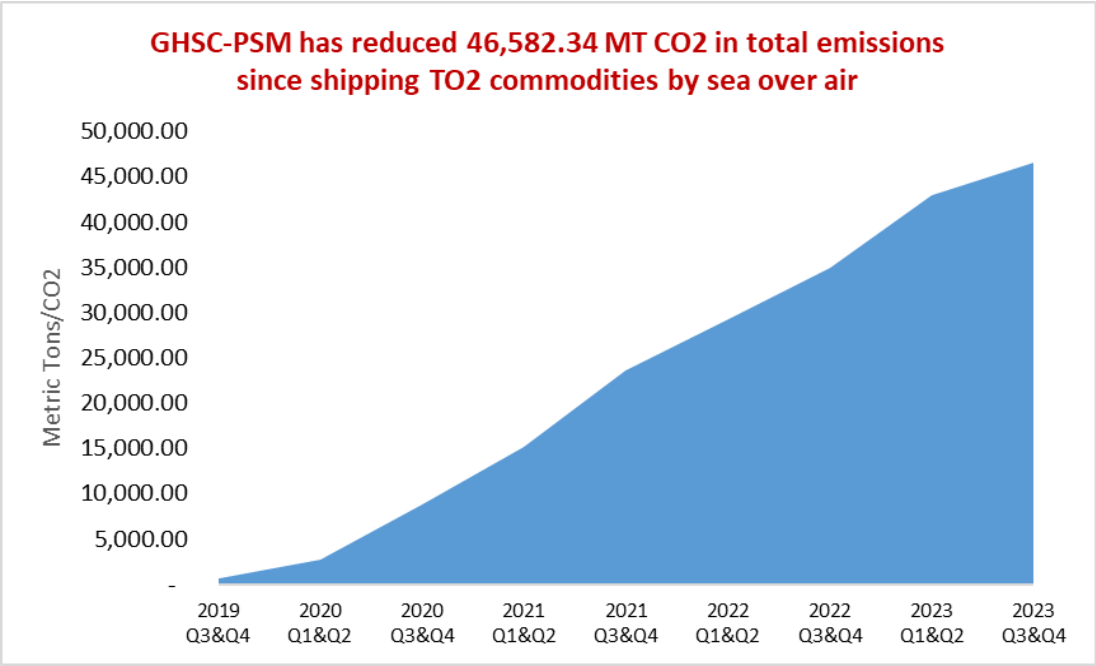
Exhibit 22. Cumulative Total TLD Emission Reductions



Malaria shipments by ocean over air

Since FY 2019, TO2 has tracked cost savings from orders shipped by ocean that would have historically been shipped by air. GHSC-PSM began tracking the emission reductions from this policy change in FY 2023 and retroactively included the emission reductions since 2019. The methodology for tracking the emission reductions compares the actual emissions for malaria commodities shipped by ocean against the emissions that would have been exhausted had these shipments been shipped by air. Shipping by sea over air carries an average emissions reduction rate of 85 percent. Total emission reductions due to this change was 46,582.34 metric tons/CO2 (the equivalent of 10,366 gasoline powered passenger vehicles driven for one year).

Exhibit 23: Reductions in CO2 Emissions Shipping Malaria Commodities by Sea Over Air



C2. SYSTEMS STRENGTHENING TECHNICAL ASSISTANCE

Assisted 46 countries with health supply chain systems strengthening over the life of the project.

Provided **technical feedback on 177 supply plans this quarter** to strengthen national supply planning capabilities.

Facilitated the **adoption of QAT** for management of forecasting and supply planning **in 36 countries** over the life of the project.

GHSC-PSM's strategic goal is for every country to have a locally led health supply chain that is integrated, optimized, accountable, agile, and lean and can sustainably supply quality products to all citizens. To support this goal, headquarters and country-based technical specialists work with country teams to define systems strengthening strategies that are appropriate to the local context and can be realistically achieved. The project emphasizes automated data capture and real-time end-to-end data visibility (most notably through advanced analytics, global standards and traceability, forecasting and supply planning, and management information systems), private-sector engagement, pharmaceutical- grade infrastructure, and efficient distribution across countries (through laboratory networks, warehousing, and distribution systems strengthening). Through workforce development, leadership, and governance activities, the project works with country stakeholders to ensure their supply chains are managed by supply chain professionals dedicated to quality improvement. Where possible, the project collaborates on strategies to outsource functions to accountable private sector providers.

REFLECTIONS ON FY 2023: ADVANCING LOCALLY-LED SUPPLY CHAINS

GHSC-PSM health systems strengthening activities are predicated on local actors, including public sector, parastatals, NGOs, and private sector entities, maximizing limited resources to drive improvements in their country's supply chain from the central level to the last mile. The project acknowledges the complexity of the health supply chain and how it functions uniquely in each country. Consequently, GHSC-PSM tailors its support to countries' needs, focusing on providing tools that improve efficiency, and building skills and competencies to cultivate a pool of supply chain experts. One approach through which GHSC-PSM achieves this objective is to actively identify and collaborate with local companies in each country. See Annex B for details about the number of local vendors GHSC-PSM has subcontracted with in FY 2023.

Throughout FY 2023, GHSC-PSM encouraged country governments to take the lead on all activity areas, from advanced analytics to workforce development to facilitating the development of locally owned and

country-specific supply chain strategies. Through advanced analytics, the project creates adaptable data analytics tools that can be deployed in any country or context to enhance operational planning and decision-making. GHSC-PSM aligns with USAID's focus on sustainability by creating these tools in such a way that they do not require new data collection pathways (they simply leverage and analyze available logistics data for the purpose of increasing efficiency) and can be reused or refactored for other purposes. In FY 2023, the project published many of its information technology solutions on GitHub as open source for public use and supported the transition of advanced analytics tools to the appropriate supply chain personnel in several countries. Examples include the shipment planning tool in Nigeria, the dynamic routing tool in Zambia, and the consumption anomaly detection tool in Liberia.

GHSC-PSM's QAT continues to facilitate efficient supply planning and tracking of inventory turnover in countries. Forecasting and supply planning require extensive stakeholder engagement, data review, negotiations, and decision-making. QAT streamlines this process by integrating forecasting and supply planning and enabling data exchange between upstream procurement systems and downstream, country-specific logistics management information systems. In FY 2023, GHSC-PSM continued to expand QAT's user base by training local entities and promoting its adoption among health supply chain partners such as the Global Fund, UNICEF, and CHAI. Since its rollout, the project has trained 1,483 QAT users worldwide.

Efficiency remains a central focus in GHSC-PSM's health systems strengthening model. To this end, the project continued to equip local partners with the tools and competencies needed to assess and improve their warehouse and distribution performance. Activity-based costing/activity-based management (ABC/ABM)—a lean methodology that saves cost, increases efficiency, and promotes self-reliance—helps country governments understand the cost drivers of warehousing operations and builds their capacity to drive down costs and improve performance by eliminating non-value-added activities. In FY 2023, GHSC-PSM continued to strengthen capacity for ABC/ABM at the regional medical stores in Ghana, the Mission for Essential Drugs and Supplies in Kenya, and Joint Medical Stores (JMS) in Uganda, with all three sites reporting decreased operational costs and improved performance.

Ultimately, the foundation of every health system lies in its human resources, and GHSC-PSM remains dedicated to strengthening human capacity along the health supply chain. In FY 2023, the project collaborated with Rwanda to develop a country-specific framework for professionalizing health care workers in the supply chain. This framework outlines supply chain responsibilities, identifies skills gaps, and directs key stakeholders to potential resources to address these gaps. Furthermore, the project worked with Laos, Sierra Leone, and Zambia to devise homegrown solutions to supply chain workforce challenges.

Looking forward, GHSC-PSM will continue prioritizing technical assistance activities that enable countries to manage their supply chain systems sustainably. This means ensuring the seamless transition of tools and promoting the adoption of methodologies that improve performance. Among these are the Warehouse, Inventory, and Strategic Distribution Optimization Metrics, or WISDOM, which provides real-time data visibility to warehouse management, enabling the diagnosis and resolution of potential issues while improving performance across all activities.

ADVANCED ANALYTICS

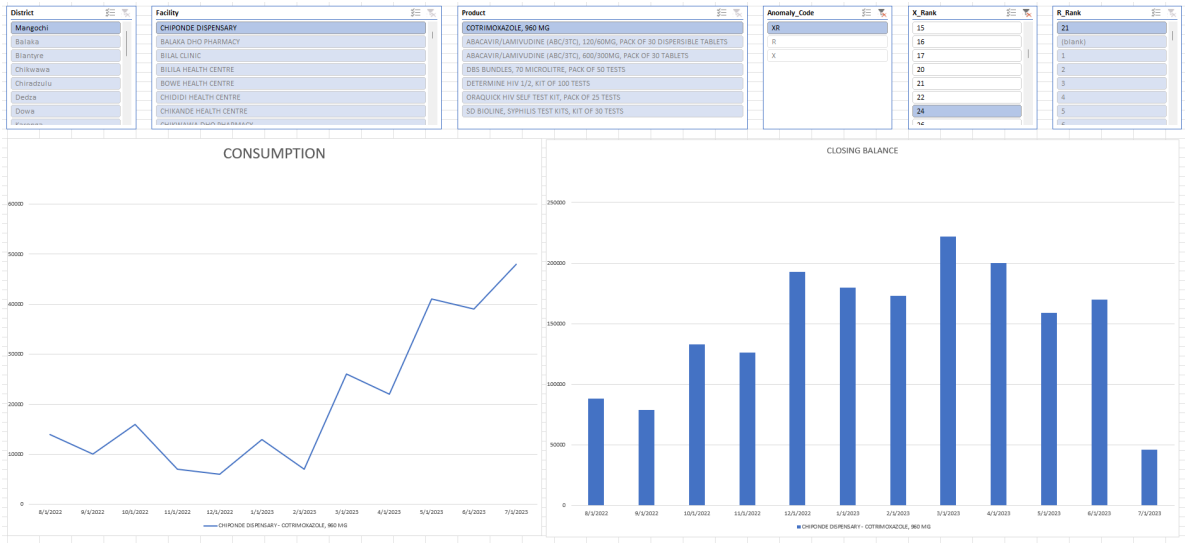
Advanced analytics enables countries to expand the use of existing data to facilitate decision making across the supply chain, from day-to-day operations to high-level strategy. GHSC-PSM facilitates this process by designing analytic tools that leverage existing investments in management information systems to make data available in real time and meet individual country needs. These tools are repeatable, reusable, and adaptable in various contexts, enabling countries to employ them in a way that encourages and improves self-reliance.

In FY 2023, GHSC-PSM increased its focus on transitioning existing analytic tools to country teams and partners (particularly MOHs), as was laid out in the FY 2023 work plan, to enable efficient use of data for supply chain decision making. In Q4, the project worked in Burma, Cambodia, Haiti, Laos, Malawi, Mali (w/out TO3), Nigeria, Niger, Thailand, Zambia, and Zimbabwe to either incorporate data analytic tools within the country's context or refine existing data flows.

Below are two examples highlighting how GHSC-PSM worked with countries to transition analytic tools for improved supply chain data management and use.

- **In Malawi**, GHSC-PSM transferred use of the Consumption Anomaly Detection (CAD) tool to the in-country project team for routine use and provided guidelines for sustaining it. The CAD can analyze consumption across all commodities and facilities for hundreds of thousands of combinations simultaneously and flag within minutes which facilities and commodities have anomalies. To enable action after detecting the anomaly, the user is then presented with the trends in consumption and closing balance to provide a more holistic picture of the situation. The Exhibit 24 screenshot shows the output of anomaly detection in action. In this example, the user can see a rapidly increasing trend in consumption and rapidly decreasing stock on hand, which indicates a rising risk of stockout. This rapid change in the consumption pattern and the resulting risk of stocking out would be obscured when looking at average monthly consumption (AMC) and months of stock (MOS) alone, and may have been missed until the stockout was imminent or had occurred. The project will initiate transferring the tool to country partners, including the MOH, in FY 2024.

Exhibit 24: Detailed CAD Dashboard Showing an Anomaly in Consumption: Rapidly Increasing Trend



- **In Laos, Thailand, and Cambodia,** GHSC-PSM developed and facilitated the transition of a tool to help countries evaluate inventory management practices in low or malaria-elimination settings. A key characteristic in such areas is that cases of malaria are a rare event, with many sites not recording a single case in a year. The normal min-max inventory control procedure is ineffective if there is no consumption in six months, as the AMC would be zero. However, when a case does present at a site, then it is important to have malaria commodities available to diagnose/treat that case. A consequence of providing malaria commodities to sites that are unlikely to have any malaria cases is that most malaria commodities will expire, leading to expiry rates above 80 percent. The project thus developed a simulation tool to assist countries in assessing different levels of commodity availability, determining quantities needed, and what the ideal minimum order quantities might be to ensure availability while mitigating the level of expiry, the cost of redistribution, and the cost of procurement. In Q4, the project worked with Laos, Thailand, and Cambodia to test the tool and evaluate the trade-offs of different strategies for stocking the facilities in these settings.

GLOBAL STANDARDS AND TRACEABILITY

GHSC-PSM is working to implement GS1 standards to give trading partners—including manufacturers and suppliers, logistics providers, regulatory agencies, medical stores, and health facilities—the means to operate using the same high-quality master data.

In Q4, GHSC-PSM provided technical assistance to nine countries[58] to support their adoption of GS1 standards for product identification, location identification, and data exchange. More information on standards implementation within the project can be found in Section C1. Global Supply Chain and in the Management Information Systems section below.

[58] Burundi, Ghana, Malawi, Namibia, Nigeria, Rwanda, Uganda, Zambia, and Zimbabwe

Adopting global standards can enable countries to reduce costs, enhance efficiency, and improve the availability of health commodities in their public health supply chains. This work also advances the adoption of GS1 labeling and data standards in-country regulatory guidelines and implementation roadmaps.

Country highlights in Q4 include:

- In **Malawi**, GHSC-PSM systematically reviewed, standardized, and harmonized the Malawi Health Product Registry (MHPR) with other national registries, such as the Malawi Essential Medicines List. The MHPR provides concise information about health products (including pharmaceuticals, medical devices, and medical supplies) distributed through the Malawi supply chain. A cleansed and harmonized MHPR ensures data integrity by standardizing the structure for product data by unifying product identifiers and attributes in conformance with existing standards, such as GS1. It also provides a formal approach to creating and managing the flow of product master data (and how it is processed in these systems) and facilitates data access among disparate systems, allowing for interfaces with external systems such as the logistics management information system, warehouse management system, and drug regulatory information system.

- In **Nigeria,** GHSC-PSM produced a technical report on the LLIN verification pilot aimed at capturing serialized LLIN campaign distribution data in Calabar Municipal of Cross River State. Nearly 150,000 LLINs were distributed in Calabar Municipal (the pilot Local Government Area), out of which 110,445 net serials (73.6 percent) were scanned, captured, and verified across 65 distribution points. The project's key recommendations following the pilot include reconvening the TraceNet Group to review the lessons and update the guidelines in close consultation with GS1 and ensuring that the observations outlined in the report are prioritized during supplier engagement and capability strengthening efforts, particularly the need to automate methods of exchanging transaction and event data to enhance traceability.

- In **Zambia**, GHSC-PSM worked with the Zambia Medicines Regulatory Authority, or ZAMRA, to develop a national traceability guideline, which is an enforceable statutory instrument that mandates GS1-based identification and data capture for pharmaceutical products distributed on the Zambian market. The project continued implementing the National Product Catalog (NPC) and system configuration for AIDC and facilitated a workshop to design Zambia's national pharmaceutical traceability model and roadmap. These activities establish the foundation required for the traceability of pharmaceutical products in Zambia.

Also in Q4, GHSC-PSM developed and shared technical resources with the Global Standards and Traceability technical working group:

- *Technical Report: GS1 Global Location Number in Global Health*: a resource that explores GLN use in the global health context, assesses the challenges and opportunities for implementation, and provides recommendations for ecosystem partners in pursuit of standardized locations supported by robust master data management.
- GS1-Enabled Automatic Identification and Data Capture (AIDC) SOP Booklet: a technical resource that outlines an ideal AIDC implementation process that leverages GS1 standards and best practices.

These resources are part of GHSC-PSM's thought leadership and complement the project's compendium of traceability tools.

FORECASTING AND SUPPLY PLANNING

GHSC-PSM provided FASP technical assistance to 36 countries[59] to integrate FASP capabilities, develop country-led solutions, and improve program managers' ability to maintain enough inventory to meet disease prevention and treatment targets and address client demand. This included quantification assistance, training, and supply plan monitoring.

Promoting wide adoption of QAT

To date, GHSC-PSM has facilitated the adoption of QAT in 36 countries for the management of forecasting and supply planning. This includes Mauritania and Nepal, reached through GHSC-PSM's collaboration with UNICEF. As of Q4, the number of active QAT users worldwide (logged on from Q1 to Q4) was 1,198.

The key to ensuring the sustainability of QAT is wide user adoption of the tool. Having a large pool of users for QAT signals to other global players that the tool improves current processes and is an impetus to spread adoption of the software in public health supply chains. To this end, GHSC-PSM engages health supply chain partners and stakeholders to build a broader global user base for QAT.

For example, in Q4, GHSC-PSM:

- Received an expression of interest from the Global Fund country office in the Gambia to be trained in QAT.
- Continued working with UNICEF, using funding from USAID's BHA to pilot QAT for supply planning of nutrition products.

In Q4, GHSC-PSM provided remote and in-person technical assistance to strengthen capacity for QAT[60] use:

- In **Haiti**, provided training on both modules of QAT to 19 participants from GHSC-PSM, MOH, and Global Fund principal recipient, World Vision.

- In **Nepal**, as part of the UNICEF pilot, trained 27 participants, which included 20 staff of the Nepali Government from the central level and the seven provinces, four from UNICEF Nepal, and three from the FHI360 Epic project.

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[59] Angola, Benin, Botswana, Burkina Faso, Burma/Myanmar, Burundi, Cambodia, Cameroon, Côte d'Ivoire, Democratic Republic of Congo, eSwatini, Ethiopia, Ghana, Guinea, Haiti, Kenya, Laos, Lesotho, Liberia, Madagascar, Malawi, Mali, Mozambique, Namibia, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Sudan, Tanzania, Thailand, Togo, Uganda, Zambia, and Zimbabwe.

[60] QAT is a cloud-based software for in-country stakeholders to optimize commodity procurement and delivery schedules, monitor product stock status, and share data with external platforms and stakeholders. With an enhanced user interface, greater analytical capabilities, and automated data exchange, this tool enables program managers to easily build multiple forecasts for comparison and selection, optimize commodity procurement and delivery schedules, monitor product stock status, and share data with external platforms and key stakeholders.

- In **Eswatini**, provided in-person technical assistance to the national quantification workshop, using QAT's forecasting module for the first time in the country for all health programs, including lab. This was preceded by a remote training on QAT.

