USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM
Procurement and Supply Management

FISCAL YEAR 2023

QUARTERLY REPORT | QUARTER 1

OCTOBER 1, 2022, TO DECEMBER 31, 2022

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

QUARTERLY REPORT

October 1, 2022, to December 31, 2022

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.

Contents

ACRONYMS

3HP	isoniazid and rifapentine (combination treatment for tuberculosis)
3HR	three months of daily isoniazid plus rifampicin
3PL	third-party logistics
ABC	activity-based costing
ABM	activity-based management
ACT	artemisinin-based combination therapy
AIDC	automatic identification and data capture
AL	artemether-lumefantrine
AMF	Against Malaria Foundation
API	active pharmaceutical ingredient
ARPA	American Rescue Plan Act
ARTMIS	Automated Requisition Tracking Management Information System
ARV	antiretroviral

BHA	Bureau of Humanitarian Assistance
BMGF	Bill & Melinda Gates Foundation
CHAI	Clinton Health Access Initiative
CHTF	Child Health Task Force
CHW	community health worker
CMS	central medical store
COE	center of excellence
COP	country operational plan
CPAP	continuous positive airway pressure
CSI	Contraceptive Security Indicator
DAP	Delivered at Place
DBS	dried blood spot
DCP	decentralized procurement

DDP	Delivered Duty Paid
DHD	district health directorate
DHIS2	District Health Information System 2
DHMT	District Health Management Team
DNO	diagnostic network optimization
DRC	Democratic Republic of the Congo
DTG	dolutegravir
EID	early infant diagnosis
eLMIS	electronic logistics management information system
ENAP	Every Newborn Action Plan
EPI	Expanded Programme on Immunization

EPSS	Ethiopian Pharmaceuticals Supply Service
EUV	end-use verification
FASP	forecasting and supply planning
FDC	fixed-dose combination
FP/RH	family planning/reproductive health
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

GSC	Global Supply Chain
GTIN	Global Trade Item Number
HDPs	hypertensive disorders of pregnancy
HSSP III	national health sector strategic plan
IAPHL	International Association of Public Health Logisticians
ICFP	International Conference on Family Planning
IDIQ	indefinite delivery, indefinite quantity
IPT	isoniazid preventive therapy
IRS	indoor residual spraying
ITN	insecticide-treated net
IUD	intrauterine device
KPI	key performance indicator
KSM	key starting material

LLIN	long-lasting insecticide-treated net
LLIN-LMD	LLIN-last-mile delivery
LMIS	logistics management information system
LOX	liquid oxygen
MCH	maternal and child health
M&E	monitoring and evaluation
MEDS	Mission for Essential Drugs and Supplies
MIS	management information system
MMD	multi-month dispensing
MMV	Medicines for Malaria Venture
MNCH	maternal, newborn, and child health
MOH	Ministry of Health
MOSAIC	Maximizing Options to Advance Informed Choice for HIV Prevention

mRDT	malaria rapid diagnostic test
MSF	Médecins Sans Frontières
MTaPS	Medicines, Technologies and Pharmaceutical Services
NMEC	National Malaria Elimination Center
NMEP	National Malaria Elimination Program
NSCA	National Supply Chain Assessment
OTD	on-time delivery
OTIF	on-time, in-full delivery
PCMT	Product Catalog Management Tool
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
PSBI	possible serious bacterial infection
Q	quarter
QA	quality assurance
QAT	Quantification Analytics Tool
QC	quality control
RDC	regional distribution center
RFI	request for information
RFP	request for proposal

RFQ	request for quotation
RHSC	Reproductive Health Supplies Coalition
RMS	regional medical store
RO	requisition order
RRF	reporting and requisition form
RTK	rapid test kit
SC	subcutaneous
SMC	seasonal malaria chemoprevention
SMO	social marketing organization
SOP	standard operating procedure
SP	sulfadoxine-pyrimethamine
SPAQ	sulphadoxine-pyrimethamine + amodiaquine
SSNB	small and sick newborn

SSWG	Systems Strengthening Working Group
TA	technical assistance
TB	tuberculosis
TE	tenofovir/emtricitabine
TL	tenofovir/lamivudine
TLD	tenofovir/lamivudine/dolutegravir
TO	task order
TPT	tuberculosis preventive treatment
TRVST	Traceability and Verification System for Health Products
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/EID	viral load/early infant diagnosis
VMI	vendor-managed inventory
VMMC	voluntary medical male circumcision
VSI	vendor-stored inventory
WHO	World Health Organization
ZAMMSA	Zambia Medicines and Medical Supplies 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 1 (Q1) fiscal year 2023 (FY 2023). The project provides lifesaving medicines and other health commodities. It 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, USAID's 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. USAID's response to the novel coronavirus (COVID-19) is also described in this report.

GHSC-PSM Life of Project Fast Facts

- Delivered **15.6 million patient-years of tenofovir/lamivudine/dolutegravir (TLD) treatment**
- Delivered enough antimalarials to treat **482.6 million infections**
- Delivered enough contraceptives to provide an estimated 90.4 **million couple-years** of protection, when combined with proper counseling and correct use
- Procured a total of over **$27.8 million in MNCH commodities**
- Supported **62 countries** with technical assistance

In Q1, GHSC-PSM kicked off its eighth year of implementation with the goals of maintaining high performance, completing ongoing activities, and documenting the project and its legacy. In FY 2023 the project is also focused on laying the foundation for a successful transition to USAID's Next Generation of Supply Chain (NextGen) projects.