- In **Kenya**, facilitated a training on QAT's forecasting module for 20 participants from Afya Ugavi (GHSC-PSM TO5), USAID, Global Fund's Local Fund Agent, National AIDS and STI Control Programme (NASCOP), the NMCP, Kenya Medical Supplies Authority (KEMSA), and the National Treasury department. The project then worked with the country teams to transfer all the legacy data from previous tools to QAT and set up supply planning and forecasting programs for ARV, malaria, and family planning; and forecasting programs for HIV opportunistic infection commodities and TPT, HIV laboratory VL and EID, HIV key populations, and HIV nutrition.

- Remote technical assistance:

    - Conducted QAT forecasting module training for 48 participants from **Cambodia, Eswatini, Namibia,** and **Thailand**.

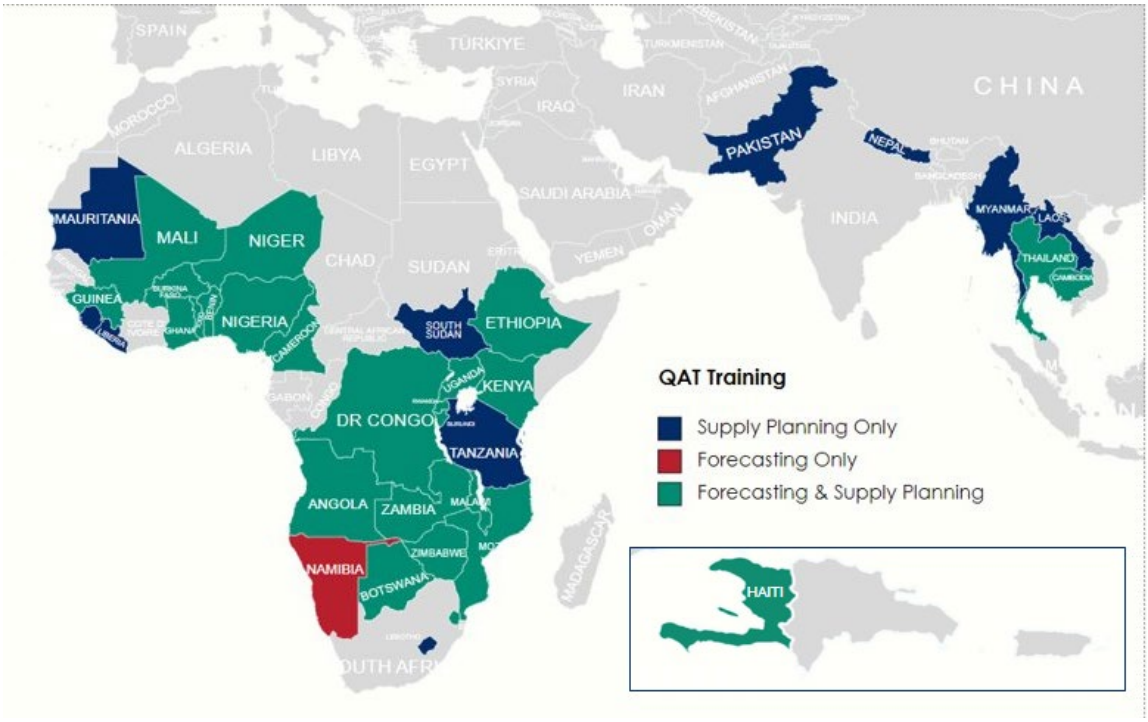
    - Conducted QAT supply planning module training for 38 participants from **Central America, Kenya, Lesotho,** and **Tanzania.**

    - Conducted QAT forecasting and supply planning module training for 23 participants from **Niger**.

    - Supported GHSC-PSM country-led training of local counterparts in **Ghana, Mauritania,** and **Zimbabwe**

    - Provided technical assistance to **Burundi** to complete the quantification of MNCH commodities, using QAT's forecasting module

Exhibit 25: Countries Trained on QAT Forecasting and Supply Planning (Updated in September 2023)



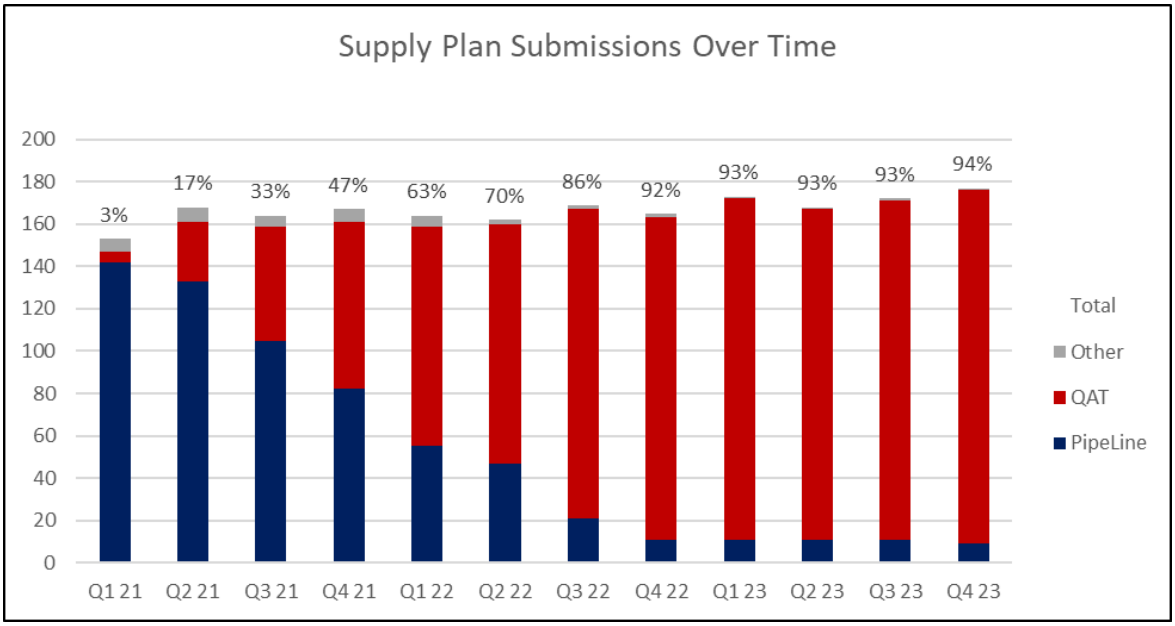
Improvements to the tool

To enhance user experience and ensure that QAT meets country requirements, GHSC-PSM continues to refine the tool's features and functionality based on user feedback. In Q4, the project continued discussions with USAID around the potential transition of QAT's source code and main application to another implementing partner. This initiative is critical to ensuring the long-term sustainability of QAT and its smooth transition to NextGen.

QAT use for supply planning

GHSC-PSM supports countries' use of QAT for supply planning. In Q4, the project reviewed 177 supply plans to verify that they complied with data quality, supply planning, and procurement scheduling standards. This included 159 USAID high-priority supply plans from 31 countries. Over the course of FY 2023, supply plan submission targets set per commodity category were successfully achieved.

Exhibit 26. QAT Supply Plan Submissions Over Time



MANAGEMENT INFORMATION SYSTEMS

GHSC-PSM improves data accuracy and quality for management information system (MIS) implementation, including GS1-compliant standardized product data to build master data sets—an important step toward end-to-end data visibility. The project works with countries to evaluate the data captured in information systems (e.g., eLMISs and warehouse management systems) for standardization and to establish methods and plans for managing master data sets across information systems. In FY 2023, the project hosted a monthly technical working group and advocated for countries to improve data quality and meet the objectives of USAID's Digital Strategy Initiative.

Promoting the USAID Digital Strategy Initiative for Public Health

In Q4, GHSC-PSM received and incorporated USAID's feedback into the information and data mapping process flows and MIS landscape diagrams for all supported countries. The information and data mapping process flow document provides summarized information on health commodities, including details such as funding source and associated programs, FASP and procurement processes of each donor, and distribution flow in the country. The MIS landscape document depicts the information systems implemented and the interoperability structure in the country. The project shared these documents with USAID in Q4 for review.

One key observation from the MIS landscape was that several countries had multiple standalone information systems. GHSC-PSM emphasizes the importance of establishing a digital supply chain strategy and architecture in all supported countries. In Q4, the project implemented SCISMM in Namibia to evaluate the capabilities and functionalities of the information systems implemented by various donors to operate the national supply chain. The weakest area discovered during the assessment was in the data exchange and management category, demonstrating that there is no standard method for managing master

data (product, facility, supplier, etc.) as systems were developed in silos by various donors without consideration of interoperability. The project proposed several recommendations for improvement, including establishing a standard method and plan for managing master data (e.g., product, facility, supplier, etc.) to create unique data elements to improve the accuracy of system integration, data analysis, and decision making. The project also evaluated the MIS landscape and information technology (IT) solutions implemented in Mozambique and Haiti and made recommendations to improve data quality and streamline and optimize operations.

Strengthening MIS-related acquisition in compliance with the Federal Acquisition Regulation (FAR)

GHSC-PSM supports MIS-related acquisitions across countries, including developing RFPs, evaluating proposals, reviewing and negotiating contract agreements, and monitoring vendor performance throughout the project life cycle. In Q4, the project supported the contract management unit of the CMS in Botswana with defining functional requirements, developing an RFP, evaluating technical and cost proposals, and selecting a vendor for a supplier performance management system. GHSC-PSM also provided similar support to the Rwandan MOH for eLMIS and warehouse management system implementation, and to Angola and Malawi for eLMIS enhancement.

LABORATORY NETWORKS

GHSC-PSM promotes efficient and well-planned laboratory networks and supports quality service delivery through data-driven laboratory diagnostic network optimization, encouraging the visibility and use of project-generated supply chain data for decision making and forecasting and supply planning for laboratory commodities. The project also manages the compilation and submission of the EPPQ, formerly instrument placement questionnaire, to ensure that all elements of procurement or leasing of equipment required for diagnostic testing, such as servicing, maintenance, capacity, utilization, and installation requirements, are addressed.

In FY 2023, in alignment with work plan goals, GHSC-PSM expanded in-country capacity to lead DNO activities and to use data to improve laboratory network performance, and encouraged country adoption of QAT for laboratory forecasting. Throughout the fiscal year, the project held regular meetings with 14 countries to discuss implementation of laboratory activities and identify opportunities to strengthen FASP and the SLA-KPI management processes in Wave-1 countries. In Q4, the project strategically focused these meetings on a holistic approach of using project data for decision making and monitoring adoption and implementation of key lab initiatives, such as the all-inclusive SLAs and using QAT for lab forecasting.

Supporting diagnostic network optimization

GHSC-PSM leads DNO activities to improve diagnostic networks through a stakeholder-driven process. The project works with stakeholders to develop optimization scenarios that align with each country's objectives and can be modeled using DNO. The scenarios improve visibility into network performance and create opportunities to optimize laboratory equipment placement and multi-disease integrated testing, which can increase coverage and reduce costs.

Once all data are collected and cleaned, the project uses two tools: 1) OptiDx™ and 2) supplemental interactive maps developed using the Python Library Folium™. The interactive maps are used initially to validate data and help inform scenarios by visualizing networks, including locations of health facilities, laboratories, and hubs, referral linkages, distances between facilities, testing volumes, instrument capacity, utilization, and testing demand by administrative area. Once the analysis is complete, Excel-based model outputs and interactive maps help stakeholders review the scenarios and develop an operational plan that considers how the proposed changes to the lab network affect budget, operations, human resources, and logistics and provides an implementation roadmap to realize the future state of the network. Following USAID guidance, work on OptiDx has come to an end.

DNO activities conducted in Q4 include:

In **Burundi,** the project completed a DNO activity, which culminated in development of a shared vision and operational plan. Key to the success of this activity was identifying and working with DNO champions who are leaders in their respective program areas. Through an iterative process with these stakeholders, the project fine tuned and aligned the DNO objectives and scenarios with the strategic direction of each program area. This strategic engagement created ownership of the DNO activity among stakeholders and led to the success of the DNO workshop and the development of a shared vision for operationalizing the recommendations from the DNO. The operational plan, which will be implemented in FY 2024, will improve access to HIV diagnostics in hard-to-reach areas, provide opportunities to integrate and expand testing menus, and inform the sample referral network.

In **Ghana,** the project completed a DNO analysis earlier in the year and is coordinating with GHS, the MOH, and other stakeholders and donors on an ambitious strategic plan informed by the DNO recommendations. It includes improvements to the sample referral network and laboratory network through placements of upgraded conventional instruments aligned to demand, as well as placement of point-of-care instruments to reduce referral distances, and opportunities to expand integrated testing. In the Oti region, which has poor road networks and long referrals to the nearest conventional device for HIV-VL testing, the Regional Health Administration Team independently acted to coordinate initiation of 100 percent integrated testing of TB and HIV-VL and EID on GeneXpert devices. Since the project's DNO analysis was presented to the group in Q3, the team has completed more than 1,000 VL and EID tests. Toward the end of FY 2023, the project collaborated with the GHS/MOH to scope pilots in two additional regions for FY 2024: one to conduct integrated testing on GeneXpert devices in Western North region and one to assist with the scale-up of HIV VL and EID testing and the establishment of modified referral networks for a pending installation of a new conventional device in Western region.

In **Togo,** with technical assistance from the GHSC-PSM project, the USAID Global Health Supply Chain Program-Technical Assistance project (GHSC-TA) Francophone Task Order (FTO) collected and collated diagnostic network data to develop and refine a baseline model of the diagnostic network and defined objectives for DNO analysis. The analysis identified opportunities to align instrument placements with demand and to expand testing integration. The activity will continue into FY 2024 as objectives are further refined, and recommendations identified through the analysis are operationalized through an implementation plan.

Supporting quantification for laboratory commodities

In FY 2023, the project improved the use of QAT for forecasting laboratory commodities, further streamlining and standardizing national quantification exercises, and provided technical assistance to several countries in using QAT in forecasting laboratory commodities. In Q4, GHSC-PSM:

- Provided technical assistance to the **Eswatini** MOH to use QAT for the first time during a laboratory quantification workshop.
- Facilitated a remote supplemental training in **Uganda** on using QAT for lab and provided technical assistance to the MOH to support preparations for the quantification workshop.
- Supported supply planners in **Eswatini, Ethiopia, Mozambique, Uganda,** and **Zambia** to update supply plans to align with the transition to 192 test kits for VL and EID testing.

Supporting equipment planning and placement and instrument transitions

In Q4, GHSC-PSM rolled out the updated EPPQ to all country teams and shared a memo with the three global diagnostics manufacturers under the global SLA describing their role in the process. The EPPQ contains 12 questions that countries must answer in preparation to procure laboratory equipment. USAID requires answers to these questions to ensure countries appropriately plan and are prepared before procuring certain laboratory equipment and instrumentation that come with a warranty, are connected to electricity, and/or require additional maintenance. The project developed a tracker to capture placements of the molecular equipment that will provide visibility and better coordination across the project.

WAREHOUSING AND DISTRIBUTION

GHSC-PSM improves warehousing and distribution systems in more than 25 countries. The project aims to move countries' warehousing from a mid-/long-term storage facility strategy to a distribution center model with a focus on reducing order process cycle times. This requires infrastructure and process changes to ensure warehouses can keep up with the increased speed needed for frequent inventory turns. Activities include improving data-driven decision-making across the supply chain, optimizing distribution networks, and increasing efficiencies in warehousing and distribution operations.

In FY 2023, the project continued to roll out a policy to promote an appropriate level of warehouse inventory variance and cycle count methodology for GHSC-PSM stakeholders by moving from periodic to perpetual inventory control. The policy applies to all activities where the project directly oversees warehouse operations, has contractual agreements with a 3PL provider for warehousing services, or supports warehouse operations with other implementing partners or their MOH counterparts (e.g., through a CMS or a parastatal).

Temperature mapping of all NatPharm warehouses in Zimbabwe

In Q4, GHSC-PSM completed a temperature and humidity mapping of the six NatPharm warehouses in Zimbabwe. Following the exercise the project worked with NatPharm to install temperature monitoring devices (TMDs) at recommended locations within the warehouses to comply with WHO guidelines and standards for good warehouse management practices for medicines and medical devices. The project

analyzed data collected from the TMDs over a seven-day period to identify temperature variances and trained NatPharm staff on how to use the mapping protocol, the SOPs for temperature excursion monitoring and management, and the CAPA report, to address and make necessary changes in mitigating future excursions, and ensure compliance with good storage practices.

Activity-based costing /activity-based management

GHSC-PSM recognizes that warehousing and distribution are part of a larger strategy requiring integrated procurement, transportation, storage, picking and packing, delivery, and other activities to increase velocity, improve orchestration and performance, and lower the risk of expiry and warehouse operational costs. The project supports countries to implement private-sector approaches, such as ABC/ABM, to capture cost information, assess supply chain costs against private-sector costs, and enable increased efficiency in managing operational costs.

In Q4, GHSC-PSM provided remote technical assistance to Ghana, Kenya, Lesotho, Uganda, and Zambia—all of which are in various stages of ABC/ABM implementation:

- In **Ghana**, held weekly meetings with the Ashanti and Eastern regional medical stores (RMS) finance teams and their warehouse and supply managers to discuss their daily planner, monthly labor report, and customization and use of profit and loss (P&L) statements. In Q4, the project conducted the second quarterly P&L statement reviews with Ashanti and Eastern Region RMSs. The goal is to train each RMS finance and operations team to conduct these quarterly reviews independently. Analysis of P&L statements has provided visibility into costs related to managing supply chain operations while also empowering RMS staff to take ownership of their supply chain operations. GHSC-PSM developed an outbound audit tracking template that provides insight into pickers' order accuracy and the time/labor used. Additionally, the two regions maintain a monthly labor report that provides productivity data and throughput by operational supply chain functions within the warehouse.

- In **Kenya** and **Uganda**, conducted quarterly reviews of P&L results with the Mission for Essential Drugs and Supplies (MEDS) and JMS, respectively. The P&L statements provide MEDS and JMS with detailed visibility into their own expenses to better manage operating costs and improve performance. The project has supported JMS and MEDS ABC/ABM implementation since FY 2018 and 2021, respectively. Both MEDS and JMS use the P&L analysis to modify practices and discontinue non-value-added activities. This has resulted in decreased operating costs and improved performance. For example, since the ABC/ABM implementation began in FY 2021, Uganda JMS has shown an average decrease in costs of approximately 75 percent, which equates to approximately $200,000 per quarter, with the latest trends from the last two quarters showing double the savings.

WORKFORCE DEVELOPMENT

GHSC-PSM strengthens public health supply chains by building sustainable workforces through professionalization and systematic assessments and approaches to workforce development.

In FY 2023, the project successfully delivered the Introduction to Supply Chain Management (SCM) course through remote, hybrid, and face-to-face methods, and submitted four articles on the efforts of USAID in Human Resources for supply chain management in Rwanda. All four articles are in different stages of review in preparation for potential publication in the Global Health Science and Practice (GHSP), BioMed Central (BMC), and Humanitarian Logistics journals.

Strengthening capacity for supply chain management

GHSC-PSM annually offers USAID personnel the opportunity to partake in an Introduction to Supply Chain Management course. GHSC-PSM successfully delivered the course remotely in Q2 and in-person in Q3. The Emerging Trends in Supply Chain Management course was also offered in Q3 as an in-person course.

Country-specific workforce development activities:

- In **Ghana**, GHSC-PSM collaborated with the MOH and GHS in developing a research protocol. Its purpose was to qualitatively study the health supply chain management labor market of Ghana to identify barriers, enablers, and other factors that influence the supply and demand of health supply chain management professional competencies in Ghana in the public and private sectors. In Q4, the project submitted the protocol to the MOH ethics committee for approval. Data collection and other phases of qualitative research will begin in FY 2024. Findings will inform the development of advocacy materials for SCM professionalization in Ghana.

- In **Rwanda**, the project concluded Phase 3[61] of the Supply Chain Management Professionalization Framework by finalizing the "Supply Chain Management Professionalization in Rwanda" document. The document presents job descriptions, required competencies, and key performance indicators for 4,083 SCM staff in the public health sector in Rwanda. It also presents 73 competency areas and 607 learning objectives across seven SCM domains. While the detailed competencies and standard job descriptions are meant for standardization and hiring purposes by the MOH, the learning objectives are for curriculum updates by institutions offering SCM courses. The project also conducted a handover workshop of the document to the MOH, Regional Center of Excellence, and Rwanda Medical Supplies, after completing advocacy visits to the University of Kigali School of Business, Mouth Kigali University deputy vice-chancellor, Pharmacy Council, Nursing and Midwifery Council and Associations on the need to use the detailed competencies and job descriptions for hiring purposes and curriculum update in their syllabuses.

[61] The implementation of SCM Professionalization Framework is in five phases: Phase 1 (completed in Q2, FY 2021) involved identifying in-country key players and creating awareness for buy-in. Phase 2 involved conducting stakeholders meetings to secure further support, and defining, through a project charter, the public health sector scope of SCM professionalization (completed in Q4, FY 2021). Phase 3 involves customizing the application of the framework to the Rwandan context at all levels of the supply chain, while Phases 4 and 5 will entail developing a professional and capacity development plan and rolling out and monitoring the plan, respectively.

STRATEGY AND DESIGN (FORMERLY LEADERSHIP AND GOVERNANCE)

In FY 2023, GHSC-PSM supported countries to review or develop long-term strategic plans that focus on the future of the health supply chain.

In Q4, GHSC-PSM:

- Produced a draft implementation plan to accompany the draft 2023–2028 national supply chain strategy for **Angola**. The Angola CMS is set to launch the strategy in early FY 2023, following their final review of the draft implementation plan.
- Supported the Botswana MOH to gather data on the cost of implementation for their national strategic plan. The project will present the results to relevant stakeholders in Q1 FY 2024.

END-USE VERIFICATION SURVEY

GHSC-PSM assesses the availability of malaria, FP/RH, and MNCH commodities at health facilities using the EUV survey to collect data on commodity availability and attributes that contribute to commodity availability, including storage conditions, staff capacity, and stock management. The project presents findings to Missions and MOHs and helps facilitate conversations and activities to improve commodity availability. The survey gathers qualitative data, which provides insights into the reasons for stockouts. EUV data can be used to triangulate LMIS results and identify stock availability trends. EUV data collection is an important opportunity for GHSC-PSM country teams to provide on-site capacity building for health facility staff without increasing the burden on staff.

In Q4, GHSC-PSM implemented the EUV survey in Angola, Burundi, Cameroon, Ghana, Nigeria, Sierra Leone, and Zambia project offices in collaboration with MOH and NMCP staff. At the request of USAID and PMI-Washington, GHSC-PSM also made significant progress in developing a CHW module for the EUV survey in Q4, and the pilot was conducted in Zambia during their September EUV survey round. The CHW module will gather data to inform activities designed to strengthen supply chain functionality at the community/CHW level.

In FY 2023, the project completed 22 EUV surveys in 14 countries (Angola, Burkina Faso, Burundi, Cameroon, Ethiopia, Ghana, Guinea, Liberia, Mali, Niger, Nigeria, Sierra Leone, Zambia, and Zimbabwe). EUV data from these survey rounds helped inform supply chain decision-making and strategic planning. In Ghana, for example, GHSC-PSM and the National Malaria Elimination Program used EUV data to identify malaria commodity gaps and expedite the distribution of artesunate injectable and redistribution of SP and RDTs to health facilities and regional medical stores. Country EUV teams in Benin, Burkina Faso, Mali, Niger, Nigeria, Sierra Leone, and Zambia presented on EUV data use during the monthly EUV working group meetings. The Ghana team presented key findings, recommendations, and outcomes from their most recent survey round during the EUV Summit.

NATIONAL SUPPLY CHAIN ASSESSMENT

The National Supply Chain Assessment (NSCA) is a comprehensive capability and performance review at all levels of a health supply chain. Assessment results help supply chain stakeholders develop their strategic, operational, and investment plans and monitor activities to their desired outcomes.

In Q4, GHSC-PSM supported implementation of the NSCA in Burundi and Lesotho:

- In **Burundi**, the project submitted a final report for the assessment conducted in Q3. The report has received reviews and feedback from all stakeholders involved in the NSCA process. A dissemination event is planned for Q1 FY 2024.

- In **Lesotho,** the project supported the implementation of field activities for the NSCA. A travel team composed of USAID and one GHSC-PSM staff member managed the implementation of the assessment and conducted central-level interviews and data quality monitoring and cleaning.

GHSC-PSM engaged in discussions with countries to scope potential FY 2024 NSCAs with ongoing plans for field assessments in Burma and Zambia.

In FY 2023, the project completed three NSCA implementations in Guatemala, Burundi, and Lesotho.

LEARNING AGENDA: SUPPLY CHAIN TECHNICAL INDEPENDENCE INDICATOR

GHSC-PSM continues to work on the FY 2023 technical independence indicator learning activity. In Q4, the project began to review submitted data from country teams. Due to simultaneous commitments, challenges with data access, and permissions, the volume of data was significantly less than anticipated and no longer made the original scope of work viable. In consultation with USAID, the project proposed an alternate activity to answer one of the two questions in the original scope of work. In early FY 2024, the project will create a technical brief on the strengths and weaknesses of the technical independence indicator and recommendations for adaptation, drawing from all the different examinations of the indicator that have been done to date, including the Country Director's Forum working sessions, the supply chain indicator review project, and previous year's technical independence learning activity.

CBLD-9: REPORTING ON ORGANIZATIONS WITH IMPROVED PERFORMANCE IN SUPPLY CHAIN MANAGEMENT

In FY 2023, the project reported for the first time on the CBLD-9 Indicator. The indicator title is "percent of USG-assisted organizations with improved performance." As GHSC-PSM interfaces with and provides technical assistance to organizations around the world to address their health supply chain needs, the project has worked with dozens of organizations to improve their performance in specific supply chain functions. To report on this indicator, the project utilized data from an existing indicator, the percentage of host country entities that have achieved technical independence with the assistance of GHSC-PSM (also known as the technical independence indicator, or B8), to report on CBLD-9. GHSC-PSM provided USAID a complete annex of all organizations that qualify for reporting per the CBLD-9 performance reference sheet.

C2a. PROJECT PERFORMANCE

GHSC-PSM collects and analyzes data on several indicators of national supply chain system health to understand the environments in which the project operates and to help calibrate our work. These

indicators establish priorities for the project's health systems strengthening support and, over time, will enable the project to assess the outcomes of technical assistance. Dashboards with these country-specific indicators are available for GHSC-PSM country offices to explore with in-country stakeholders.

CAPACITY STRENGTHENING

The number of people trained is an indicator on which the project focuses its capacity-building resources and identifies areas for improvement related to supply chain outcomes. GHSC-PSM trained 8,545 individuals in Q4 (4,328 women and 4,217 men). In FY 2023, GHSC-PSM trained 17,703 people (7,809 women and 9,894 men).

In Q4, many trainings were cross-cutting and addressed topics relevant to multiple health areas. By funding source, 24 percent were trained with HIV/AIDS funding; 20 percent with malaria funding; 38 percent with FP/RH funding; and 18 percent with MCH funding. The supply chain functions being trained that had the most participants were focused on warehousing and inventory management, MIS, and human resources capacity development. For all of FY 2023, most participants had trainings on the same three categories, and 30 percent were trained with HIV/AIDS funding; 28 percent with malaria funding; 25 percent with FP/RH funding; and 17 percent with MCH funding.

ENVIRONMENTAL COMPLIANCE

In accordance with USAID's Environmental Procedures (22 CFR 216), the project implements the GHSC-PSM Initial Environmental Examination and the Environmental Mitigation and Monitoring Plan. Implementation includes providing multi-faceted services to all global staff, such as a review of technical documents pertaining to 22 CFR 216, technical guidance and advisory support, training and capacity building, and direct technical assistance.

In Q4, GHSC-PSM received USAID approval of the final draft of the FY 2022 Environmental Mitigation and Monitoring Report. The project also continued to work with country program and risk management teams to close out AssureX incidents and provided guidance to countries on the disposal of expired commodities and unusable items from warehouses.

C3. GLOBAL COLLABORATION

Delivered more than **48 presentations** at more than **14 international conferences,** and **submitted 44 conference abstracts** for consideration in FY 2023. Prepared **27 presentations** to be presented in FY 2024.

Presented on **two panels in Q4,** at the Association of Supply Chain Management Conference and the International Conference for Primary Healthcare.

The scale, scope, and complexity of managing a global supply chain require collaboration with international and local partners to ensure the availability of medicines and health commodities. By integrating work across health sectors and sharing information, resources, activities, and capabilities, the project can achieve what it could never accomplish alone. GHSC-PSM's global collaboration efforts focus on coordinating with global donors and stakeholders to develop innovative means for responding to supply chain interruptions.

STRATEGIC ENGAGEMENT

As described throughout this report, GHSC-PSM engages with global players to promote the availability of medicines and commodities. The project does this by providing supply chain expertise and working with partners—locally and globally—to reach more communities, allocate scarce supplies, promote harmonization of standards and practices, and manage commodity stock information as a global good. GHSC-PSM participates in several groups:

- Hosts monthly **Proactive Stock Risk Management (ProStock)** meetings with USAID as a forum for building on the project's HIV/AIDS data collection and analysis, discussing gaps in HIV commodity access, and implementing action plans to address them. (See section B1.)
- Continues discussions with the Global Fund to further collaborate on the VMS initiative. This initiative, which improves collaboration among the supplier, the buyer, and distributors, will help higher-volume TLD countries improve stock rotation, minimize inventory and the associated holding costs at the central level, and pave the way for more routinized ordering patterns. (See section B1.)
- Participates in the VAN Steering Committee (GHSC-PSM is a non-voting member) and provided input on supply chain data across the FP community. Also participated in regular VAN working groups, including the Data Management, Technical Management, Data Sharing, and Super User and Analytics task forces. (For more details, see section B3.)

- Through the Consensus Planning Group, coordinates supplier allocations of available supply among multiple procurement agencies and prioritized needs, ensuring fair and reliable access to FP products. (For more details, see section B3.)

- Participates in the Hormonal IUD Access Group, including Operations, Partners Exchange, and Steering Committee subgroups. (For more details, see section B3.)

- Participates in the **Newborn TWG** alongside USAID, UNICEF, and WHO experts. This group oversees the ENAP. (See section B4.)

- Participates in the **Maternal Health Supplies Caucus** and the USAID and BMGF-funded **Child Health Task Force** and shares and creates resources with and for this group. (See section B4.)

- Participates in the **Verification and Traceability Initiative**, a multi-stakeholder partnership composed of UNICEF, Gavi, BMGF, the Global Fund, USAID, national regulatory authorities in Nigeria and Rwanda, Vital Wave, and the World Bank. (See section C2.)

- Participates in the Malaria Pharmaceuticals, mRDT, and Vector Control Access Task Forces; the LLIN Donor Collaboration call; and the KSM/API working group. Also chairs the LQAG. (See section B2.)

- As part of the strategy to drive procurement and manufacturing regionally from Africa, collaborates with other global procurers and QA teams to gain a complete understanding of the potential impact of a quality issue on the malaria products the project seeks to procure. In Q4, the project successfully allocated procurement to an additional African manufacturer with this QA stipulation in place.

KNOWLEDGE SHARING

To ensure that MOHs, supply chain managers, donors, and other stakeholders can repurpose program activities and develop locally led solutions, GHSC-PSM documents and shares project activities, technical research, and success stories. Details can be found in sections throughout the report, but below are highlights from FY 2023:

- Delivered 14 presentations at the **People that Deliver 2022 Global Indaba**, 10 presentations at the **2022 Global Health Supply Chain Summit**, six presentations at the **2022 International Conference on Family Planning,** six presentations at the **2022 American Society of Tropical Medicine and Hygiene**, two presentations at the **2022 Health and Humanitarian Logistics Conference,** and one presentation at the **2022 GS1 Healthcare Conference** in FY 2023.

- Submitted four abstracts to the **International AIDS Society conference** and 12 abstracts to the **RHSC General Membership Meeting 2023,** three of which were **accepted for presentation**. Six abstract submissions were approved for poster presentation at the **ASTMH Annual Meeting 2023**.

- Eight submissions were accepted for oral presentation at the 2023 **Global Health Supply Chain Summit.** The project was also invited to present on three panels at the 2023 **Health and Humanitarian Logistics Conference**, focusing on last mile solutions.

- Presented "Unpacking the Stories Behind Health Supply Chain Data" at the 2023 **Global Digital Development Forum**.

- Three abstract submissions were accepted for poster presentation at the 2023 **African Society for Laboratory Medicine (ASLM) conference**. Two abstracts from Ghana on different aspects of the DNO process and an abstract from Nigeria on the National Integrated Specimen Referral Network (NiSRN) will feature in the poster exhibition.

- Three abstracts were accepted for inclusion at the 2023 **International Conference on AIDS and STIs in Africa (ICASA)**. One oral presentation on strengthening inventory management and stock visibility will be presented, plus a poster from Nigeria on viral load suppression and a poster from Malawi on project support to the MOH and the benefits of on-the-job training and supportive supervision.

- Delivered one newborn health supplies presentation at **IMNHC 2023 and** two Ghana MNCH presentations at **CARISCA** 2023. (See section B4.)

- Published Angola and Mozambique Impact Briefs in Portuguese on the GHSC website. (See section B3.)

- Presented findings from the Landscape Tracker on government and parastatal outsourcing at key events, including PROPEL Health advocacy meeting and PMI/GHSC-PSM malaria meeting. (See section B3.)

- Shared VAN usage insights and trends, including cross-organizational and project use cases, across different VAN memberships and GHSC-PSM support levels during USAID CSL Topical Tuesday session. (See section B3.)

- Participated in the **GS1 Global Forum** in Brussels, Belgium, where the project presented strategic engagement approaches to advance national adoption of GS1 Standards for pharmaceutical traceability and engagement opportunities with GS1 Member Organizations in support of national traceability strategies. (See section C2.)

- Participated in and shared a supply chain perspective at the **Small and Sick Newborn Care Global Financing Workshop** alongside USAID, World Bank, UNICEF, WHO, and the MOMENTUM project. (See section B4.)

- Published the technical report, "**Using a Data Science Approach to Build Timely, Sustainable, Repeatable and User-centered Analysis to Drive Actions**," which explores strengthening monitoring and evaluation processes through a data science approach to analytics.

- Published a technical brief, **The Role of Domestic Wholesalers,** which spotlights how health systems can engage domestic wholesalers in supplying quality FP/RH and MNCH commodities. (See sections B3 and B4.)

- Published the CHW advocacy paper "**Effective Community-Level Supply Chains for iCCM and Malaria**.". (See section B2.)

COUNTRY COLLABORATION

- In **Burma**, led a stock monitoring meeting with the National AIDS Program, WHO, and UNOPS to support stock monitoring activities and address pending supply challenges (See section B1.)

- In **Burundi**, collaborated with the National AIDS Control Program, TB Program, and UNDP to analyze VL and EID lab data and transfer ownership of the DNO to the MOH. (See section B1.)

- In **Ethiopia**, joined NEST360, USAID, and the Ethiopian MOH at an SSNC policy workshop, contributing expertise on financing, forecasting, procurement, and warehousing and distribution to improve and scale up SSNC. (See section B4.)

- In **Guinea**, worked with stakeholders to develop an operational plan for procuring and managing eight incinerators to be donated to Guinea by the Global Fund as part of its COVID-19 response. The project will implement the plan. (See Annex A.)

- In **Malawi**, held a remote training on QAT's supply planning module for UNICEF staff to support the UNICEF/BHA pilot using QAT for nutrition programs. (See section C2.)

- In **Mauritania**, trained 22 participants from the MOH Nutrition Division, the CMS, and UNICEF on QAT's supply planning module.

- In **Mozambique**, fulfilled an urgent order of TLD for the Global Fund from a supplier's VMS warehouse in South Africa. The project has since initiated discussions with the Global Fund for further collaboration on the VMS initiative. (See section B1.)

- In **Mozambique**, conducted an in-person QAT training for more than 30 prospective users, including stakeholders from Center for Medicine and Medical Articles, National Directorate of Medical Services, the MOH, the Global Fund, and UNICEF. (See section C2.)

- In **Niger**, in collaboration with CRS, supported the development of a contingency storage plan following the July coup to proactively manage the expected increase in container arrivals following the reopening of the land borders (still closed at the end of the quarter). (See section B2.)

- In **Rwanda**, used the People that Deliver process mapping tool to gather and analyze data from health facilities across the country. The project then developed a document titled, "Supply Chain Management Professionalization in Rwanda," which was reviewed by People that Deliver, the Rwanda country office, and USAID. (See section C3.)

- In **South Sudan**, facilitated a QAT workshop to develop a three-year national forecast for family planning/reproductive health commodities and maternal health medicines. Participants included staff from the MOH, UNFPA, and the MOMENTUM Integrated Health Resilience project. (See section C3.)

- In **Zambia**, continued to work with NMEC, AMF, E4H, PAMO Plus, PMI Evolve, the Global Fund, and CHAZ to prepare for the 2023 LLIN mass distribution campaign. (See section B2.)

COLLABORATION WITH OTHER USAID GHSC PROJECTS

GHSC-PSM is a member of the GHSC program family and interacts regularly with the other GHSC projects.

In particular, GHSC-PSM collaborates with GHSC-QA to share information, identify mutual challenges and solutions, and ensure QA requirements are incorporated into GHSC-PSM systems. Furthermore, GHSC-PSM collaborates with GHSC-QA to streamline and optimize QA and QC business processes and procedures to rapidly address any incidents and product failures as they occur, ensuring quality products reach the end consumer. In Q3 and Q4, GHSC-PSM:

- Worked with GHSC-QA to streamline and optimize lab commodity procurement from local eligible suppliers. (See section B1.)