Q1 PERFORMANCE AND PROGRESS HIGHLIGHTS

By leveraging the strength of its existing mechanism while introducing and expanding on approaches to logistics management, the project achieved its 15th consecutive quarter of on-time delivery (OTD) over the 80 percent target. (See section C1.) Also, with the support of USAID, GHSC-PSM is building upon and expanding its strong foundation while implementing new and thoughtful approaches to its supply chain management. For example, the project continued to expand the D-term program and, for the first time, allocated TLD with a portion earmarked for the vendor-managed solutions program set to launch in Q2. In Q1, GHSC-PSM also began implementing a vendor-stored inventory (VSI) strategy for artemether-lumefantrine products; this was the first negotiation of VSI for the malaria task order. These strategic and market-shaping shifts will engage manufacturers further down the supply chain and support USAID's regionalization focus. (See section B1.)

For GHSC-PSM, Q1 of each fiscal year is conference season. The project shared lessons learned, success stories, and innovations while promoting USAID's supply chain thought leadership through 39 presentations delivered at six conferences and participated in several high-profile global meetings. (See section C3.)

GHSC-PSM also shared evidence of new and promising practices from country offices and tools, knowledge, and learnings with the global community for their use and for achieving more significant impact. For example, the project published four adaptable GHSC-PSM-developed analytic tools (Dynamic Routing Application, Inventory Analysis, Anomaly, Inventory Demographic analysis for Family Planning) using open-source code Python on GitHub™ for public use in an effort to promote sharing, adoption, and use of these tools beyond implementing countries and to strengthen countries' use of data for supply chain decision making . GHSC-PSM also made significant progress in engaging donors to expand the user base of the Quantification Analytics Tool (QAT). The project met with the Global Fund to Fight AIDS, Tuberculosis, and Malaria (Geneva) and their procurement and supply agency to promote the use of QAT for supply planning and trained United Nations Children's Fund personnel in Mozambique and Malawi on using QAT for nutrition programs. As of Q1, GHSC-PSM had trained 31 countries on using the QAT to submit quarterly supply plans to the project.

The project continues to be called upon to assist in overcoming supply chain challenges. For example, to avoid imminent stockout, the project coordinated with the USAID Missions and Ministries of Health to divert 12,000 bottles of nevirapine from Cameroon to Ethiopia. In Haiti, with the outbreak of cholera that began in Q1, the project was selected by donors and USAID's emergency response teams to store, distribute, and track urgent deliveries of cholera commodities due to its warehousing and data system capabilities. Haiti is in the midst of a complex humanitarian crisis, seriously impeding Haitians' access to health care. In spite of this, GHSC-PSM warehouses and distribution continue to operate, with the requisite precautions for project staff.

During the third wave of COVID-19, Botswana became a COVID-19 hotspot. The project quickly conducted a stop-gap procurement of key COVID-19–related health commodities. The delivery of these commodities in Q1 was celebrated at an official handover ceremony from the U.S. Chargé d'Affaires to the Assistant Minister of Health. Meanwhile, to date, GHSC-PSM has helped transport over 77.5 million COVID-19 vaccine doses across the different levels of distribution in Nigeria.

By keeping its finger on the pulse of global and local logistics, the project constantly obtains, updates, and analyzes information in real-time to ensure the continuous flow of commodities to those who need them most.

TRANSITION TO NEXTGEN

In Q1, GHSC-PSM continued planning and preparing for the transition to USAID's NextGen suite of supply chain projects. This quarter, the Transition Management team initiated in-depth planning discussions with the Global Supply Chain (GSC) team, which culminated in a presentation to USAID and the foundations of a Commodity Continuity Plan. In Q2, Transition Management and GSC teams are planning to convene a procurement-focused technical working group with USAID colleagues to further elaborate procurement-specific transition strategies.

In Q1, GHSC-PSM also advanced preparations for country-level transitions, developing draft country transition plan templates and closeout budget estimates. Once finalized, these will constitute a Country Transition Toolkit, a menu of resources to assist GHSC-PSM country teams in transition planning with their USAID missions. In Q1, following up on its implementation of a headquarters inventory of information assets completed in FY 2022, the Transition Management team piloted a country-level equivalent to capture the assets maintained exclusively by GHSC-PSM country teams. The country-level information asset inventory will be rolled out to all GHSC-PSM country teams in Q2. This quarter, the Transition Management team also debuted a monthly internal transition newsletter, aimed for all project and support staff, to highlight news, activities, and resources relevant to the NextGen transition. Finally, GHSC-PSM continued its transition-focused meetings with USAID 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 Q1 are below.

Procured over $199 million in drugs, diagnostics, and health commodities in Q1, and over **$4.8 billion** to date.

Delivered over $148 million in drugs, diagnostics, and health commodities in Q1, and over **$4.59 billion** to date.

Achieved OTD[1] **of 89 percent (84 percent COVID-impacted)[2] and on-time, in-full (OTIF) of 83 percent (81 percent COVID-impacted).**

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.