- Worked with GHSC-QA to obtain approval to procure male condoms from the new manufacturing site and concluded a multiyear process to requalify an established male condom manufacturer, who will resume business with the project in FY 2024. These efforts provide USAID with access to more than 1.4 billion pieces of manufacturing capacity from eligible male condom suppliers. (See section B1.)

- Collaborated with GHSC-QA to prequalify two Nigerian manufacturers to supply and deliver RUTF to three Nigerian states. (See section B4.)

- Continued working with UNICEF—using funding from USAID's BHA—to pilot the use of QAT for supply planning of nutrition products. (See section C2.)

GHSC-PSM also provides FASP as well as in-country logistics support to the GHSC-RTK project, which undertakes HIV/AIDS RTK procurement and international freight. The project shares data monthly with GHSC-RTK to guide HIV-RTK procurement planning and data triangulation and reviews HIV testing targets against HIV-RTK stock in countries with PEPFAR-supported HIV testing programs. (See section B1.)

The role of the non-field office program management unit (NFO PMU) is to collaborate with in-country stakeholders to support the successful procurement and delivery of health commodities. In countries that have USAID programming for supply chain activities, the NFO team works with those programs, as well as the USAID Mission and counterpart health personnel. For the specific FTO countries, this collaboration happens almost daily between the NFO PMU, FTO country offices, and FTO headquarters staff. Collaboration is also facilitated by having the Managing Director of the NFO PMU serve in the role of Managing Director for the GHSC-TA IDIQ and FTO. For example, in Q4, GHSC-PSM was given the green light to proceed with QAT in Tanzania. In Q1 FY 2024, GHSC-PSM will train 27 MOH staff members on

the QAT forecasting and supply planning modules. GHSC-PSM also worked with the GHSC-TA Francophone TO project to host its third annual workshop focused on reducing the customs clearance process for importing essential health commodities into the DRC. Participants included representatives from the Ministre des Affaires Etrangères, the Direction Générale des Douanes et Accises, the Inspecteaur Général des Finances, the Congo Central Taxes Revenue, National Medicine Supply Program, local logistics companies, and members of GSO shipping. MINAFET and local logistics companies were able to reduce steps they were responsible for by 4.3 days and 1.4 days, respectively from FY 2022 to FY 2023. This year's conference participants analyzed their FY 2023 improvement plans and updated their commitments for FY 2024. In FY 2024 GHSC-PSM will continue to work to improve customs clearance cycle time to get essential medicines to the Congolese people more quickly and efficiently.

OTHER GLOBAL COLLABORATION

- Continued providing the **USAID MOSAIC** program with commodity procurement and logistics support in Q4. (See section B1.)

- Delivered dapivirine vaginal rings to South Africa for PEPFAR's DREAMS programs in Q4. (See section B1.)

- Pursued negotiations with three suppliers to begin procuring WHO-PQ COVID-19 therapeutics in support of the Test-to-Treat program. (See Annex A.)

- Made a presentation about QAT to Global Fund headquarters staff to build upon earlier expressions of interest from their country offices. (See section C2.)
- **2023 Global Visioning Workshop:** Facilitated the 2023 Global Visioning Workshop held September 18–22 in Geneva, Switzerland. The event brought together 51 diverse stakeholders including donors, country representatives, implementing partners, and GS1 Global to advance the vision for global traceability. The interactive three days included a series of co-creation working sessions that resulted in six traceability use cases being prioritized: 1) visibility into where product is in the global supply chain; 2) data sharing compliance; 3) programmatic accountability; 4 theft and diversion; 5) avoidance of substandard and falsified (SF) medicines reaching patients; and 6) recall management. Prioritized use cases informed the identification of traceability architecture approaches comprising data and process workflows to enable intended business goals. The workshop was preceded by a USAID-specific visioning meeting facilitated by GHSC-PSM to support USAID in thinking through priority use cases for serialization and categorizing these between global use cases and USAID health area–specific use cases. Workshop outputs were used to inform discussions in Geneva.
- **Verification and Traceability Initiative (VTI):** GHSC-PSM provided technical support to USAID on the VTI initiative, a partnership among UNICEF, Gavi, BMG,F the Global Fund, USAID, and national regulatory authorities to verify the authenticity of health products and track them through the supply chain. Technical assistance provided defining cases for VTI and a business model to sustain the initiative.

ANNEX A. COVID-19 RESPONSE

In Q4, the project **delivered 110,300 COVID-19 commodities** to **two countries**[62] approved for American Rescue Plan Act (ARPA) funding, including infant scales and surgical gloves.

In Q4, the project **delivered 830 units of ventilator consumables, 110,000 pieces of personal protective equipment (PPE), 300 infant scales, and 13,488 courses of COVID therapeutics to six countries.**

GLOBAL PROCUREMENT AND LOGISTICS

Procurements

In FY 2023, GHSC-PSM delivered 10,504,967 units of medical commodities to 22 different countries. The deliveries by product category included:

- PPE: 8,552,286 units
- Laboratory commodities: 107,960 units
- COVID-19 rapid diagnostic tests: 806,700 units
- COVID-19 therapeutics: 499,200 units
- Oxygen-related commodities: 219,986 units
- Ventilator-related commodities: 21,830
- Essential medicines: 296,705 units
- Infant commodities: 300 units

COVID-19 stockpiles: PPE and RDTs

In FY 2023, GHSC-PSM retired the PPE and COVID RDT stockpiles at USAID's direction, and in light of declining demand for PPE and COVID RDTs. The PPE stockpile ensured that GHSC-PSM had access to PPE inventory that was held at the supplier without order commitments. This allowed GHSC-PSM to rapidly provide countries with PPE in a high-demand and volatile environment at no risk to the project.

The COVID RDT stockpile was stored at GHSC-PSM's Belgium RDC. In a similarly high-demand and volatile environment, the COVID RDT stockpile ensured that GHSC-PSM could quickly access available stock that could be dispatched to countries with a significantly lower lead time. Although the COVID RDT

[62] Colombia, and Namibia

stockpile had associated order commitments, GHSC-PSM was able to completely deplete the committed inventory.

Procurements under COVID-19 ARPA

Under ARPA funding, GHSC-PSM is procuring cold chain supplies, cold chain equipment, bulk liquid oxygen, diagnostic tests, general patient care commodities, laboratory consumables, essential medicines, and PPE, along with a limited range of critical COVID-19 commodities for countries requiring emergency supplies, establishing a virtual stockpile of COVID-19 commodities, and providing related technical assistance.

In Q4, GHSC-PSM delivered critical medical supplies and equipment to:

- **Colombia:** 300 infant scales
- **Namibia:** 110,000 surgical gloves

Procurement and installation of oxygen-related commodities

Supplemental oxygen is an essential, lifesaving treatment for people infected with COVID-19. As part of its global response to the pandemic, USAID tasked the project with procuring and delivering oxygen commodities, including pressure swing adsorption plants, vacuum swing adsorption plants, oxygen concentrators and cylinders, and oxygen disaster manifolds, as well as consumable and durable items. Activities in Q4 included:

- In **Botswana**, GHSC-PSM supported bulk liquid oxygen (LOX) projects and is establishing a project charter with the Mission and MOH for three hospitals in Francistown and Masunga. The charter includes installing vacuum-insulated evaporators with tank telemetry systems for level and pressure monitoring and cylinder manifold systems to ensure oxygen needs are met during each hospital's normal and peak consumption periods. In Q4, GHSC-PSM continued contract negotiations with the GHSC-QA–qualified supplier selected for award and will execute the agreement in Q1 FY 2024. Installation of equipment and bulk orders of LOX will occur after the Ministry of Health and Wellness completes the infrastructure readiness work.
- In **Namibia**, delivered 23,757 kilograms of bulk LOX to three hospitals
- In **Mozambique,** a pressure swing adsorption (PSA) plant was delivered to Mocuba District Hospital. The PSA was accompanied by a spare parts kit and 10 cylinders. In addition, an Automatic Voltage Regulator was installed at the PSA plant previously delivered by GHSC-PSM at Monapo District Hospital.
- In **Ghana,** a PSA plant was delivered to Bole District Hospital. The PSA was accompanied by a spare parts kit and 10 cylinders.
- In **Afghanistan,** two PSA plants were delivered to USAID's Urban Health Initiative project implemented by Jhpiego. The PSAs were accompanied by a spare parts kit and 10 cylinders each.
- Delivered 12,964 oxygen consumables and durables to **Afghanistan:** 12,560 feeding tubes, 310 oxygen connection adaptors, four pulse oximeters, 40 oxygen hoses, 10 oxygen concentrators, 20 oxygen concentrator spare parts kits, and 20 penta flow splitters.

Procurement of consumables and durables for ventilator support

In Q4 in **Mongolia**, GHSC-PSM delivered 13 of 14 line items of a Q4 FY 2022 order for ventilator consumables and conducted preventative maintenance training for biomedical engineers. In total, GHSC-PSM delivered 830 ventilator consumables and durables, including: five patient-triggered ventilation service tools, 50 assembly maintenance and calibration kits, 500 patient circuits, 50 O2 inlet filters, five motor drive calibration tools, 50 fan filter kits, five inlet screen insertion tools, 50 foam inlet filters, five flow valve insertion tools, 50 o-rings, five calibration assembly syringes, 50 test lung kits, and five pressure assembly syringes. The remaining line item in the Q4 FY 2022 order pertains to training two biomedical engineers on ventilator preventative maintenance. The training will be conducted in FY 2024.

In FY 2023, GHSC-PSM delivered over 11 million units of oxygen and lab equipment, COVID-19 therapeutics and rapid diagnostic tests, PPE, essential medicines for COVID-19, and ventilator consumables to 22 countries.

COVID-19 TEST-TO-TREAT PROGRAM

In FY 2022, GHSC-PSM received funding to support the COVID-19 Test-to-Treat Program for Bangladesh, Botswana, Côte d'Ivoire, El Salvador, Ghana, Lesotho, Malawi, Mozambique, Rwanda, and Senegal. Under this program, in Q4 GHSC-PSM:

- Delivered an order for 6,272 treatment courses of generic nirmatrelvir + ritonavir to the RDC in Dubai. The nirmatrelvir + ritonavir was pre-positioned at the RDC for eventual delivery to five countries. Upon confirmation of product registration and receipt of import duty waivers, the project will ship the treatment courses to the recipient countries in FY 2024.

- Delivered five orders of generic molnupiravir that were pre-positioned at the RDC in Dubai to Botswana, El Salvador, Lesotho, Malawi, and Senegal. These orders amounted to 13,488 treatment courses. The remaining 6,720 treatment courses at the RDC in Dubai will be delivered in FY 2024 upon confirmation of country product registrations and receipt of import duty waivers.

COVID-19 IN-COUNTRY TECHNICAL ASSISTANCE

Below are examples of COVID technical assistance activities the project conducted in Q4.

In Burkina Faso, GHSC-PSM collaborated with the MOH to assess the availability and utilization of COVID-19 materials and equipment supplied by the Global Fund. The evaluation covered the central, regional, and peripheral levels, focusing on rolling stock, computer equipment, and biomedical equipment such as oxygen concentrators and medical ventilators. The evaluation produced a map of available materials and equipment, categorizing them as used or non-functional. The evaluation results were presented to stakeholders, leading to the MOH's decision to implement curative maintenance for the biomedical equipment.

In Honduras, GHSC-PSM validated and disseminated, "Guidelines for Oxygen Management in Hospitals of the Ministry of Health of Honduras." Ten operational technical personnel from hospitals in the South Central Zone of Honduras validated these guidelines. The project shared the guidelines during visits to six departmental hospitals, and through two workshops covering 17 hospitals from the North-West and

Atlantic Coast Zones. Additionally, GHSC-PSM trained approximately 60 operational technical personnel working in public hospitals in oxygen management through these activities.

In Kenya, Afya Ugavi worked with the MOH COVID Waste Management committee and the National Vaccines and Immunization Program (NVIP) on the reverse logistics of expired COVID-19 vaccines. This operation covered all vaccine supply levels (national, regional, sub-county, and health facility) across 47 counties in Kenya, involving more than 6,000 immunizing health facilities, 306 sub-county vaccine stores, nine regional vaccine stores, and one central vaccine store. Afya Ugavi supported the collection of COVID-19 vaccines from health facilities and moved to sub-county, regional vaccine stores, and then incinerated at approved MOH centers. Afya Ugavi assisted the MOH in sorting, counting, aggregating, and packaging the expired COVID-19 vaccines by batch, expiry, and manufacturer. and collaborated with a multidisciplinary team of health workers to ensure safety, proper waste segregation, and documentation traceability at various levels. This exercise was the first of its kind in Kenya. Afya Ugavi documented best practices, challenges, and experiences to guide future endeavors. The National Vaccines and Immunization Program will release an analysis of the reverse logistics exercise after submitting the final activity report to the MOH Principal Secretary.

In Liberia, GHSC-PSM is collaborating with the MOH, Liberia Medicine Health Regulatory Authority (LMHRA), and other supply chain stakeholders to develop national pharmaceutical waste management guidelines, which are currently undergoing revision. The guidelines will be titled, "Guidelines and Procedures for Pharmaceutical Waste Management in Liberia".

In **Malawi,** GHSC-PSM supported the MOH through EPI by distributing 534,000 vaccine doses, 1,008,500 injection materials, and 5,790 safety boxes to 33 vaccination sites in various districts. These deliveries went toward COVID-19 vaccination campaigns, resulting in 121,870 people receiving the first dose of a COVID-19 vaccine and 37,046 people receiving a booster dose. At the end of Q4, GHSC-PSM worked with EPI to provide on-the-job training to 71 cold chain technicians at the 33 district vaccine stores across the country in supply chain management and capturing and reporting OpenLMIS data.

In **Mozambique,** GHSC-PSM continued to transport and distribute COVID-19 PPE from three regional warehouses (Machava, Nampula, and Zimpeto) to10 provincial medical stores supporting over 147 districts in Q4. A total of 38 trucks carried COVID-19 PPE (equivalent to 2,546 cubic meters of commodities) between July and September. Additionally, GHSC-PSM, JHPIEGO, and the Department of Infrastructure and Hospital Equipment (DIEH) collaborated to create instructional videos on cleaning and replacing O2 filters and humidifiers to enhance the country's capacity in using O2 equipment. The project also supported the MOH in developing an O2 equipment maintenance strategy in Q4.

In **Namibia,** GHSC-PSM distributed a total of 23,757 kg of bulk liquid medical oxygen to Intermediate Hospital Katutura, Intermediate Hospital Oshakati, and Tsumeb District Hospital. Additionally, 1,100 units of latex surgical gloves (PPE), each containing100 gloves, were delivered to the CMS in July 2023.

In **Zimbabwe,** GHSC-PSM used COVID-19 funds for various activities, including upgrading the NatPharm Enterprise Resource Planning (ERP) software from Dynamics NAV 2017 to 365 Business Central, conducting winter scientific temperature and humidity mapping of NatPharm warehouses, developing a GS1-compliant product master dataset, and delivering 48 pallet jacks to NatPharm to improve warehouse operations. The GS1-master dataset workbook is ready for digitization, pending the ERP upgrade, and will be essential for tracking, tracing, and data capture. Digitization is expected to begin in Q1 FY 2024.

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Current Reporting Period

2023-Q4

GLOBAL HEALTH SUPPLY CHAIN PROGRAM

Procurement and Supply Management

Delivery Impact to Date

Number of ACT treatments delivered

532,656,920

Number of Couple Years Protection delivered

130,844,980

Person-years of ARV treatment delivered

22,514,470

Global Supply Chain M&E Indicator Performance

FY2023 Quarter 3, April - June 2023

Delivery (OTIF, OTD and Backlog)	Cycle Time	Quality Assurance (TO2 only)	Procurement	Registration
Supply Plan Error	Forecast Error	Supply Plan Submissions	Warehousing	Vendor Performance

HIV Complete Quarterly Results (TO1)	Malaria Complete Quarterly Results (TO2)	FP/RH Complete Quarterly Results (TO3)	MNCH & Zika Complete Quarterly Results (TO4)

USAID FROM THE AMERICAN PEOPLE

PEPFAR U.S. President's Emergency Plan for AIDS Relief

PMI U.S. PRESIDENT'S MALARIA INITIATIVE LED BY USAID FROM THE AMERICAN PEOPLE CDC

Delivery Performance

Current Reporting Period

2023-Q4

TO	Analysis
Crosscutting	Overall delivery performance has remained strong this quarter. OTIF results increased to 89 percent, and OTD decreased slightly to 88 percent. The backlog also increased slightly compared to the last quarter, from 4.4 percent to 4.9 percent of line items. Overall delivery volume has increased from last quarter, to 1140 line items, the majority consisting of HIV/AIDs products, and therefore the overall rating for OTIF and OTD is most influenced by the HIV/AIDs products' OTIF and OTD scores, OTIF increasing relatively to last quarter., while OTD decreased. Malaria and MNCH products delivery volume increased from last quarter, while Family Planning line items remained mostly consistent with a slight increase.
TO1 - HIV	Overall delivery performance for HIV commodities was strong for the period. OTD was at 87 percent in this quarter, above the goal of 80 percent and the backlog stood at to 5.3 percent. There was an increase in OTIF for this quarter, up from 85 percent to 87 percent. Most delays occurred in laboratory tracer products and other RTK, which had the lowest OTIF percentages of all the HIV products this quarter at 85 percent and 78 percent respectively. Laboratory products made up 67.5 percent of the total number of line items delivered in FY23 Q4. TB HIV, and VMMC products all had OTIF rates of 100 percent this quarter while Other Pharma products reached 98 percent. This quarter, the backlog percentage stood at 5.3 percent. The backlogged lines were mainly composed of Laboratory commodity products, with Other-Pharma products following closely. Order backlogs were primarily a result of vendors submitting shipping documents late, causing delays in waiver processing. Furthermore, the challenge of the short shelf life of VL and TB commodities made it difficult for vendors to align with manufacturer production schedules and committed GAD. Additional delivery challenges were associated with local vendors facing manufacturing and production delays, along with delays in vendors applying for import waivers.
TO2 - Malaria	Overall delivery performance for Malaria commodities has improved this quarter. OTIF and OTD results were at 88 and 87 percent respectively this quarter, above the goal of 80 percent. The backlog increased from last quarter to 4.1 percent, while remaining within the target of 5 percent. The improvement in the OTIF and OTD scores can be most attributed to an improvement with ACTs and mRDTs. Other Non-Pharma, Other Pharma and SMC products all had OTIF rates of 100 percent this quarter. ACTs account for the majority of line items for Malaria products, 93 out of a total of 230.
TO3 - FP/RH	Overall delivery performance for family planning commodities was strong for the period, with OTIF and OTID at 81 percent, and with OTD at 85 percent, above the target of 80 percent. The backlog decreased to 2.9, well below the 5 percent target. Delivery volume increased this quarter to 64 line items from 57 line items in the last quarter. Amongst product groups, most delays were found in combined oral contraceptives, which accounted for 9 of the total 64 line items this quarter. The Other Non-Pharma products included syringes, sharps, shelving units and air conditioners.
TO4 - MNCH	Delivery performance for maternal and child health products remained strong for the period, remaining at 100 percent for OTIF and 97 percent for OTD. Overall delivery volume decreased this quarter to 72 line items, with most delivered to DRC. The backlog for this quarter was at 3.3 percent.

A1a. On-time, In-Full Delivery

Task Order	Total # of Line Items Delivered	OTIF	OTIF Target
TO1 - COVID19	31	100%	80%
TO1 - HIV	774	87%	80%
TO2 - Malaria	230	88%	80%
TO3 - FP/RH	64	81%	80%
TO4 - MNCH	72	100%	80%
Total	**1,171**	**89%**	**80%**

A1b. On-time Delivery

Task Order	Total # of Line Items with ADDs in the quarter	OTD	OTD Target
TO1 - COVID19	37	84%	80%
TO1 - HIV	783	87%	80%
TO2 - Malaria	230	87%	80%
TO3 - FP/RH	53	85%	80%
TO4 - MNCH	76	97%	80%
Total	**1,179**	**88%**	**80%**

A16. Backlog Percentage

Task Order	Total # of line items with ADDs in the last 12 months	Backlog	Backlog target
TO1 - COVID19	218	2.8%	5%
TO1 - HIV	3,566	5.3%	5%
TO2 - Malaria	730	4.1%	5%
TO3 - FP/RH	276	2.9%	5%
TO4 - MNCH	90	3.3%	5%
Total	**4,880**	**4.9%**	**5%**

Delivery Performance

Current Reporting Period

2023-Q4

Task Order	A1a. OTIF rate		A1b. OTD rate		A16. Backlog percentage	
	OTIF	Total # of Line Items Delivered	OTD	Total # of Line Items with ADDs in the quarter	Backlog	Total # of line items with ADDs in the last 12 months
TO1 - COVID19	**100%**	**31**	**84%**	**37**	**2.8%**	**218**
COVID19	100%	31	84%	37	2.8%	218
TO1 - HIV	**87%**	**774**	**87%**	**783**	**5.3%**	**3,566**
Adult ARV	91%	56	84%	62	3.9%	255
Condoms	88%	34	85%	40	4.6%	152
Food and WASH					100.0%	1
Laboratory	86%	520	87%	512	5.7%	2,422
Other Non-Pharma	90%	42	90%	39	7.8%	217
Other Pharma	98%	43	93%	45	3.2%	186
Other RTK	78%	9	78%	9	8.6%	35
Pediatric ARV	88%	41	82%	45	2.0%	151
TB HIV	100%	9	90%	10	2.4%	42
VMMC	100%	20	100%	21	4.8%	105
TO2 - Malaria	**88%**	**230**	**87%**	**230**	**4.1%**	**730**
ACTs	94%	93	97%	89	5.0%	258
Laboratory	68%	28	70%	27	0.0%	121
LLINs	89%	46	77%	52	8.4%	119
mRDTs	94%	18	90%	20	3.2%	62
Other Non-Pharma	100%	2	100%	2	0.0%	6
Other Pharma	100%	4	80%	5	9.1%	11
Other RTK	0%	1	0%	1	0.0%	1
Severe Malaria Meds	81%	26	91%	23	1.0%	97
SMC	100%	3	100%	3	0.0%	28
SP	89%	9	88%	8	11.1%	27

Task Order	A1a. OTIF rate		A1b. OTD rate		A16. Backlog percentage	
	OTIF	Total # of Line Items Delivered	OTD	Total # of Line Items with ADDs in the quarter	Backlog	Total # of line items with ADDs in the last 12 months
TO3 - FP/RH	**81%**	**64**	**85%**	**53**	**2.9%**	**276**
Combined Oral Contraceptives	44%	9	63%	8	0.0%	39
Copper-Bearing Intrauterine Devices	100%	4	100%	4	0.0%	19
Emergency Oral Contraceptives					0.0%	10
Implantable Contraceptives	100%	5	100%	5	2.9%	68
Injectable Contraceptives	94%	33	96%	24	2.7%	74
Laboratory					0.0%	2
Levonorgestrel-Releasing Intrauterine Devices					0.0%	3
Other Non-Pharma	29%	7	40%	5	6.3%	16
Progestin Only Pills	100%	3	75%	4	5.7%	35
Standard Days Method	100%	3	100%	3	10.0%	10
TO4 - MNCH	**100%**	**72**	**97%**	**76**	**3.3%**	**90**
Laboratory					0.0%	1
Other Non-Pharma	100%	10	100%	10	4.5%	22
Other Pharma	100%	62	97%	66	3.0%	67

Data notes

See "Indicator Details" pages in this report for more information.

Quarterly indicator targets are effective beginning FY2018 Q4.

Line items are considered on time if they are delivered between 14 calendar days before and up to 7 calendar days after the agreed delivery date.

All male and female condom and lubricant deliveries are reported under TO1.

Cycle Time Performance

Current Reporting Period

2023-Q4

A3. Average overall and dwell-adjusted cycle time

Task Order	# of line items delivered	Average Cycle Time	Cycle time target	Average dwell-adjusted cycle time	Dwell-adjusted cycle time target
TO1 - COVID19	31	229	250	229	250
TO1 - HIV	773	249	250	237	250
TO2 - Malaria	228	362	340	327	300
TO3 - FP/RH	64	313		308	
TO4 - MNCH	72	568	350	567	350
Total	**1168**	**294**		**279**	

A3. Average overall and dwell-adjusted cycle time (TO3 detail)

Task Order	# of line items delivered	Average Cycle Time	Cycle time target	Average dwell-adjusted cycle time	Dwell-adjusted cycle time target
TO3 - FP/RH	**64**	**313**		**308**	
Direct drop fulfillment	21	326	300	320	300
Warehouse fulfillment	43	307	250	302	250

See next page for break downs by process segment, product category, fulfillment channel, and transportation mode

TO	Analysis
TO1 - HIV	End-to-end cycle time for HIV/AIDS commodities increased this quarter to 249 days, below the target of 250 days. Dwell-adjusted cycle time also increased slightly to 237 days, falling below the target. Purchase orders, which accounted for 97 percent of all orders, had an average cycle time of 249 days (238 dwell-adjusted). Some of the dominant groups which had cycle time longer than the average were condoms and other pharma products. Condoms accounted for 34 lines, with an average cycle time of 300 days while Other pharma products with 42 lines hand an average of 318 days. Out of 773 line items for HIV/AIDS products, 114 had holds applied to them.
TO2 - Malaria	End-to-end cycle time for malaria commodities increased slightly this quarter to 362 days with a concurrent increase in dwell-adjusted cycle time to 327. There was an increase in the Sourcing and Planning segment this quarter from 85 days of last quarter to 103 days in the present period. There were two countries which had particular long cycle times, i.e. Congo DRC and Mali. Specifically, the Congo DRC orders accounted for more than 30 percent of the orders and had an average cycle time of 507 days. Mali had a total of 16 lines with an average cycle time of 370 days. The Mali lab lines faced a longer cycle time due to change in alternated specification of suppliers which took the country longer to validate/accept. The ACT orders for Congo DRC faced particularly long cycle times due to addition of verification requirements by a government ministry. These verification requirements added another layer of physical and financial inspection. Out of a total of 228 line items, 125 had holds applied to them.
TO3 - FP/RH	End-to-end cycle times decreased for warehouse fulfilments to 307 days for standard and 302 days for dwell-adjusted. Cycle time for direct drop fulfilments increased to 326 days with a dwell-adjusted cycle time of 320 days. Congo DRC accounted for the highest number of orders under distribution orders had an average cycle time of 315 days. Keeping in line with previous trends, Congo DRC orders usually have a longer than average cycle time. Injectables were the predominant product group in Congo DRC. Another reason for the long cycle times was constrained product supply, the supplier lead time was 22 weeks compared to the contractual 16 weeks). Ghana and Mozambique had long cycle times under purchase orders. The cycle time for Mozambique orders was more than 450 days while it increased to more than 550 days for Ghana orders. The orders for both countries were for CoCs. The Ghana CoC orders were for a type of ferrous-based placebo which has limited supply worldwide and is also being phased out of the project. The Mozambique CoC orders were impacted by absenteeism arising out of COVID, which lead to production backlogs.
TO4 - MNCH	Cycle time for maternal and child health commodities increased to 568 days, with 567 days as dwell-adjusted. Lines from Congo DRC accounted for 86 percent of all the line items this quarter, with an average cycle time of 573 days. All the Congo DRC orders were for the Other Pharma product group. These orders suffered from covid-led factory closures which led to container shortages. Consequently, shipping lines were modified with lines being split into air and ocean, which contributed s to the long cycle times. The Sourcing and Planning segment increased to 273 days this quarter.

Data notes

Data on overall cycle start and end dates are complete for all line items delivered this quarter. However, internal milestone data may not be complete for some line items. In these cases, line items with incomplete data are excluded from the segment averages. For this reason, the sum of all segments may not be equal to the overall average per task order and fulfillment channel, especially in earlier reporting periods.

Overall cycle time is defined as the number of days between when a customer order is submitted to when the shipment is actually delivered to the customer, inclusive of the start/end days and all holds or other dwell times. Dwell-adjusted cycle time is defined as the overall cycle time with all days of measurable dwell time deducted. Dwell is measured using system timestamps for the start and end for a set of acceptable holds, as defined by the GHSC-PSM hold status policy.

Quarterly indicator targets are set for overall and dwell-adjusted cycle times. For all task orders except TO2, the overall and dwell-adjusted targets are the same. Targets are not set for individual segments for any task order.

Cycle Time Performance

Current Reporting Period

2023-Q4

A3. Average overall cycle time by product group, fulfillment channel, and transportation mode (TO1, TO2, and TO3)

Fulfillment Channel / Task Order	Direct Drop Fulfillment Air	Land	Sea	Warehouse Fulfillment Air	Land	Sea	Total
TO1 - COVID19	**271**		**157**	**59**			**229**
COVID19	271		157	59			**229**
TO1 - HIV	**252**	**211**	**300**	**234**	**44**	**246**	**249**
Adult ARV	257	254	268	148		199	**245**
Condoms	328		291	375		309	**300**
Laboratory	248	201	382				**238**
Other Non-Pharma	257	187	342				**247**
Other Pharma	288	412	360				**318**
Other RTK	266						**266**
Pediatric ARV	237		384	280			**275**
TB HIV	291		186				**233**
VMMC	324	182	261		44		**256**
TO2 - Malaria	**303**	**471**	**383**	**170**			**362**
ACTs	254		401	170			**368**
Laboratory	309	276	308				**305**
LLINs		764	344				**362**
mRDTs	581		437				**445**
Other Non-Pharma	240		410				**325**
Other Pharma	475						**475**
Other RTK	197						**197**
Severe Malaria Meds	273		365				**342**
SMC	68		122				**86**
SP	425		440				**435**
TO3 - FP/RH	**311**	**361**	**327**	**249**		**342**	**313**
Combined Oral Contraceptives	551		503			357	**427**
Copper-Bearing Intrauterine Devices				203			**203**
Implantable Contraceptives	282		555	176		452	**328**
Injectable Contraceptives	141	361	222	303		325	**306**
Other Non-Pharma		361	253				**268**
Progestin Only Pills				195		486	**292**
Standard Days Method	298						**298**

A3. Average overall cycle time by product group, fulfillment channel, and transportation mode (TO4)

Fulfillment Channel / Product Category	Direct Drop Fulfillment Air	Land	Multiple	Sea	Total
Other Non-Pharma		253		563	**532**
Other Pharma	197		579	587	**574**
Total	**197**	**253**	**579**	**584**	**568**

Data notes

Data on overall cycle start and end dates are complete for all line items delivered this quarter. However, internal milestone data may not be complete for some line items. In these cases, line items with incomplete data are excluded from the segment averages. For this reason, the sum of all segments may not be equal to the overall average per task order and fulfillment channel, especially in earlier reporting periods.

Overall cycle time is defined as the number of days between when a customer order is submitted to when the shipment is actually delivered to the customer, inclusive of the start/end days and all holds or other dwell times. Dwell-adjusted cycle time is defined as the overall cycle time with all days of measurable dwell time deducted. Dwell is measured using system timestamps for the start and end for a set of acceptable holds, as defined by the GHSC-PSM hold status policy.

Quarterly indicator targets are set for overall and dwell-adjusted cycle times. For all task orders except TO2, the overall and dwell-adjusted targets are the same. Targets are not set for individual segments for any task order.

Average cycle times by process segment

Fulfillment channel	Clarify and Source	USAID Approval	Process PO/DO	Manufacture/Prepare and Pick Up Order	Manufacture	Pick Up	Deliver
Direct drop fulfillment	**102**	**4**	**57**		**70**	**47**	**52**
TO1 - COVID19	16	2	47		20	39	26
TO1 - HIV	74	4	71		68	40	30
TO2 - Malaria		2	20		58	58	81
TO3 - FP/RH		5	49		55	56	49
TO4 - MNCH	279	10	32		132	41	76
Warehouse fulfillment	**71**	**8**	**65**	**52**	**11**	**41**	**62**
TO1 - COVID19	5	2	4	33	4	29	10
TO1 - HIV	61	21	62	52	9	43	32
TO2 - Malaria		4	19	86	10	77	8
TO3 - FP/RH		3	79	50	14	37	87
Total	**100**	**4**	**57**	**109**			**53**

Quality Assurance Performance (TO2 only)

Current Reporting Period

2023-Q4

A2. QA processes completed within required lead times

Task Order	Total # of QA processes completed	% QA Processes On Time	A2 Target
TO2 - Malaria	**67**	**99%**	**85%**
ACTs	20	95%	85%
LLINs	25	100%	85%
mRDTs	11	100%	85%
Other Pharma	1	100%	85%
Severe Malaria Meds	8	100%	85%
SMC	0		85%
SP	2	100%	85%

A13. Out-of-specification percentage

Task Order	Total # of batches tested	Out-of-specification percentage	A13 Target
TO2 - Malaria	**150**	**0.0%**	**1%**
ACTs	45	0.0%	1%
LLINs	31	0.0%	1%
mRDTs	36	0.0%	1%
Other Pharma	0		1%
Severe Malaria Meds	35	0.0%	1%
SMC	0		1%
SP	3	0.0%	1%

Data notes

All QA activities for TO2 are conducted by GHSC-PSM. All QA activities for TO1, TO3, and TO4 are managed by the USAID GHSC-QA contract. GHSC-QA may be contacted for data related to these TOs.

Exceptional procedures outside of routine QA testing and clearance are excluded from indicator A2. This includes consignments requiring QA investigations, method transfers, non-PMI procurements, post-shipment quality control, and LLIN shipments requiring witnessing of loading and/or sealing of goods.

Quarterly indicator targets are effective beginning FY2018 Q4.

A15. QA investigation report submission (Q2 & Q4 only)

Task Order	# of reports due	Report submissions	A15 Target
TO2 - Malaria	**3**	**100%**	**90%**
ACTs	2	100%	90%
LLINs	0		90%
mRDTs	1	100%	90%
Other Non-Pharma			
Other Pharma	0		90%
Other RTK			
Severe Malaria Meds	0		90%
SMC	0		90%
SP	0		90%

Ref	Analysis
A02	A total of 99 percent of QA/QC processes were completed within required lead times. This was an increase from the 96 percent of last quarter/
A13	Out of specification findings was at 0 percent o f batches tested, the same as last quarter.
A14b	The vendor scorecard rating for lab services decreased slightly this quarter to 92 percent from last quarter's 93 percent. This was most noticeable in the reliability score, which decreased from 92 percent to 81 percent; and in the completeness score, which decreased from 96 percent to 93 percent. The service score remained the same, at 84 percent, while both the responsiveness score and the cost scores increased to 100 percent, from last quarter's 96 percent from each.
A15	Three reports were due for issuance and all three were submitted on time.

Warehouse Performance and Product Losses

Current Reporting Period

2023-Q4

C7a and C7b. Product loss due to expiry, theft, damage and other causes while in GHSC-PSM control

Task Order	Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
TO1 - HIV	Kenya	Damage	Laboratory Consumables	$1,029	$6,228,263	0.02%

A8. Shelf life remaining

Task Order	Inventory Balance	% Shelf Life Remaining	Shelf life target
TO1 - HIV	$1,475,532	81%	70%
TO2 - Malaria	$227,115	77%	70%
TO3 - FP/RH	$7,744,713	87%	80%
Total	**$9,447,360**	**82%**	

Data notes

Average inventory balance (A4 and C7a denominator) is calculated using the ending balance at the close of each month.
Expired inventory is excluded from shelf life calculations (A8). It is reported under product loss.
Quarterly indicator targets are effective beginning FY2018 Q4. Per the project M&E plan, no targets are required for product loss indicators (C7a and C7b).
Task Order 1 inventory includes all condoms. GHSC-PSM does not hold any inventory for Task Order 4.

Ref	Task Order	Analysis
A08	TO2 - Malaria	Average shelf life remaining for the AL stockpile was at 77 percent in FY23 Q4. The products exceeded a shelf life above the 70 percent target.
A08	TO3 - FP/RH	In FY23 Q4, the average weighted shelf life remaining for family planning products remained notably high at 87 percent. Almost all product categories exceeded the target of 80 percent, except for emergency contraceptives, which had a shelf life of 73 percent. The primary products stored in the RDC include 1 and 2-rod implants and injectable contraceptives. In the previous quarter, a shipment of both presentations of injectables, combined oral contraceptives with non-iron placebos, one- and two-rod implants, progestin-only pills, and copper-bearing IUDs contributed to the prolonged shelf life across various product categories.
A08	TO1 - HIV	The HIV-related products consistently maintained an average shelf life of 81 percent from FY23 Q3 to FY23 Q4. With the exception of two specific items, the remaining shelf life for all other products exceeded 80 percent. COVID-Molnupirar constituted 5 percent of the total value of HIV products, and its remaining shelf life was 71 percent. Furthermore, the ARV dapivirine ring, which accounted for 12.4 percent of the total value of HIV products, possessed a remaining shelf life of 56 percent. It's important to note that this particular item was procured for a specific research project and is not currently allocated to any countries. Its influence on the overall results is minimal, mainly due to its limited quantity and relatively lower value. In contrast, the core inventory items for the HIV project, male condoms, had a shelf life of 85 percent, while female condoms exhibited an impressive shelf life of 90 percent.
C07a	TO3 - FP/RH	There were no expiries of family planning products in GHSC-PSM's RDC inventory this quarter.
C07a	TO1 - HIV	There were no expiries of HIV/AIDS products in GHSC-PSM's RDC inventory this quarter.
C07a	TO2 - Malaria	There were no expiries of malaria products in GHSC-PSM's RDC inventory this quarter.
C07b	Crosscutting	Confirmed loss incidents within the global supply chain typically include product damage that occurred in transit to the destination. Most of these losses are typical for a supply chain of this size and represented a minimal proportion of the total value of product delivered in the quarters the losses took place. There were no reported losses this quarter in non-field office countries.