[2] During the COVID-19 pandemic, GHSC-PSM will present two versions of its usual OTD indicator. The first will be the "standard" version, calculated according to the indicator definition as laid out in the project's monitoring and evaluation plan and in accordance with all associated policies/standard operating procedures (SOPs). These policies and SOPs allow for USAID-approved adjustments to agreed-to delivery dates in the case of interruptions that are beyond the project's manageable control, including pandemic impacts. The "standard" version of OTD will therefore show the project's performance, controlling for impacts of COVID-19 and other external disruptions. The second calculation of OTD is the "COVID-19–impacted" version. This version follows the same rules and definitions as the standard indicator, but the "control" for pandemic impacts will not be used. All pandemic-impacted line items will be assessed as on-time or not, according to the agreed-to delivery date at the time the order was approved. This version of the indicator will show the full impact of supplier and logistics delays because of manufacturing shutdowns, port and border closures, and other pandemic control measures. The delays cannot be attributed to GHSC-PSM, but the project is committed to sharing these outcomes in the interest of full transparency and acknowledgement of the challenging and unprecedented circumstances presented by COVID-19.

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

Exhibit 1. January 2022 through December 2022 Monthly Indefinite Delivery, Indefinite Quantity (IDIQ) OTD

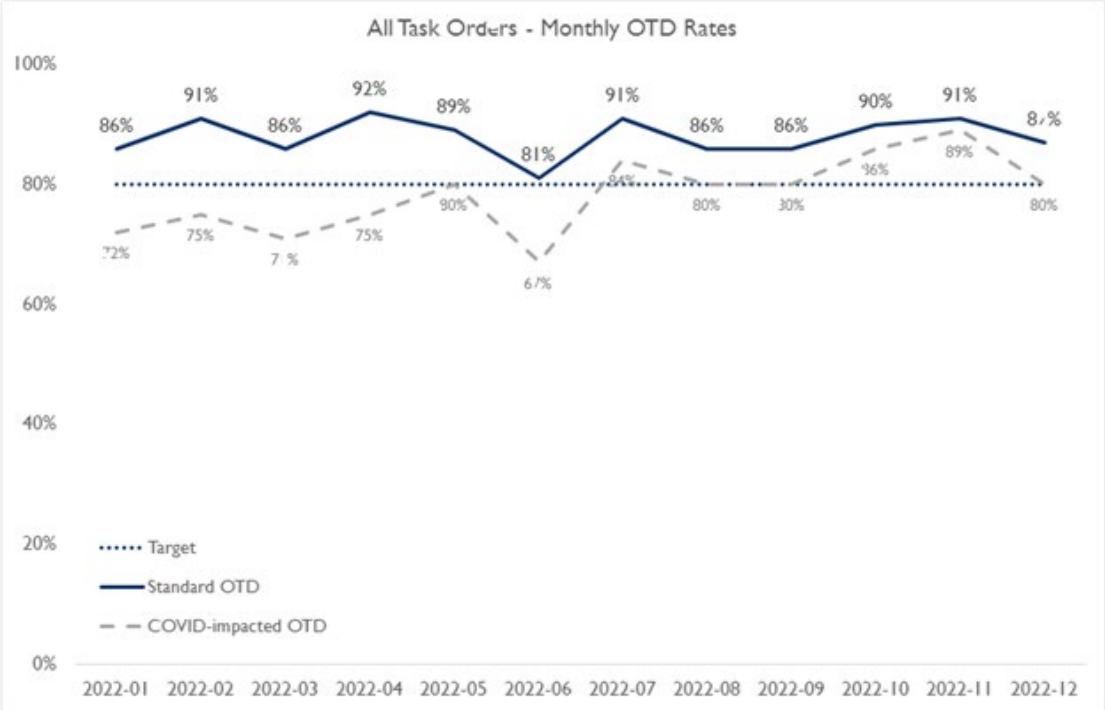
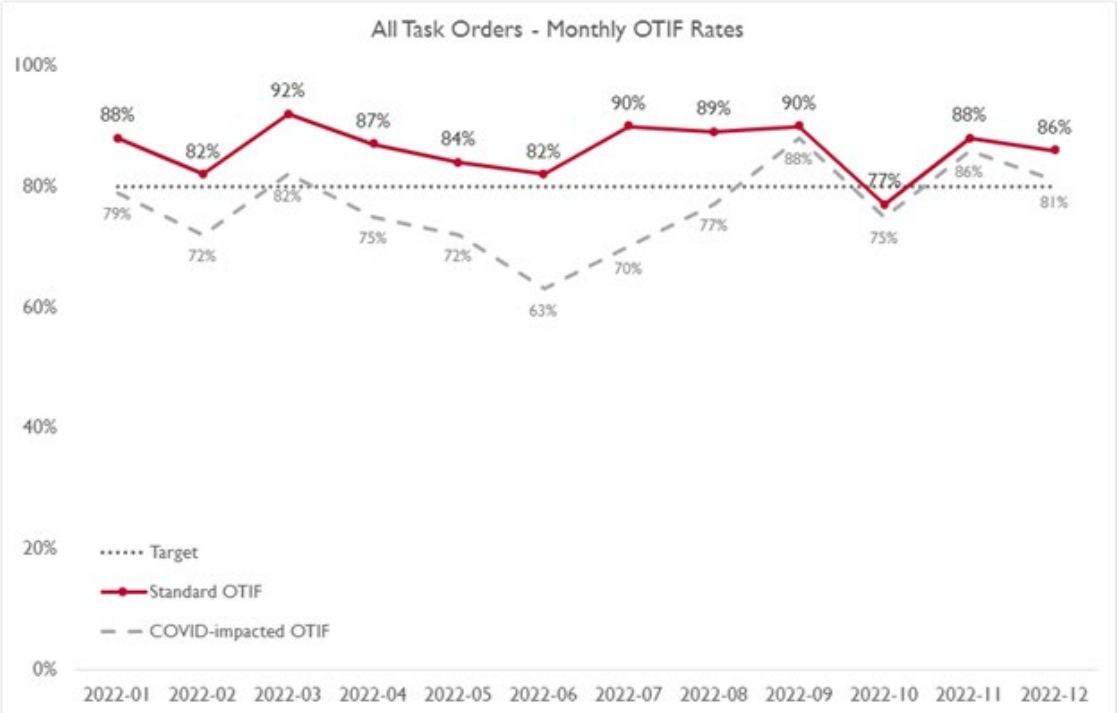


Exhibit 2. January 2022 through December 2022 Monthly IDIQ OTIF



HEALTH AREAS

GHSC-PSM provides procurement services and technical assistance to strengthen supply chains and promote global collaboration for the U.S. government programs for HIV/AIDS, malaria, FP/RH, MNCH, and emerging health threats. Highlights are provided below.

HIV/AIDS

GHSC-PSM has **delivered enough antiretroviral therapy to provide over 20.5 million patient-years of HIV treatment to date.**

This includes **15.6 million patient-years of TLD treatment delivered to date.**

Pre-exposure prophylaxis (PrEP). In Q1, GHSC-PSM delivered 677,187 bottles of PrEP products to seven countries. GHSC-PSM provided the USAID Maximizing Options to Advance Informed Choice for HIV Prevention program, known as MOSAIC, with commodity procurement and logistics support in Q1, and began planning for additional deliveries in Q2.

Condoms. In Q1, GHSC-PSM delivered 145 million male condoms, 1.6 million female condoms, and 12 million sachets of lubricant (more than 77,000 cases of product) to 14 countries.[3] An emergency order for Ukraine was delivered to our local partner, 100% Life. GHSC-PSM implemented a male condom risk mitigation strategy in Q1 in response to the congressional delay in approving the FY 2023 Condom Fund and received authorization from USAID to contract three suppliers to begin production on 46.2 million pieces (15,400 cases) of no-logo condoms, valued at $1.4 million.

Voluntary medical male circumcision (VMMC) kits. GHSC-PSM delivered 243,689 VMMC kits to five countries (Eswatini, Mozambique, Tanzania, Uganda, and Zimbabwe) and 10,400 Shang Ring devices to Malawi.

TLD and multi-month dispensing (MMD). In Q1, the project delivered more than 2.38 million bottles of TLD to nine countries.[4] All deliveries were 90-count bottles of TLD except for Côte d'Ivoire orders, which were delivered in 180-count bottles. The project completed an annual allocation for TLD to five suppliers to help them plan for appropriate stock level of active pharmaceutical ingredients to meet projected needs, while simplifying the ordering process for GHSC-PSM and reducing order cycle time metrics.

Transitioning to dolutegravir (DTG) 10 mg. Building on the transition to the optimal pediatric ARV, in Q1, the project delivered 268,436 bottles valued at $5.9 million to Cameroon, El Salvador, Kenya, Nigeria, Tanzania, Uganda, and Zambia. These deliveries will ensure that each country can initiate its DTG 10 mg transition in line with approved transition plans.

Expanding the antiretroviral (ARV) Delivered at Place (DAP) program. GHSC-PSM increased private sector engagement in the ARV supply chain in Q1 by completing an annual sourcing activity that qualified six ARV suppliers and their freight partners to deliver products under D-Terms, and established a process for more ARV suppliers to become eligible to offer D-Term services. In Q1, 64 of the 119 purchase order lines (54 percent) released were issued under DAP or Delivered Duty Paid Incoterms.

Access to essential medicines. As part of the new essential medicines sourcing strategy, which has a particular focus on regionalization and the use of local wholesalers, GHSC-PSM established contracts and onboarded new local wholesalers to project systems and processes in Democratic Republic of Congo and Malawi.

Implementing viral load/early infant diagnosis (VL/EID) awards. Delivered 1.9 million VL/EID tests in Q1, saving approximately $4.8 million compared to 2019 pre-global request for proposal (RFP) prices under the terms of the global service-level agreements. Total savings over the life of the project are more than $98 million. GHSC-PSM continued in Q1 with the Wave-2 RFP process to establish fair pricing for VL testing commodities, creating formal service-level agreements, and enable expanded instrument connectivity for the remaining 42 PEPFAR-supported countries not included in Wave 1.

Engaging suppliers. The project also engaged key ARV manufacturers alongside USAID and other U.S. Government partners during the ARV Buyer/Seller Summit in November. These sessions focused on

[3] Burkina Faso, Democratic Republic of the Congo (DRC), Ghana, Lesotho, Malawi, Mali, Mozambique, Nigeria, Senegal, Tajikistan, Togo, Ukraine, Zambia, and Zimbabwe.
[4] Angola, Burundi, Cameroon, Cote d'Ivoire, Haiti, Honduras, Kenya, Nigeria, and Zimbabwe.

promoting Africa-based ARV production, building on discussions held during the joint USAID/GHSC-PSM visit to India in Q4 FY 2022.

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

Malaria

To date, GHSC-PSM **procured over $1.15 billion in malaria medicines and commodities for 31 countries.**

In Q1, GHSC-PSM delivered enough ACTs to treat **14.3 million infections and 482.6 million infections over the life of the project** .

In Q1, GHSC-PSM **delivered 9.8 million long-lasting insecticide-treated nets (LLINs) to 26 countries.**

Achieving OTD and OTIF. In Q1**,** the project continued to achieve OTD and OTIF above the target of 80 percent (82 percent OTD and 84 percent OTIF).