Procurement Performance

Current Reporting Period

2023-Q4

A10. Framework contract percentage

Task Order	Procurement total	Framework contract percentage	Framework contract target
TO1 - COVID19	$94,080	100%	
TO1 - HIV	$111,513,830	99%	90%
TO2 - Malaria	$18,021,253	100%	95%
TO3 - FP/RH	$6,494,008	100%	95%
Total	**$136,123,171**	**99%**	**NA**

A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
TO1 - COVID19	**100%**	**$94,080**
COVID19	100%	$94,080
TO1 - HIV	**99%**	**$111,513,830**
Adult ARV	100%	$53,774,923
Condoms	100%	$4,241,081
Laboratory	97%	$38,881,127
Other Non-Pharma	88%	$430,978
Other Pharma	100%	$4,362,696
Other RTK	42%	$872,422
Pediatric ARV	100%	$4,711,444
TB HIV	100%	$1,689,202
VMMC	100%	$2,549,958
TO2 - Malaria	**100%**	**$18,021,253**
ACTs	100%	$5,060,284
Laboratory	100%	$70,455
LLINs	100%	$5,297,441
mRDTs	100%	$1,775,923
Other Pharma	100%	$70,790
Severe Malaria Meds	100%	$1,196,171
SMC	100%	$3,472,167
SP	100%	$1,078,021

A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
TO3 - FP/RH	**100%**	**$6,494,008**
Combined Oral Contraceptives	100%	$510,163
Implantable Contraceptives	100%	$2,972,778
Injectable Contraceptives	100%	$2,550,717
Other Non-Pharma	100%	$175,014
Progestin Only Pills	100%	$285,336

Task Order	Analysis
TO1 - HIV	Use of framework agreements for HIV/AIDS products increased to 99 percent in FY23 Q4, above the framework contract target of 90 percent. This increase was due in part to the general increase in the amount procured in Q4. Laboratory products, other RTK and other non-pharma products had an increase in framework contract usage, while all other products maintained Q3's framework contract percentage. Condoms, adult ARVs, other pharma, pediatric ARVs, TB HIV and VMMC products each had framework contract percentages of 100 percent. The general increase of procurement values in Q1 is expected, as the first two quarters of the fiscal year usually contain the bulk of country expenditures as they are frontloaded following the release of the new fiscal year budgets.
TO2 - Malaria	Malaria procurements remained above the target, at 100 percent utilization of framework contracts this quarter.
TO3 - FP/RH	Family planning continues to procure all items under framework contracts, per the sourcing strategy for these commodities.
TO4 - MNCH	There were no orders for maternal, child, and newborn health commodities released this quarter.

Data notes

Procurement totals are equal to the total value of all line items procured from vendors each period. This includes Purchase Orders and warehouse Replenishment Orders. Distribution Orders released from the RDCs to countries are not counted, as these quantities are already included when the items are first purchased as Replenishment Orders.

Framework contracts include indefinite delivery, indefinite quantity contracts (IDIQs), blanket purchase agreements (BPAs), and basic ordering agreements (BOAs). Non-framework contracts include firm fixed price and fixed unit price subcontracts, simplified purchase agreements, and other types of one-off purchase orders.

Commodities are considered "purchased" if the "PO Released for Fulfillment Date" in ARTMIS falls within the reporting period.

Registration Waivers

A7. Temporary registration waiver percentage

Task Order	Temporary registration waiver percentage	Total # of line items delivered
TO2 - Malaria	**10.0%**	**229**
ACTs	4.3%	93
LLINs	4.3%	46
Laboratory	3.6%	28
Severe Malaria Meds	19.2%	26
mRDTs	5.6%	18
SP	55.6%	9
Other Pharma	75.0%	4
SMC	66.7%	3
Other Non-Pharma	0.0%	2
TO3 - FP/RH	**6.3%**	**64**
Injectable Contraceptives	0.0%	33
Combined Oral Contraceptives	11.1%	9
Other Non-Pharma	14.3%	7
Implantable Contraceptives	0.0%	5
Copper-Bearing Intrauterine Devices	50.0%	4
Progestin Only Pills	0.0%	3
Standard Days Method	0.0%	3
Total	**9.2%**	**293**

Task Order	Analysis
TO3 - FP/RH	The project used registration waivers for 6.3 percent of line items delivered this quarter, a decrease from the 9 percent of last quarter. representing four orders, two of them for Copper -bearing Intrauterine devices for Malawi and the other two were for CoCs and Other Non-Pharma. The CoC order was and Other Non-Pharma order were for Benin and Uganda respectively.
TO2 - Malaria	The project utilized registration waivers for 10 percent of items, a reduction from the 11 percent of last quarter. The orders were spread across commodity groups of ACTS, SMCs and severe malaria medicines and SP. The maximum number of waivers were given in the SP category.

Supply Plan Submissions

Current Reporting Period

2023-Q4

B6. Quarterly supply plan submission rate to GHSC-PSM HQ

Product Group	# of supply plans required	Supply plan submission rate	Submission target
ARVs	20	100%	95%
Condoms	20	100%	90%
FP commodities	21	100%	95%
Lab (HIV diagnostics)	15	100%	93%
Malaria commodities	27	96%	93%
RTKs	20	100%	95%
TPT	15	100%	93%
VMMC	5	100%	80%
Total	**143**		

Task Order	Analysis
TO1 - HIV	Submission rates for HIV supply plans was strong this quarter with 100 percent submission for Condoms, VMMC ,Lab ,TPTs, RTKs and ARVs.
TO2 - Malaria	Malaria supply plans submissions remained the same at 96 percent this quarter. Supply plan for Kenya was not submitted
TO3 - FP/RH	Supply plan submissions for family planning commodities and condoms was strong this quarter, with 100 percent of supply plans submitted for family planning commodities and condoms.

Supply Plan and Forecast Performance

Current Reporting Period

2023-Q4

A6a. Supply plan error - HIV Products

Product Category	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	Annual APE Target	4-quarter bias
Adult ARV	99%	-99%	21%	22%	-21%
Condoms	0%	0%	16%	30%	-16%
Laboratory	33%	33%	38%	25%	38%
Pediatric ARV	25%	-25%	2%	25%	2%

A6a. Supply plan error - Malaria products

Product Category	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	Annual APE Target	4-quarter bias
ACTs	221%	-221%	4%	35%	4%
mRDTs	276%	-276%	11%	25%	11%

A6b. Forecast error - Family Planning products

Product Category	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	Annual APE Target	4-quarter bias
Combined Oral Contraceptives	27%	-27%	15%	25%	-15%
Copper-bearing Intrauterine Devices	12%	-12%	23%	30%	-23%
Implantable Contraceptives	16%	-16%	2%	25%	-2%
Injectable Contraceptives	0%	0%	9%	22%	-9%
Progestin Only Pills	0%	0%	6%	25%	6%

Task Order	Analysis
TO1 - HIV	Supply plan error for both adult and pediatric ARVs increased noticeably this quarter. For adult ARVs, the supply plan error was especially significant at 99 percent this quarter, up from 1 percent of last quarter. Concurrently, the four quarter metric increased to 21 percent, below the target of 22 percent. Almost half the planned quantity was not ordered this quarter. There was a huge order of TLD90 (1.8 million units) which was planned for Nigeria but was rerouted to RDCs due to space constraints. There were other planned orders from Mozambique (286,000 units) and Uganda (100,000 units) which did not pan out due to changes in date and procurement strategies. For pediatric ARVs, the error increased to 25 percent from the 5 percent of last quarter. There was a similar trend observed with pediatric ARVs with planned quantities not materializing into orders. There were planned orders from Zimbabwe, Zambia and Mozambique which added up to 74,000 units which did not translate into actual orders in this quarter.
TO1 - HIV	Supply plan error for lab commodities narrowed this quarter, from 41 percent in Q3 to 33.5 percent in Q4. The ordered amounts were higher than the planned commodities. The biggest difference between planned and ordered laid in EID lab products, there were no quantities planned for Tanzania but an order of 14, 482 units was placed. For VL and Molecular, there was a similar case with Nigeria whereby there were no units planned but 6,320 and 5,614 units respectively were ordered. A similar case happened with Zambia, where there were only 205 planned units of blood collection tubes, but the actual order was of 15,000 units. The rolling four-quarter metric increased to 38 percent from the 33 percent of last quarter, higher than the target of 25 percent.
TO1 - HIV	The forecast error for condoms reduced to 0 percent this quarter, the last time the project witnessed a 0 percent forecast error was in the first quarter of 2021. Planned and ordered quantities reduced this quarter and the four-quarter rolling metric stood at 16 percent. There were minimal changes between planned and ordered quantities which led to this quarter's result.
TO2 - Malaria	Supply plan error for ACTs increased significantly this quarter to 221 percent, with a rolling four quarter metric to 4 percent. The supply plan error for both AL and ASAQ was also noticeably higher. The overall supply plan error for ACT was driven by ACTs in terms of quantity, with a 185 percent supply plan error. There were 5 million units from Nigeria and Mozambique each which were planned but there were no orders which came through. Funding constraints in Nigeria prevented the translation of planned units into orders. For ASAQ, the supply plan error stood at 448 percent. There were 5 million planned units for Angola which did not materialize into orders. The supply plan error for mRDTs was similarly high at 276 percent, with 10.5 and 7.6 million planned units from Congo DRC and Ghana respectively. Approximately 18.1 million units of mRDTs did not translate into orders. As Nigeria, funding problems prevented the mRDT supply forecast to materialize for Congo DRC.
TO3 - FP/RH	Forecast error for injectables reduced this quarter from 3 to 0 percent. The ordered and forecasted quantity for injectables were low this quarter, with the four-quarter rolling metric at 9 percent, well below the 22 percent target. There was an increase in the forecast error for implants from 1 to 16 percent. This was partly due to an order for Uganda which was split (upon Mission directive) across 3 smaller shipments which reduced the ordered amount for this quarter. There was another order for Togo which was ordered with a short lead time. The forecast error for CoCs increased to 27 percent this quarter with a four-quarter rolling metric of 15 percent. The increase was due to large order from Haiti which was planned but cancelled due to lack of funding. For copper-bearing IUDs, the error reduced to 12 percent this quarter from 32 percent. This quarter's error was due to a planned order for Angola which was cancelled due to overstocking in the country. The forecast error for progestin-only pills stood at 0 percent this quarter.

Total Landed Cost

Current Reporting Period

2023-Q4

Task Order	Analysis
TO1 - HIV	GHSC-PSM's total landed cost indicator is equal to the sum of all costs associated with commodity delivery, divided by the total value of commodities delivered. It is reported semiannually, for a rolling 12-month period, and provides a high-level sense of the project's relative operations and direct logistics costs but may lack precision for several reasons: 1) Commodity cost savings may cause the denominator to decrease, even if volume stays the same. This may have the effect of increasing total landed cost as a percentage, even if costs in the numerator remain the same. 2) Logistics costs for items shipped under C and D Incoterms are built into the commodity cost charged by the supplier. They cannot be separated out and assigned to the numerator. 3) Costs in the numerator represent invoices paid, per the project monthly financial statement, while commodity costs are based on items delivered. Numerator costs may therefore be delayed compared to delivery activity represented by the denominator. This period, freight and logistics costs as a percentage of dollar value delivered for HIV and COVID-19 commodities increased slightly to 8.8 percent. The value of commodities delivered decreased in comparison to the previous quarter, and the freight and logistics costs also decreased. The cost for HQ operations this quarter increased, and when factored in, the total landed cost has increase slightly to 16.6 percent. Headquarters expenditures have decreased slightly, but not at the same rate as the decrease in either the delivery total or in the costs for freight and logistics, which can explain the percentage increase for the total landed cost when HQ costs arre included.
TO2 - Malaria	Data for the current period shows total landed costs decreasing, to 21 percent. Expenditures in drop ship freight decreased from the previous period. Total landed cost including headquarters operations expenditures also showed a decrease, to 25.1 percent. The decrease for the total landed cost with HQ operations included is less of a decrease than the total landed cost without HQ operations because the cost of HQ operations increased this term. However, comparing the amounts of both cost categories, freight and logistics costs almost 10 times the amount for HQ, and the decrease in cost on freight and logistics is significantly larger than the increase in cost for HQ operation.

A5. Total Landed Costs

Task Order	Total Landed Cost (Freight and Logistics)	TLC Target	Delivery Total	Total Landed Cost (Freight, Logistics, and HQ Operations)
TO1 - HIV	8.8%	10%	$369,155,152	16.6%
TO2 - Malaria	21.0%	20%	$179,385,451	25.1%
TO3 - FP/RH	15.4%	22%	$46,658,250	25.8%
TO4 - MNCH	8.5%	14%	$2,879,289	32.9%
Total	**13.0%**	**15%**	**$598,078,142**	**19.9%**

A5. Cost Breakdown

Cost Type	TO1 - HIV	TO2 - Malaria	TO3 - FP/RH	TO4 - MNCH	**Total**
Freight and Logistics	**$32,462,945**	**$37,601,715**	**$7,179,267**	**$244,199**	**$77,488,126**
Country-specific Logistics	$1,168,412	$274,025	$892,677	$1,543	**$2,336,657**
Demurrage	$220,561	$287,371	$115,855	$4,620	**$628,407**
Drop Ship Freight	$23,378,802	$35,394,404	$3,290,600	$227,861	**$62,291,667**
Inbound Freight	$870,326	$244,785	$147,003	$0	**$1,262,114**
Insurance	$1,644,284	$537,006	$159,870	$10,175	**$2,351,335**
Loss	$14,514	$2	$2,038	$0	**$16,554**
Outbound Freight	$4,206,883	$419,312	$2,248,457	$0	**$6,874,652**
Security	$115,785	$388,191	$1,400	$0	**$505,376**
Warehousing	$843,378	$56,619	$321,367	$0	**$1,221,364**
HQ Operations	**$28,682,130**	**$7,356,796**	**$4,862,621**	**$703,915**	**$41,605,462**
Forecasting and Supply Planning	$1,598,780	$616,610	$519,768	$34	**$2,735,192**
GS1	$1,162,839	$609,361	$21,792	$38,898	**$1,832,890**
MIS	$3,807,100	$669,230	$988,467	$95,136	**$5,559,933**
Monitoring and Evaluation	$5,108,441	$1,302,424	$745,093	$148,344	**$7,304,302**
Procurement	$14,808,560	$3,926,426	$2,327,829	$393,538	**$21,456,353**
Warehousing and Distribution	$2,196,410	$232,745	$259,672	$27,965	**$2,716,792**
Total	**$61,145,075**	**$44,958,511**	**$12,041,888**	**$948,114**	**$119,093,588**

Data notes

GHSC-PSM's total landed cost indicator is equal to the sum of all costs associated with commodity delivery, divided by the total value of commodities delivered. It is reported semiannually, for a rolling 12-month period. It provides a high-level sense of the project's relative operations and direct logistics costs, but it may lack precision for several reasons: 1) Commodity cost savings may cause the denominator to decrease, even if volume stays the same. This may have the effect of increasing total landed cost as percentage, even if costs in the numerator remain the same. 2) Logistics costs for items shipped under C and D Incoterms are built into the commodity cost charged by the supplier. They cannot be separated out and assigned to the numerator. 3) Costs in the numerator represent invoices paid, per the project monthly financial statement, while commodity costs are based on items delivered. Numerator costs may therefore be delayed compared to delivery activity represented by the denominator.

Total Landed Cost

Current Reporting Period

2023-Q4

A5. Total Landed Costs

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Total	**13.0%**	**15%**	**$598,078,142**	**19.9%**

A5. Cost Breakdown

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Total	**$61,145,075**	**$44,958,511**	**$12,041,888**	**$948,114**	**$119,093,588**

Task Order Analysis

Task Order	Analysis
TO3 - FP/RH	GHSC-PSM's total landed cost indicator is equal to the sum of all costs associated with commodity delivery, divided by the total value of commodities delivered. It is reported semiannually, for a rolling 12-month period, and provides a high-level sense of the project's relative operations and direct logistics costs but may lack precision for several reasons: 1) Commodity cost savings may cause the denominator to decrease, even if volume stays the same. This may have the effect of increasing total landed cost as a percentage, even if costs in the numerator remain the same. 2) Logistics costs for items shipped under C and D Incoterms are built into the commodity cost charged by the supplier. They cannot be separated out and assigned to the numerator. 3) Costs in the numerator represent invoices paid, per the project monthly financial statement, while commodity costs are based on items delivered. Numerator costs may therefore be delayed compared to delivery activity represented by the denominator. This period, freight and logistics costs as a percentage of family planning commodities delivered increased to 15.4 percent. This was primarily driven by a simultaneous increase in costs and a decrease in delivery totals, which impacts the proportion of total landed cost. When headquarters supply chain operations costs are factored in, the total landed cost result is 25.8 percent, an increase from last period's 18.2 percent. There were significant increases in expenditures of headquarters operations this period in MIS cost, aligning more closely with the proportion of costs we have seen historically for MIS, like in the first period of 2022. Freight and logistics also saw an increase in the country-specific logistics costs.
TO4 - MNCH	Data for the current period shows that freight and logistics costs as a percentage of MNCH commodities delivered decreased to 8.5 percent, from last period's 23 percent. Expenditures in freight and logistics categories have decreased, specifically in the drop ship freight category, but there was a slight increase in the cost of HQ operations, particularly with the procurement costs. However, the total delivery value has increased this term, impacting the denominator, and with the proportion of cost to delivery totals, a decrease in total landed cost is expected. Total landed cost with headquarters operations expenses included also decreased this period, to 32.9 from last period's 71.5 percent, even though there was an increase in HQ operations costs, because the delivery total value increased so dramatically that the cost per product is still lower than previous periods. MNCH product procurement changes greatly from term to term, so the variability of this indicator is expected.