Engaging suppliers. In Q1, GHSC-PSM hosted in-person and virtual meetings with suppliers of LLINs and malaria rapid diagnostic tests to review the ongoing business and share information. The project also met with pharmaceutical suppliers at the Convention on Pharmaceutical Ingredients to discuss strategic priorities for regionalization of pharmaceutical manufacturing.

Expanding lab testing capacity. In Q1, GHSC-PSM finalized a method transfer for a second rectal artesunate suppository testing lab, improving testing agility. A rectal artesunate supplier executed two production runs in Q1 FY 2023 to fulfill GHSC-PSM country demand.

Prequalifying a new supplier for seasonal malaria chemoprevention (SMC). In Q1, a supplier received official World Health Organization prequalification of sulfadoxine-pyrimethamine + amodiaquine for SMC, expanding the project's eligible supplier base from two to three in FY 2023.

Implementing the Stockout Reduction Initiative. In Q1, GHSC-PSM finalized updates and disseminated the Stockout Reduction Playbook to all U.S. President's Malaria Initiative–supported countries, including Kenya under the Afya Ugavi task order, and six non-field office countries[5].

Expanding local private sector engagement. In Niger, in Q1, GHSC-PSM contracted and trained new third-party logistics (3PL) providers for last-mile distributions, expanding the 3PL base by 75 percent. The first distribution with the new 3PLs was successful.

For more information, see section B2: Malaria.

[5] Benín, Cote d'Ivoire, DRC, Madagascar, Senegal, and Tanzania

FP/RH

GHSC-PSM has delivered enough contraceptives that, when combined with proper counseling and correct use, are estimated to **provide 90.4 million couple-years of protection** to date.

This includes **4.7 million couple-years of protection** in Q1.

Achieving OTD. GHSC-PSM delivered 88 percent (87 percent COVID-impacted) of FP/RH commodities on time in Q1.

Sharing best practices and lessons learned with the global community. In Q1, GHSC-PSM delivered nine FP/RH-focused presentations at three conferences (People that Deliver Global Indaba, Global Health Supply Chain Summit, International Conference on Family Planning) on a range of topics, such as leadership change management, supply chain professionalization, Contraceptive Security Indicators (CSIs), and innovations in contraceptive packaging.

Encouraging accessibility of the hormonal intrauterine device (IUD). In Q1, GHSC-PSM co-authored a review of early experiences in the procurement and delivery of the hormonal IUD in sub-Saharan Africa that was published in Global Health: Science and Practice.

Offering suggestions for better community health supply chain data management. In Q1, GHSC-PSM published a landscape analysis and supporting technical brief highlighting five mobile applications for supply chain management at the last mile.

Receiving recognition for the CSI Survey. The Knowledge Success platform selected the survey in Q1 as one of 20 "Essential Resources for Reproductive Health Commodity Security and Supply Chain Management," and it was included as a Reproductive Health Supplies Coalition publication.

Updating the logistics landscape tracker for government and parastatal outsourcing. In Q1, GHSC-PSM finished collecting data for the logistics landscape tracker. The tracker indicates which governments and parastatals are outsourcing supply chain services and where the project is outsourcing warehousing and distribution services. The tracker is applicable to other health task orders and will be disseminated to USAID as a resource for government outsourcing advocacy efforts.

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

MNCH

In Q1, the project **received, stored, and prepared to distribute more than 164 pallets of MNCH supplies** to address the cholera outbreak in Haiti.

In Q1, the project used MNCH funds to create and disseminate global resources, support health supply chain research, and modify supply chain data tools to improve procurement, management, availability, and quality of commodities used to treat and prevent pregnancy-related disorders and address common child and newborn health issues. GHSC-PSM also helped procure MNCH and emergency cholera commodities in Q1.

Procuring and delivering commodities. Since its start, GHSC-PSM has delivered over $25 million in MNCH drugs and commodities. In Q1 FY 2023, GHSC-PSM supported four countries[6] in procuring MNCH products, including an urgent procurement of essential medicines on the verge of stockout for DRC. GHSC-PSM was also selected by donors and USAID's emergency response teams—the Bureau of Humanitarian Assistance (BHA) and Disaster Assistance Response Team—to store, distribute, and track urgent deliveries of cholera commodities to the 270 health facilities in Haiti. The project will support procurement of additional cholera commodities in subsequent quarters.

Achieving OTD. Delivered 100 percent of maternal and child health commodities on time in Q1.

Providing international MNCH supply chain leadership and guidance. In Q1, the project hosted global technical discussions on availing commodities to treat childhood pneumonia and possible serious bacterial infection and developed a call to action paper with key recommendations. The project also provided feedback and resources to inform the NEST360 Newborn Implementation Toolkit, published updates to its postpartum hemorrhage medicines guide, helped classify essential newborn devices and supplies and review country newborn guidelines as part of the Every Newborn Action Plan, and began developing the "How to Operate the Center of Excellence" resource in Q1. Finally, GHSC-PSM's Nigeria team presented on its implementation of Drug Revolving Funds for MNCH commodity financing at the Global Health Supply Chain Summit in Dakar, Senegal.

Supporting systems for data-informed MNCH decision making. Continued to refactor data analytics tools for use in Liberia—the Data Extraction Tool and Consumption Anomaly Tool—to track and make decisions around MNCH commodities. GHSC-PSM also supported end-use verification data collection and reporting in five countries.