Data notes

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Vendor Performance

Current Reporting Period

2023-Q4

A14a-c. Average vendor rating score

Vendor Type	Average vendor rating
Commodity Supplier	58%
Freight Forwarder	89%
QA Lab	92%

14b. QA Lab Vendor Scorecard Components, Weighting, and Scores

Component Name	Indicator Name	Indicator Score	Indicator Weight (Overall)	Overall Weighted Score
1 - Reliability (Timeliness of Service)	Does the lab provide on-time provision of completed test reports?	89%	48%	42%
2 - Responsiveness	Does the lab provide prompt response after receipt of GHSC-PSM request for testing	100%	15%	15%
3 - Completeness of Documentation	Frequency of modification to Certificates of Analysis (CoA)	93%	18%	16%
4 - Invoice Accuracy	Submitted invoices for routing testing adhere to set IDIQ pricing	100%	10%	10%
5 - Service	Adherence to other terms and conditions, not related to reliability, responsiveness, completeness, and cost (Qualitative)	84%	10%	8%
Total			**100%**	**92%**

Analysis

This quarter's average freight forwarder vendor rating shows a result of 89 percent for average 3PL performance, an increase from last quarter's 86 percent. Performance within the EDI status performance, booking timeliness, and on-time performance saw near-perfect scores this quarter. There were also notable increases in the on-time spot quote turnaround score and the customer service and invoicing accuracy scores. The most dramatic change was in the invoicing accuracy score, which saw a 13 point increase, continuing the trend of an increasing score over the past few quarters. The timeliness sub-indicator within the invoicing accuracy component nearly doubled last quarter's score of 36 percent, reaching 67 percent, beginning to recover from the previous quarters' lower rates that were due to delays caused by the rate refresh process.

The vendor scorecard rating for lab services decreased slightly this quarter to 92 percent from last quarter's 93 percent. This was most noticeable in the reliability score, which decreased from 92 percent to 81 percent; and in the completeness score, which decreased from 96 percent to 93 percent. The service score remained the same, at 84 percent, while both the responsiveness score and the cost scores increased to 100 percent, from last quarter's 96 percent from each.

Supplier on-time performance came to 58 percent in FY 2023 Q4, declining 2 percent from the previous quarter. Supplier performance declined across task orders, with all recording performance below the target of 90 percent. Task Order 1 suppliers continue to exhibit the poorest performance while also bringing down the overall score due to larger volumes. The poor performance from Task Order 1 suppliers can largely be attributed to lab commodities, although there were also some declines in ARV and essential medicines supplier on-time performance. Supplier inability to provide timely, accurate shipping documents remains the most commonly cited reason for late goods available dates.

Data notes

Components and indicators for the 3PL scorecard have changed over time. Version 1 of the scorecard was in effect up to FY2018 Q2. Version 2 was in effect from FY2018 Q3 until FY2022 Q4. Version 3 took effect in FY2023 Q1. See the M&E plan for full details of scorecarde changes over time.

Per the GHSC-PSM M&E plan, targets are not required for vendor performance indicators.

Global Advocacy Engagements

Current Reporting Period

2023-Q4

HIV/AIDS

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Name of Engagement	Description
WHO TWG Global Forecast for HIV ARV and HIV Diagnostics	This meeting was attended by GHSC-PSM GSC, VL Strategy, PLAN, HSS FASP and Lab, GHSC-RTK, USAID, WHO, CHAI, Avenir and UNITAID. Participants reviewed data and developed forecast methodology and assumptions for HIV ARVs and diagnostics. They also prepared for Joint WHO/UNAIDS meeting with manufacturers.

Global Advocacy Engagements

Current Reporting Period

2023-Q4

Malaria

6

Name of Engagement	Description
mRDT Task Force	GHSC-PSM participates in the quarterly RDT Task Force meetings, in which the taskforce explores the state of the RDT market, and shares intel regarding market conditions, in-country challenges, and supplier/logistic updates as necessary. Additionally, the task force is a forum for sharing study findings. In Q3, USAID/PMI presented an update on RDT Readers and challenges with adherence to RDT results to the Task Force. There was no meeting in Q4.
GHSC-PSM Suppliers Regionalization Workshop	In Q3, GHSC-PSM hosted in-person and virtual meetings with suppliers of pharmaceuticals, including artemisinin-based combination therapies (ACTs) and severe malaria products. The regionalization workshop hosted by GHSC-PSM resulted in a modified FY 2024 allocation strategy to emphasize African manufacturing as a weighted supplier evaluation criterion across products, including malaria commodities (pharmaceuticals, RDTs, LLINs).
PMI/TGF/PSM Quality Assurance Meetings	Monthly collaboration meetings with PMI, the Global Fund and PSM Quality Assurance (QA) team members were held to discuss QA/QC activities, including OOS investigations and methodologies and QA/Quality Control (QC) best practices, as both organizations engage the same manufacturers, use the same WHO guidance, and often experience similar quality-related challenges.
Malaria Pharmaceuticals (Pharma) Task Force	The group generally discussed stock levels of various countries to ensure no stockout and awareness of order placement by donors. This conversation focused on Niger in Q4 given the ongoing coup d'etat. Updates were shared on efforts to reduce price of semi-synthetic artemisinin and pyronaridine, two important antimalarial APIs. The group was informed of updates to short- and-long-term malaria commodity forecasts and received updates on the status toward prequalification of African-based malaria pharma manufacturers. Regular meetings of the Pharma task force are conducted in addition to the API/KSM Pharma Taskforce Sub working group.
LLINs Quality Assurance Working Group (LQAG)	The LQAG met monthly in Q3-Q4 of FY 2023 to discuss net quality and improvements. The discussions included post-market information (Module 7 of draft WHO PQ Guidelines) and feedback on the Raising the Floor on ITNs discussions bu I2I. The LQAG consists of QA team members from GHSC-PSM, PMI, UNICEF, and TGF as well as members of the WHO PQ VT.
LLIN Global Donor Collaboration Call	This call emphasizes collaboration among GHSC-PSM, PMI, AMF, The Global Fund and UNICEF in the market. In Q3 and Q4, the donors aligned on ensuring global access to Dual AI LLINs supply given the constrained market. In addition, other topics such as sustainability were discussed.

Global Advocacy Engagements

Current Reporting Period

2023-Q4

Family Planning and Reproductive Health

8

See more on next page

Name of Engagement	Description
Systems Strengthening Working Group (SSWG)	GHSC-PSM regularly participates in SSWG meetings held by the Reproductive Health Supplies Coalition (RHSC). The working group provides a forum for those working in systems strengthening to convene and discuss common issues and challenges. In September, GHSC-PSM participated in a members meeting focused on the intersection between climate and supply chains. This was a follow up discussion to a related meeting held in January 2023. The group discussed a draft scope of work for a sub-working group on climate and supply chains and the possibility of developing a Call to Action for the upcoming RHSC General Membership Meeting in Accra, Ghana in FY 2024 Q1.
CPG (Consensus Planning Group) Exceptions Management and Global Market Group	GHSC-PSM regularly participates in monthly CPG Exceptions Management (EM) and Global Market (GM) meetings alongside USAID, UNFPA, RHSC, CHAI, JSI, and WAHO. The CPG seeks to ensure better global-level coordination between institutional procurers of family planning commodities for the public sector and key supply chain partners by sharing data provided by countries and from global sources that makes it possible to coordinate shipments and allocate resources appropriate within and among countries. The EM Group focuses on country-specific analysis and discussions while the GM Group focuses on global level discussions impacting all countries in the market. From April to September, the focus in both groups have been around constrained products one rod implant and injectables MPA SC.
IAWG Supplies Sub-Working Group	GHSC-PSM participates in the meetings for the Inter-Agency Working Group on Reproductive Health in Crises (IAWG) Supplies Sub-Working Group. The goal of the working group is to strengthen access to Sexual Reproductive Health (SRH) supplies in crisis-affected settings from pre-crisis preparedness, to acute humanitarian response, to protracted response and recovery. During the reporting period, GHSC-PSM participated in discussions related to the annual work plan and priorities for the remainder of the year.
Private Sector Supply Chain Outsourcing	GHSC-PSM disseminated findings from a landscape analysis which compiled data on outsourcing of warehousing and distribution services by governments and parastatals during a Promoting Results and Outcomes through Policy and Economic Levers (PROPEL) Health advocacy meeting, PMI/PSM malaria meeting and HSS-TO3 meeting and engaged in dialogue with implementing partners and stakeholders. Meeting participants included USAID, Africa Health Business, Bill and Melinda Gates Foundation, Global Fund and VillageReach.
Contraceptive Security (CS) Indicators Survey dissemination	During this reporting period, the GHSC-PSM CLEAR M&E team attended the Key FP Stakeholders meeting on the Landscape of Projection of Reproductive Health Supply Needs (LEAP) report on August 1, 2023. The event was hosted by RHSC in Washington, D.C. and the purpose of the meeting was to inform methodological updates for RHSC's next LEAP report. Several topics were discussed at the meeting, such as exploring how to better capture emergency contraceptive trends, how LEAP captures private sector subsidy, and future projections for incorporating scenarios into LEAP. PSM M&E, Learning Advisor attended the meeting in person, which facilitated fruitful discussions with other FP partners, including CHAI, regarding our work on the CS Indicators. For more information on LEAP, please visit the RHSC website: https://www.rhsupplies.org/activities-resources/leap/
Healthy Markets Community of Practice	During the reporting period, GHSC-PSM participated in meetings of the Healthy Markets Community of Practice. Broadly, discussions focused on FP as a health market, with focus on users, demand/supply of information, services products and supporting functions such as financing, market intelligence, etc. The May/June meeting was held as a hybrid meeting, with the in person portion held in Karachi. Due to the time difference, GHSC-PSM was unable to attend. July's meeting focused on Madagascar. GHSC-PSM heard presentations on addressing gaps in the care continuum, utilization of mobile clinics, training health workers, providing youth services including comprehensive sex education and peer education, and midwife programs that offer support and training. August's meeting focused on Liberia. A broad range of topics were covered in these presentations: Applying market intelligence to FP in Liberia; findings of the MPA-SC pilot study (CHAI), which focused on the acceptability and feasibility of self-injected contraceptives; demand creation activities in Liberia. September's meeting focused on Madagascar pharmacies and drug shops. Presentation topics included: The use of hybrid e-pharmacies; expanding the network of pharmacies implementing viable business models; driving access, efficiency, and product choice through mobile platforms; and trends in FP imports in Madagascar.

Global Advocacy Engagements

Current Reporting Period

2023-Q4

Family Planning and Reproductive Health

8

See more on previous page

Name of Engagement	Description
Hormonal Intrauterine Device (IUD) Steering Committee and Hormonal IUD Intrauterine Device (IUD) Access Group	GHSC-PSM continues to be an active member of the Hormonal IUD Steering Committee and Hormonal IUD Access Group. In Q3 and Q4, GHSC-PSM participated in Hormonal IUD Access Group Partners Exchange meetings, Hormonal IUD Steering Committee Meetings and Hormonal IUD Technical/Supply Side Workstream meetings with the goal of coordinating with global stakeholders to facilitate the successful introduction and scale up of Hormonal IUD in priority countries.
Visibility and Analytics Network (VAN)	During the reporting period, GHSC-PSM supported Premium VAN member countries through: - Participation in the GHSC-PSM Data Quality Task Force, which has reduced the number of shipment inaccuracies in the VAN. - Working with RHSC to support training for Rwanda, Liberia and Ghana which are now premium members of the GFPVAN. - Participation in the VAN Steering Committee (GHSC-PSM is a non-voting member) and provided input to the Manufacturing Subcommittee on GHSC-PSM key supply chain data definitions and opportunities for standardization across donors (including UNFPA) to reduce confusion for country recipients and suppliers. - Participation in regular VAN working groups, including the following task forces: Data Management, Technical Management, Data Sharing, Systems Strengthening, and Super User and Analytics.

Global Advocacy Engagements

Current Reporting Period

2023-Q4

Maternal, Newborn, and Child Health

5

Name of Engagement	Description
Annual Postpartum Hemorrhage Community of Practice (PPH COP) Meeting	In Q4, GHSC-PSM participated in the Postpartum Hemorrhage Community of Practice (PPH COP) event to discuss global guidance, particularly the Roadmap to combat postpartum hemorrhage (severe vaginal bleeding after childbirth) between 2023 and 2030. The document outlines goals and activities for research, normative work, implementation and advocacy to prevent and treat postpartum. An accountability site outlines the main milestones of the Roadmap and will help to track progress.
Child Health Task Force	GHSC-PSM regularly participates in the Child Health Task Force, Commodity Sub-Group Meetings. In Q3, GHSC-PSM, MTaPS, PQM+, and other collaborators presented research on select barriers and interventions for availing amoxicillin and gentamicin, specifically in the areas of quantification, finance, use, and quality. The Call to Action paper was disseminated widely to USAID Missions, UNICEF country offices and others.
International Maternal Newborn Health Conference (IMNHC) 2023	In May 2023, GHSC-PSM staff participated in the 2023 International Maternal and Newborn Health Conference (IMNHC) in Cape Town, South Africa. The project coordinated and presented on the panel, "Innovations in the respiratory ecosystem to support safe oxygen use with bubble continuous positive airway pressure for small and sick newborns to achieve Every Newborn Action Plan Target 4." The presentation focused on the need for aligned policies, appropriate equipment at health sites, and innovations in medical devices to improve newborn care. GHSC-PSM presented results from its newborn oxygen ecosystem assessment in Ghana.
Maternal Health Supplies Caucus (MHSC)	GHSC-PSM regularly participates in the MHSC. The Caucus provides a forum for the maternal health communities to develop an understanding of maternal health supply-related challenges and solutions.
Small and Sick Newborn Model of Care Financing Workshop	On June 21, 2023, the project participated in a joint meeting with global partners including USAID MOMENTUM, NEST360, UNICEF, PATH, PQM+, MTaPS, GFF and others to discuss financing considerations for small and sick newborn care.

Global Advocacy Engagements

Current Reporting Period

2023-Q4

Crosscutting

5

Name of Engagement	Description
Africa Health Business Symposium, Johannesburg, South Africa	GHSC-PSM Procurement Director and PMU Director, represented the project at this conference, including at a panel session on creating an enabling environment for local production of vaccines, therapeutics and diagnostics.
International Conference for Primary Healthcare 2023	On September 6, the Monitoring and Evaluation, Knowledge Management, and Communications Director for GHSC-PSM Ethiopia was a panelist at the International Conference on Primary Healthcare in Addis Ababa, Ethiopia. The Director presented at the session, "Multisectoral Approaches to Primary Healthcare," where he discussed a holistic systems thinking approach to supply chain management, which ensures high-quality health care delivery in Ethiopia.
Peer Group for Global Forecasting and Supply Planning	The HSS FASP meets bi-monthly with a group representing various donors and players in the health supply chain sector, including Gates Foundation, USAID, Global Fund and UNICEF. The objective of these meetings is to discuss, learn across organizations, and plan for a future state where visibility into demand and supply can be shared and coordinated at a global level.
UNICEF Pilot of Quantification Analytics Tool (QAT) for nutrition programs	The HSS FASP team has been meeting regularly (weekly/biweekly) with the UNICEF Supply Division to plan, implement, and evaluate a pilot for using QAT to forecast and supply plan within the context of national nutrition programs. The funding for this activity comes from USAID's Bureau of Humanitarian Assistance (BHA).
Global Digital Development Forum GDDF 2023 Panel: April 26th	Unpacking the Stories Behind Health Supply Chain Data: Supply chain data and what it tells us about the efficiency of our health supply chains, both in terms of their performance and the productivity and needs of the supply chain workforce. Panelists discussed how to use data analytics in operational decision-making within supply chains beyond its use for metrics of performance. Panelists also discussed best practices for training supply chain cadres on data systems and leveraging data analytic tools for commodity management.

Complete Quarterly Results (TO1)

Reporting Period

2023-Q4

A1a. OTIF rate / A1b. OTD rate / A16. Backlog percentage / A10. Framework contracting

Task Order	OTIF	Total # of Line Items Delivered	OTD	Total # of Line Items with ADDs in the quarter	Backlog	Total # of line items with ADDs in the last 12 months	Framework contract percentage	Procurement total
TO1 - COVID19	**100%**	**31**	**84%**	**37**	**2.8%**	**218**	**100%**	**$94,080**
COVID19	100%	31	84%	37	2.8%	218	100%	$94,080
TO1 - HIV	**87%**	**774**	**87%**	**783**	**5.3%**	**3,566**	**99%**	**$111,513,830**
Adult ARV	91%	56	84%	62	3.9%	255	100%	$53,774,923
Condoms	88%	34	85%	40	4.6%	152	100%	$4,241,081
Food and WASH					100.0%	1		
Laboratory	86%	520	87%	512	5.7%	2,422	97%	$38,881,127
Other Non-Pharma	90%	42	90%	39	7.8%	217	88%	$430,978
Other Pharma	98%	43	93%	45	3.2%	186	100%	$4,362,696
Other RTK	78%	9	78%	9	8.6%	35	42%	$872,422
Pediatric ARV	88%	41	82%	45	2.0%	151	100%	$4,711,444
TB HIV	100%	9	90%	10	2.4%	42	100%	$1,689,202
VMMC	100%	20	100%	21	4.8%	105	100%	$2,549,958
Total	**88%**	**805**	**87%**	**820**	**5.2%**	**3,784**	**99%**	**$111,607,910**

A6a and A6b. Absolute percent supply plan or forecast ...