Working with countries to improve adherence to commodity quality standards and enhance in-country coordination and collaboration. Provided MNCH-supported technical assistance to 13 countries in Q1. (See section B4: MNCH.) This included supporting two assessments in Ghana: 1) assessing the supply system for antihypertensives to identify barriers and avail them to health providers and patients and 2) assessing availability, use, and maintenance of medical devices and consumables for small and sick newborns, including oxygen.

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

[6] GHSC-PSM procured MNCH commodities for four countries in Q1 FY 2023: DRC, Mozambique, Nigeria and Rwanda.

manages 33 country or regional offices, supplemented by headquarters-based experts; these offices provide wide-ranging technical assistance to strengthen national health supply chains.

Country highlights:

- Introduced an automatic identification and data capture solution for barcode scanning of all pharmaceutical products in Uganda.
- Strengthened capacity among stakeholders from Laotian government agencies and partner organizations on health supply chain management. This activity led to renewed commitments to improve logistics processes within the country's supply chain.

- Worked in Haiti, Liberia, Malawi, Zambia, and Zimbabwe to either adapt existing data analytic tools to the country's context or refine existing data flow processes. GHSC-PSM designs analytic tools to be repeatable, reusable, and adaptable so countries reuse them in a way that encourages and improves self-reliance.

- Developed a six-month stock redistribution schedule in collaboration with the Zambia Medicines and Medical Supplies Agency. The project analyzed historical workload patterns driven by the distribution schedule and introduced a tool to improve scheduling, identify pressure points, and balance the workload across the distribution period.

- Hosted 11 training sessions with 110 warehouse and supply chain staff in El Salvador as part of the Ministry of Health's Productive Warehouse Training Month to improve the performance of the health supply chain and the level of service to patients in the country's national hospital network.
- In Lesotho, GHSC-PSM is building sustainability within the health supply chain system through a peer-to-peer mentoring program with support from the Global Fund.

For more information, see section C2: Systems Strengthening and 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[7]) program to prevent child and maternal deaths.
- Other public health threats as they emerge, with support for Zika and 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 62 countries over the life of the project (see Exhibit 3 below).

A2. About This Report

We are pleased to present our performance report for Q1 FY 2023 (October 1, 2022, through December 31, 2022). 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 each of the **three main technical objectives** (global commodity procurement and logistics, systems strengthening, and global collaboration), including key indicator results for those objectives.
- Annex A describes the activities GHSC-PSM has undertaken with **COVID-19 funding** to respond to the pandemic.

[7] 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 B provides **performance indicators** for October 1, 2022, through December 31, 2022 (annual indicators).

Given the size and complexity of GHSC-PSM, this report summarizes its primary efforts and achievements and 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)

	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	●	

PROGRESS BY HEALTH AREA

This section summarizes GHSC-PSM's support in Q1 FY 2023 for HIV/AIDS; malaria; FP/RH; MNCH; and other public health threats.

B1. HIV/AIDS

GHSC-PSM has delivered enough antiretrovirals (ARVs) to provide over **20.5 million patient-years of HIV treatment over the life of the project**, including nearly **602 thousand patient-years of treatment in Q1**.

To date, GHSC-PSM has delivered over **79 million bottles of tenofovir/lamivudine/dolutegravir (TLD)**[8] to 33 countries, which would provide over **15.6 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 Q1. Patients likely saved **over 4.8 million trips** to the pharmacy in Q1 and **more than 108.8 million trips over the life of the project, saving patients time and money, and giving clinicians more time with other patients in need**.

In Q1, **30 countries procured HIV/AIDS medicines and commodities.**[9]

29 countries[10] **received health supply chain systems strengthening** with HIV/AIDS funding in FY 2023.

GHSC-PSM supports PEPFAR's goal of ending the HIV/AIDS epidemic by 2030 through procuring and delivering medicines and commodities to prevent infection and treat people living with HIV (PLHIV),

[8] This total figure includes 48.3 million bottles of TLD 90, 28.3 million bottles of TLD 30, and 2.4 million bottles of TLD 180. For more information, see Section B1. HIV/AIDS, TLD and multi-month dispensing.
[9] GHSC-PSM procured HIV/AIDS commodities for the following countries: AFRICA: Angola, Benin, Burkina Faso, Burundi, Cameroon, DRC, Côte d'Ivoire, Eswatini, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Nigeria, Tanzania, Uganda, Zambia, Zimbabwe; ASIA: Nepal, Vietnam; CARIBBEAN: Papua New Guinea, Haiti; CENTRAL/SOUTH AMERICA: El Salvador, Panama, Honduras, Guatemala; EUROPE & EURASIA: Ukraine, Kazakhstan, Tajikistan.
[10] GHSC-PSM has provided HIV-funded technical assistance 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: Burma, Indonesia; CARIBBEAN: Haiti, Jamaica; CENTRAL/SOUTH AMERICA: El Salvador, Guatemala, Honduras, Panama.

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 the health commodities they need. Project activities support USAID's efforts to achieve the 95-95-95 goals: 95 percent of PLHIV know their status, 95 percent of these are on HIV treatment, and 95 percent of these have no detectable virus. In FY 2023, GHSC-PSM integrated key technical direction from USAID around VL/EID diagnostics, vendor-managed solutions, logistics, TA priorities, and advanced analytics and data visibility into its work plan. During Q1, the project team set up systems to internally track and coordinate these priorities and to support communicating progress back to USAID.

Procurement

GHSC-PSM has procured more than $3.2 billion in HIV commodities over the life of the project, with $142.3 million worth of procurements in Q1 FY 2023 with adult ARVs making up 53 percent of all procurements by value.

Deliveries

In Q1, GHSC-PSM delivered $91.8 million in HIV commodities to countries. Over the life of the project, GHSC-PSM has delivered over $3 billion in HIV commodities to countries.

On-time delivery (OTD) and on-time, in-full (OTIF) delivery

Timeliness of GHSC-PSM deliveries remained consistently strong for standard OTD over the reporting period, as shown in Exhibit 4. In Q1, OTD was 90 percent for HIV (87 percent for COVID-19 impacted). GHSC-PSM's 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 at 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 82 percent (80 percent for COVID-19 impacted) in Q1. See Annex A for further details.

Exhibit 4. HIV Commodities, OTD

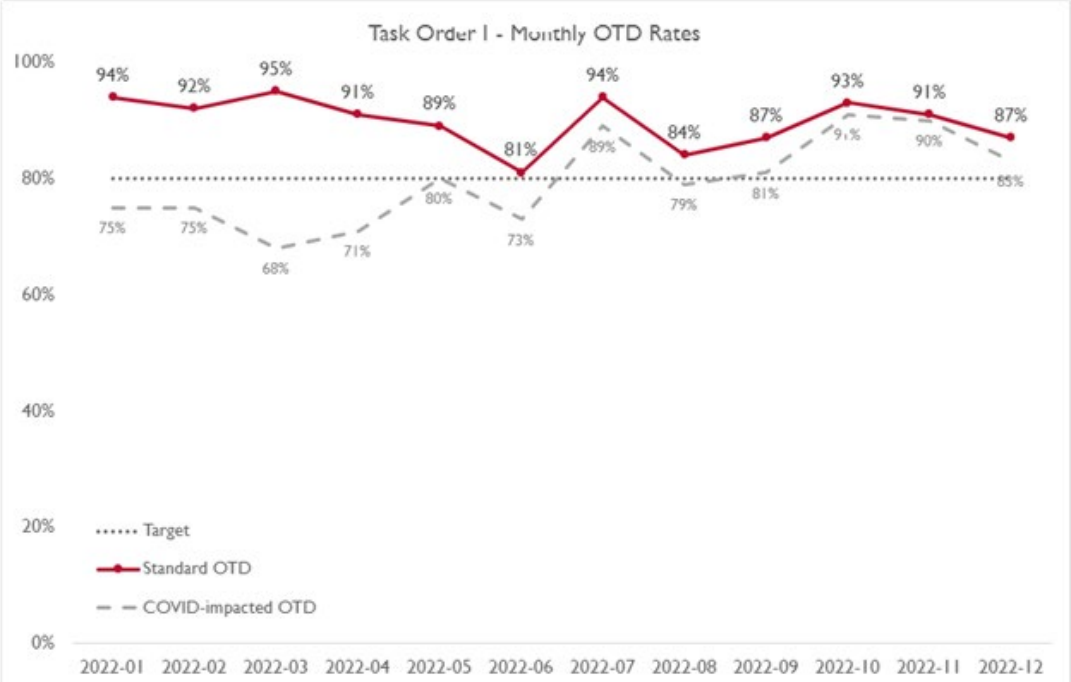
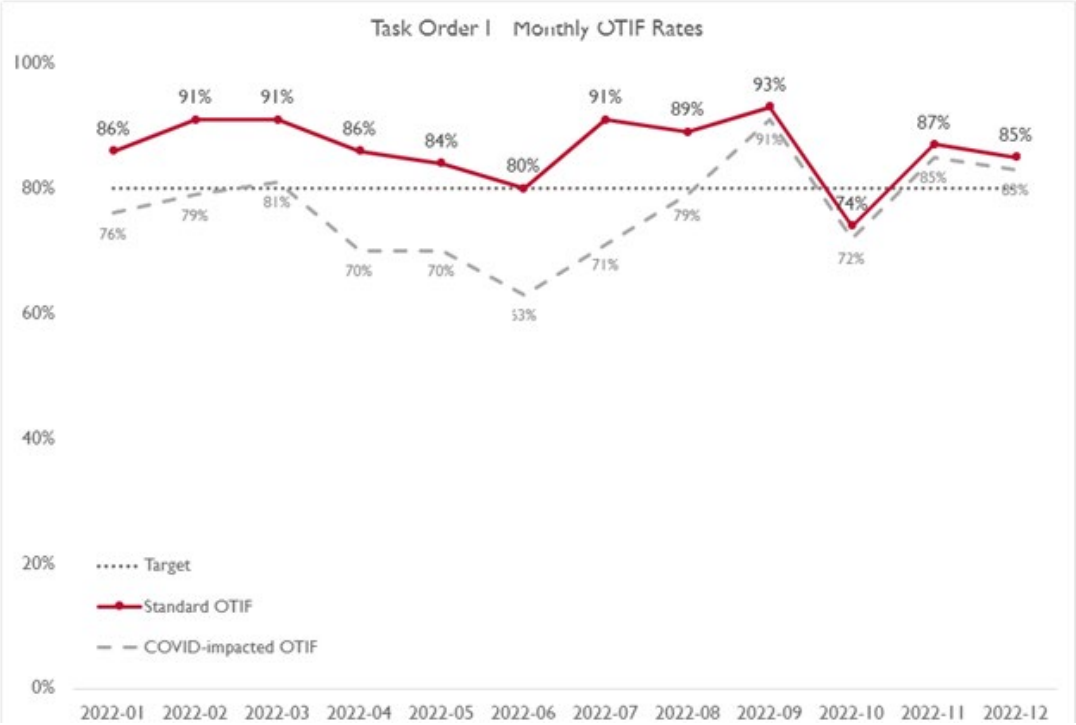