A6 Indicator	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	4-quarter bias
A6a - Supply plan error				
Adult ARV	99%	-99%	21%	-21%
Laboratory	33%	33%	38%	38%
Pediatric ARV	25%	-25%	2%	2%
A6b - Forecast Error				
Condoms	0%	0%	16%	-16%

C7a and C7b. Product loss due to expiry, theft, damage, and other causes

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
Kenya	Damage	Laboratory Consumables	$1,029	$6,228,263	0.02%

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment			**Total**
Task Order	Air	Land	Sea	Air	Land	Sea	
TO1 - COVID19	**271**		**157**	**59**			**229**
COVID19	271		157	59			**229**
TO1 - HIV	**252**	**211**	**300**	**234**	**44**	**246**	**249**
Adult ARV	257	254	268	148		199	**245**
Condoms	328		291	375		309	**300**
Laboratory	248	201	382				**238**
Other Non-Pharma	257	187	342				**247**
Other Pharma	288	412	360				**318**
Other RTK	266						**266**
Pediatric ARV	237		384	280			**275**
TB HIV	291		186				**233**
VMMC	324	182	261		44		**256**
Total	**253**	**211**	**297**	**185**	**44**	**246**	**248**

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
81%	$1,475,532

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
ARVs	100%	20
Condoms	100%	20
Lab (HIV diagnostics)	100%	15
RTKs	100%	20
VMMC	100%	5

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	58%
Freight Forwarder	89%

Complete Quarterly Results (TO2)

Reporting Period

2023-Q4

	A1a. OTIF rate		A1b. OTD rate		A16. Backlog		A7. Waiver percentage	A10. Framework contracting			A2. QA processes on time		A13 Out-of-spec		A15. QA reports	
Task Order	OTIF	Total # of Line Items Delivered	OTD	Total # of Line Items with ADDs in the quarter	Backlog	Total # of line items with ADDs in the last 12 months	Temporary registration waiver percentage	Total # of line items delivered	Framework contract percentage	Procurement total	% QA Processes On Time	Total # of QA processes completed	Out-of-specification percentage	Total # of batches tested	Report submissions	# of reports due
TO2 - Malaria	**88%**	**230**	**87%**	**230**	**4.1%**	**730**	**10.0%**	**229**	**100%**	**$18,021,253**	**99%**	**67**	**0.0%**	**150**	**100%**	**3**
ACTs	94%	93	97%	89	5.0%	258	4.3%	93	100%	$5,060,284	95%	20	0.0%	45	100%	2
Laboratory	68%	28	70%	27	0.0%	121	3.6%	28	100%	$70,455						
LLINs	89%	46	77%	52	8.4%	119	4.3%	46	100%	$5,297,441	100%	25	0.0%	31		0
mRDTs	94%	18	90%	20	3.2%	62	5.6%	18	100%	$1,775,923	100%	11	0.0%	36	100%	1
Other Non-Pharma	100%	2	100%	2	0.0%	6	0.0%	2								
Other Pharma	100%	4	80%	5	9.1%	11	75.0%	4	100%	$70,790	100%	1		0		0
Other RTK	0%	1	0%	1	0.0%	1										
Severe Malaria Meds	81%	26	91%	23	1.0%	97	19.2%	26	100%	$1,196,171	100%	8	0.0%	35		0
SMC	100%	3	100%	3	0.0%	28	66.7%	3	100%	$3,472,167		0		0		0
SP	89%	9	88%	8	11.1%	27	55.6%	9	100%	$1,078,021	100%	2	0.0%	3		0
Total	**88%**	**230**	**87%**	**230**	**4.1%**	**730**	**10.0%**	**229**	**100%**	**$18,021,253**	**99%**	**67**	**0.0%**	**150**	**100%**	**3**

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment	**Total**
Task Order	Air	Land	Sea	Air	
TO2 - Malaria	**303**	**471**	**383**	**170**	**362**
ACTs	254		401	170	**368**
Laboratory	309	276	308		**305**
LLINs		764	344		**362**
mRDTs	581		437		**445**
Other Non-Pharma	240		410		**325**
Other Pharma	475				**475**
Other RTK	197				**197**
Severe Malaria Meds	273		365		**342**
SMC	68		122		**86**
SP	425		440		**435**
Total	**303**	**471**	**383**	**170**	**362**

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Malaria commodities	100%	27

A6a. Absolute percent supply plan error

A6 Indicator	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	4-quarter bias
A6a - Supply plan error				
ACTs	221%	-221%	4%	4%
mRDTs	276%	-276%	11%	11%

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
77%	$227,115

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	58%
Freight Forwarder	89%

C7a and C7b. Product loss due to expiry, theft, damage, and other causes

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss

A14. Average vendor rating - QA labs

Average vendor rating
92%

Complete Quarterly Results (TO3)

Reporting Period

2023-Q4

A1a. OTIF rate A1b. OTD rate A16. Backlog percentage A10. Framework contracting

Task Order	OTIF	Total # of Line Items Delivered	OTD	Total # of Line Items with ADDs in the quarter	Backlog	Total # of line items with ADDs in the last 12 months	Framework contract percentage	Procurement total
TO3 - FP/RH	**81%**	**64**	**85%**	**53**	**2.9%**	**276**	**100%**	**$6,494,008**
Combined Oral Contraceptives	44%	9	63%	8	0.0%	39	100%	$510,163
Copper-Bearing Intrauterine Devices	100%	4	100%	4	0.0%	19		
Emergency Oral Contraceptives					0.0%	10		
Implantable Contraceptives	100%	5	100%	5	2.9%	68	100%	$2,972,778
Injectable Contraceptives	94%	33	96%	24	2.7%	74	100%	$2,550,717
Laboratory					0.0%	2		
Levonorgestrel-Releasing Intrauterine Devices					0.0%	3		
Other Non-Pharma	29%	7	40%	5	6.3%	16	100%	$175,014
Progestin Only Pills	100%	3	75%	4	5.7%	35	100%	$285,336
Standard Days Method	100%	3	100%	3	10.0%	10		
Total	**81%**	**64**	**85%**	**53**	**2.9%**	**276**	**100%**	**$6,494,008**

A7. Temporary Waiver Percentage

Task Order	Temporary registration waiver percentage	Total # of line items delivered
TO3 - FP/RH	**6.3%**	**64**
Copper-Bearing Intrauterine Devices	50.0%	4
Other Non-Pharma	14.3%	7
Combined Oral Contraceptives	11.1%	9
Implantable Contraceptives	0.0%	5
Injectable Contraceptives	0.0%	33
Progestin Only Pills	0.0%	3
Standard Days Method	0.0%	3
Total	**6.3%**	**64**

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment		**Total**
Task Order	Air	Land	Sea	Air	Sea	
TO3 - FP/RH	**311**	**361**	**327**	**249**	**342**	**313**
Combined Oral Contraceptives	551		503		357	**427**
Copper-Bearing Intrauterine Devices				203		**203**
Implantable Contraceptives	282		555	176	452	**328**
Injectable Contraceptives	141	361	222	303	325	**306**
Other Non-Pharma		361	253			**268**
Progestin Only Pills				195	486	**292**
Standard Days Method	298					**298**
Total	**311**	**361**	**327**	**249**	**342**	**313**

C7a and C7b. Product loss due to expiry, theft, damage, and other causes

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Condoms	100%	20
FP commodities	100%	21

A6b. Absolute percent forecast error

A6 Indicator	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	4-quarter bias
A6b - Forecast Error				
Combined Oral Contraceptives	27%	-27%	15%	-15%
Condoms	0%	0%	16%	-16%
Copper-bearing Intrauterine Devices	12%	-12%	23%	-23%
Implantable Contraceptives	16%	-16%	2%	-2%
Injectable Contraceptives	0%	0%	9%	-9%
Progestin Only Pills	0%	0%	6%	6%

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
87%	$7,744,713

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	58%
Freight Forwarder	89%

Complete Quarterly Results (TO4)

Reporting Period

2023-Q4

	A1a. OTIF rate		A1b. OTD rate		A16. Backlog perentage		A10. Framework contracting
Task Order	OTIF	Total # of Line Items Delivered	OTD	Total # of Line Items with ADDs in the quarter	Backlog	Total # of line items with ADDs in the last 12 months	Framework contract percentage	Procurement total
TO4 - MNCH	**100%**	**72**	**97%**	**76**	**3.3%**	**90**		
Laboratory					0.0%	1		
Other Non-Pharma	100%	10	100%	10	4.5%	22		
Other Pharma	100%	62	97%	66	3.0%	67		
Total	**100%**	**72**	**97%**	**76**	**3.3%**	**90**		

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	58%
Freight Forwarder	89%

A3. Cycle time (average)

Task Order	Direct Drop Fulfillment	**Total**
TO4 - MNCH	**568**	**568**
Other Non-Pharma	532	**532**
Other Pharma	574	**574**
Total	**568**	**568**

Indicator Details

Check out the GHSC-PSM IDIQ M&E Plan for complete details on all our indicators.

Delivery Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A01a	On Time, In Full Delivery (OTIF) - Percentage of line items delivered on time and in full, within the minimum delivery window (within -14/+7 calendar days of the agreed delivery date (ADD))	Number of line items delivered to the recipient on time and in full during the quarter	Total number of line items delivered to the recipient during the quarter	ARTMIS	Quarterly	Lines items are considered on-time and in-full if the full ordered quantity of the line item is delivered to the recipient within the -14/+7 day delivery window. If the line item is partially delivered within the window, it may be considered on-time but not in-full.
A01b	On Time Delivery (OTD) — Percentage of line items delivered on time, within the minimum delivery window (within -14/+7 calendar days of the agreed delivery date (ADD))	Number of line items with an ADD during the quarter that were delivered to the recipient on time	Total number of line items with an ADD during the quarter	ARTMIS	Quarterly	
A16	Percentage of backlogged line items	Number of line items with an ADD on or before the reporting period end date, within a rolling 12-month period, that have not been cancelled or put on hold and that are currently undelivered and late	Total number of line items with an ADD on or before the reporting period end date, within a rolling 12-month period, that have not been cancelled or put on hold	ARTMIS	Quarterly	

Cycle time Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A03a	Cycle time (average)	Sum of cycle time for all line items delivered during the quarter	Count of all line items delivered during the quarter	ARTMIS	Quarterly	Overall cycle time is defined as the number of days between when a customer order is submitted to when the shipment is actually delivered to the customer, inclusive of the start/end days and all holds or other dwell times.
A03b	Dwell-adjusted cycle time (average)	Sum of cycle time for all line items delivered during the quarter, excluding all defined inactive dwell periods from the overall cycle time	The count of all line items delivered during the quarter	ARTMIS	Quarterly	Dwell-adjusted cycle time is defined as the overall cycle time minus the sum of all dwell durations for all holds placed on the line item during its fulfillment.

Indicator Details

Check out the GHSC-PSM IDIQ M&E Plan for complete details on all our indicators.

Quality Assurance Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A02	Percentage of QA processes completed within the total estimated QA lead times (on-time completion rate for QA processes)	Number of consignments complying with the pre-established QA lead times during the quarter	Total number of consignments requiring QA processes that were cleared for shipment during the quarter	QA Database	Quarterly	Consignment is defined as a shipment of commodities, including one or more line items. QA process transactions are managed at the consignment level, regardless of the number of line items in the consignment.
A13	Percentage of batches of product for which the final result is showing nonconformity (out of specification percentage)	Total number of batches of product showing nonconformity during the quarter	Total number of batches tested during the quarter	QA Database	Quarterly	
A14b	Average vendor rating score - QA lab services	Sum of all key vendor ratings.	Number of key vendors from whom GHSC-PSM procured lab testing services during the quarter	QA scorecard	Quarterly	All vendors are equally weighted in the overall score, regardless of procurement volume from each vendor.
A15	Percentage of quality assurance Investigation reports submitted within 30 calendar days of outcome determination (QA investigation report submission)	Number of QA investigation reports submitted to PMI within 30 days of outcome determination	Total number of QA investigation reports due during the reporting period	QA Database, email submissions	Semiannual	

Procurement Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A07	Percentage of line items imported using a temporary registration waiver (temporary waiver percentage)	Number of line items that were imported using a temporary registration waiver	Total number of line items delivered to the recipient during the quarter	Supplier registration bidding documentation	Quarterly	
A10	Percentage of product procured using a framework contract (framework contract percentage)	Value of product purchased through framework contracts during the quarter	Total value of commodities purchased during the quarter	ARTMIS	Quarterly	

Indicator Details

Check out the GHSC-PSM IDIQ M&E Plan for complete details on all our indicators.

Forecast and Supply Planning Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A06a	Absolute percent supply plan error, with variants annual absolute percent error and supply plan bias	Absolute value of the differences between the actual quantities with requested delivery dates during the quarter minus the quantities planned for delivery according to country supply plans	Sum of the actual quantities with requested delivery dates during the quarter	ARTMIS, Country Supply Plans	Quarterly	Supply plan error is currently calculated for adult and pediatric ARVs, HIV lab products, ACTs, and malaria rapid diagnostic tests. Planned quantities are drawn from an aggregation of country supply plans submitted in the prior quarter, including only the quantities that are forecasted to be procured through GHSC-PSM. Actual quantities are derived based on the requested delivery dates for products included in customer ROs submitted to ARTMIS.
A06b	Absolute percent forecast error, with variants annual absolute percent error and forecast bias	Absolute value of the differences between the actual quantities with requested delivery dates during the quarter minus the quantities planned for delivery according to the global demand forecast	Sum of the actual quantities with requested delivery dates during the quarter	ARTMIS, Country Supply Plans, PPMR, other sources	Quarterly	Forecast error is currently calculated for condoms and contraceptives. Forecasted or planned quantities are drawn from the GHSC-PSM global demand forecasts for each product, which are based on an aggregation of country supply plans submitted in the prior quarter and additional inputs, such as country order history, data from coordinated planning groups, and global market dynamics indicators. Actual quantities are derived based on the requested delivery dates for products included in customer ROs submitted to ARTMIS.

Warehouse Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A04	Inventory turns (average number of times inventory cycles through GHSC-PSM controlled global facilities)	Total ex-works cost of goods distributed from GHSC-PSM-controlled global inventory stocks (in USD) within the fiscal year	Average monthly inventory balance (in USD)	Inventory extract	Annual	
A08	Average percentage of shelf life remaining for warehoused commodities, weighted by the value of each commodity's stock (product at risk percentage)	Percentage of shelf life remaining at the end of the quarter, weighted by value of commodities, summed across all products	Total value of commodities, summed across all products, at the end of the quarter	Inventory extract	Quarterly	Shelf life requirements vary by country and by product.

Indicator Details

Check out the GHSC-PSM IDIQ M&E Plan for complete details on all our indicators.

3PL and Commodity Vendor Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A14a	Average vendor rating score - Commodity suppliers	Sum of all key vendor ratings	Number of key vendors from whom GHSC-PSM procured products/commodities during the quarter	ARTMIS	Quarterly	Scorecards are compiled on one-month lag, i.e. Q1 data represents vendor performance from Sept-Nov. Supplier OTIF is currently reported for high value and/or high risk suppliers. Only suppliers for which one or more order line items were fulfilled in this reporting period were included. All vendors are equally weighted in the overall score, regardless of procurement volume from each vendor.
A14c	Average vendor rating score - Freight forwarders	Sum of all key vendor ratings	Number of key vendors from whom GHSC-PSM procured freight forwarding services during the quarter	3PL scorecard	Quarterly	To allow complete data collection, freight forwarder scorecards are conducted on a one-month lag (i.e. Q1 data represents performance from Sept-Nov, rather than Oct-Dec). Overall score is weighted by delivery volume, such that vendors who deliver a greater number of shipments will have a relatively greater impact on the result.

Product Loss Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
C07a	Percentage of product lost due to expiry while under GHSC-PSM control (product loss percentage)	Total value of product lost due to expiry during the quarter	Average inventory balance (in USD) during the quarter	Inventory reports	Quarterly	Expiries from the Regional Distribution Centers (RDCS) are presented in the GSC section of this report. Expiries that occur in warehouses that GHSC-PSM manages in countries are reported in the country-specific sections of this report.
C07b	Percentage of product lost due to theft, damage, or other causes, while under GHSC-PSM control (product loss percentage)	Total value of product lost due to theft, damage, or other causes during the quarter	For losses in transit: Total value (in USD) of product delivered during the quarter For losses in storage: Average inventory balance (in USD) during the quarter	GHSC-PSM Continual Improvement system reports	Quarterly	Product losses due to incidents are reported only after the actual value of the loss has been determined, which may be later than the quarter in which the incident took place or was first reported to GHSC-PSM Continual Improvement.

Indicator Details

Check out the GHSC-PSM IDIQ M&E Plan for complete details on all our indicators.

GHSC-BI&A Data Sharing Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
C04	Percentage of required files submitted to GHSC-BI&A in the reporting period	Number of required files submitted to BI&A during the quarter	Total number of files required for submission to BI&A during the quarter	GHSC-BI&A File Submission dashboard	Quarterly	Data requirements, including file types, data elements, submission formats, and frequency, are governed by the BI&A Information Specification for Implementing Partners (the "Infospec"). Exceptions may be specified by USAID.
C05	Percentage of required files timely submitted to GHSC-BI&A in the reporting period.	Number of required files timely submitted to BI&A during the quarter	Total number of files required for submission to BI&A during the quarter	GHSC-BI&A File Submission dashboard	Quarterly	Data requirements, including file types, data elements, submission formats, and frequency, are governed by the BI&A Information Specification for Implementing Partners (the "Infospec"). Exceptions may be specified by USAID.
C06	Average percent variance between GHSC-PSM ARTMIS and GHSC-BI&A calculations of key supply chain indicators for Task Order 1	Absolute value of GHSC-BI&A Order Performance indicator value minus GHSC-PSM ARTMIS dashboard indicator value	GHSC-PSM ARTMIS indicator value	ARTMIS, GHSC-BI&A Order Performance dashboard	Quarterly	The two indicators used to asses this variance are: 1) on-time delivery, 2) count of order lines with ADDs in the current period

Indicator Details

Check out the GHSC-PSM IDIQ M&E Plan for complete details on all our indicators.

Total Landed Cost

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A05	Total Landed Cost (as a percentage of total value of commodities delivered to recipients)	Sum of all freight and logistics costs (in USD) paid by GHSC-PSM during the reporting period	Sum of the value of all commodities delivered to recipients during the reporting period	ARTMIS, Monthly Financial Statement	Semiannual	The project will also report a variant of this indicator that includes all HQ supply chain operations costs in the numerator. Quality assurance costs will be excluded from all task orders, as QA costs are not paid by GHSC-PSM for all task orders. A version of the indicator including QA costs will be reported for Task Order 2 only.

Global Advocacy Engagments

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
C08	Number of global advocacy engagements in support of improved availability of essential health commodities	Number of global advocacy engagements in support of improved availability of essential health commodities	NA	Project work plans, narrative reports	Semiannual	

Indicator Details

Check out the GHSC-PSM IDIQ M&E Plan for complete details on all our indicators.

Delivery Impact Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
NA	Number of ACT treatments delivered	Sum of ACT treatments delivered to countries, where a treatment is equal to one blister strip		ARTMIS	Quarterly	Includes malaria treatments delivered over the life of the project, with "full dose" based on WHO-recommended treatment guidelines. Specific medicines counted are limited to those used only for treatments, and not primarily as prophylaxis. Specifically, it includes Artemether/Lumefantrine, Artesunate/Amodiaquine, and Artenimol/Piperaquine formulas.
NA	Number of Couple Years Protection delivered	Total of contraceptive method units delivered to countries, multiplied by the couple-years protection conversion factors per method, summed across all contraceptive methods delivered.		ARTMIS and USAID/MEASURE CYP conversion factors	Quarterly	CYP is a standard indicator calculated by multiplying the quantity of each contraceptive method distributed by a conversion factor to yield an estimate of the duration of contraceptive protection provided per unit of that method. The CYP for each method is then summed for all methods to obtain a total CYP figure. CYP conversion factors are based on how a method is used, failure rates, wastage, and how many units of the method are typically needed to provide one year of contraceptive protection for a couple. The calculation takes into account that some methods, e.g., condoms and oral contraceptives, may be used incorrectly and then discarded, or that intrauterine devices (IUDs) and implants may be removed before their life span is realized. This GHSC-PSM measure includes all condoms, IUDs, and hormone (oral, injectable, and implantable) contraceptives delivered over the life of the project, with the conversion factor provided by USAID/MEASURE (see https://www.usaid.gov/what- we-do/global-health/family-planning/couple-years-protection-cyp for details).
NA	Person-years of ARV treatment delivered	Sum of the monthly treatment units of adult first-line ARV treatments delivered to countries , divided by 12		ARTMIS	Quarterly	This report only includes Adult Efavirenz/Lamivudine/Tenofovir (TLE, Nevirapine/Lamivudine/Zidovudine (NLZ), and Dolutegravir/Lamivudine/Tenofovir (TLD). Doses for calculating treatments are based on World Health Organization (WHO)-recommended guidelines. The calculation of patient-years allows GHSC-PSM to monitor effectiveness and efficiency by a standard unit.