Exhibit 5. HIV Commodities, OTIF



Supporting PEPFAR's HIV Prevention Agenda

Pre-exposure prophylaxis (PrEP)

Daily oral PrEP using the ARV medicines tenofovir/emtricitabine (TE) or tenofovir/lamivudine (TL) dramatically reduces the risk of HIV infection in people who use it as directed. In Q1, GHSC-PSM delivered 677,187 bottles of PrEP products to seven countries.[11]

GHSC-PSM routinely analyzes qualitative and quantitative data on PrEP commodities. This includes monitoring supply capacity and lead times for current PrEP products in the catalog and 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 injectable PrEP product cabotegravir, known as CAB-LA. This analysis allows the project to observe and adapt to the dynamics of each country's PrEP scale-up program by advancing or delaying shipments when necessary.

In Q1, GHSC-PSM continued providing the USAID Maximizing Options to Advance Informed Choice for HIV Prevention (MOSAIC) program with commodity procurement and logistics support. MOSAIC is a five-year (2021–2026) PEPFAR-funded project helping prevent HIV in women by accelerating introduction and scale-up of new and emerging biomedical prevention products. Catalyzing Access to New Prevention Products to Stop HIV, known as CATALYST, is the project's flagship product introduction study. The study will provide and assess an enhanced service delivery package that includes oral PrEP, PrEP ring, and injectable cabotegravir at PEPFAR/USAID delivery sites in Kenya, Lesotho, South Africa, Uganda, and Zimbabwe. In Q1, GHSC-PSM positioned 32,656 dapivirine vaginal rings at the Dubai regional distribution center (RDC) for the MOSAIC project. GHSC-PSM also made a preliminary delivery of 4,032 rings from the RDC to Eswatini, where the project focuses only on the PrEP ring. GHSC-PSM will deliver additional rings to targeted countries in Q2 and finalize terms with the supplier for delivery of CAB-LA.

Condoms

Correct and consistent use of condoms and lubricants significantly reduces the risk of transmission of HIV. USAID's support for the condoms program targets regions with high demand and supply gaps. In Q1, GHSC-PSM delivered 145 million male condoms, 1.6 million female condoms, and 12 million sachets of lubricant (more than 77,000 cases of product) to 14 countries.[12]

Each year, more than 20 countries use PEPFAR's Condom Fund to procure condoms and lubricants. Due to congressional delays in approvals for the FY 2023 Condom Fund (approved when Congress reconvened in January 2023), countries could not place condom orders in Q1. GHSC-PSM implemented a male condom risk mitigation strategy by compiling a list of impacted portfolio orders and coordinating with in-country partners to present information to USAID on which delays would result in a stockout or stock risk. Also in Q1, USAID authorized GHSC-PSM to contract three male condom suppliers to begin productionon 46.2 million pieces (15,400 cases) of no-logo condoms, valued at $1.4 million.

GHSC-PSM recommended that the Female Health Company redesign the primary packaging on its FC2-branded female condom. Packaging listed the company's United Kingdom corporate address and indicated

[11] In Q1, GHSC-PSM delivered PrEP products to DRC, Guatemala, Honduras, Papua New Guinea, Tanzania, Vietnam, and Zimbabwe.
[12] In Q1, GHSC-PSM delivered male and female condom and lubricant order lines to Burkina Faso, DRC, Ghana, Lesotho, Malawi, Mali, Mozambique, Nigeria, Senegal, Tajikistan, Togo, Ukraine, Zambia, and Zimbabwe.

a corporate presence in Malaysia, the United Kingdom, and the United States. To comply with standards from the International Organization for Standardization, product packaging should indicate the manufacturing location of the product for consumer awareness. The Female Health Company completed redesign of the primary packaging for this product in Q1 and will introduce it in 2023.

Voluntary medical male circumcision (VMMC) kits

Male circumcision is cost-effective and reduces female-to-male sexual transmission of HIV by 60 percent.[13] The World Health Organization (WHO) supports VMMC as a critical HIV prevention intervention. In Q1, GHSC-PSM delivered 243,689 VMMC kits to five countries (Eswatini: 2,600 kits, Mozambique: 71,589 kits, Tanzania: 17,842 kits, Uganda: 67,171 kits, and Zimbabwe: 84,492 kits) and 10,400 Shang Ring devices to Malawi.

GHSC-PSM continued working with USAID and USAID Global Health Supply Chain Program-Quality Assurance (GHSC-QA) project to manage and re-integrate a VMMC kit supplier in Africa with recurring quality issues. Representatives from GHSC-PSM, GHSC-QA, and USAID visited South Africa to follow up on progress against corrective and preventive actions put in place in FY 2022. This visit underscored the project's intention to work collaboratively with strategic suppliers to resolve challenges and move forward to ensure a healthy market for VMMC kits.

GHSC-PSM continues to engage strategically with a Chinese-based VMMC device manufacturer and a local distributor of the Shang Ring device (used to carry out VMMC procedures) to determine if procurement efficiencies can be achieved in FY 2023, especially to reduce lead times.

Essential medicines

Among people living with advanced HIV, cryptococcal disease is one of the most common opportunistic infections and is a major contributor to illness, disability, and mortality. Recent guidelines from the WHO recommend amphotericin B in combination with flucytosine for induction treatment of cryptococcal disease. Country adoption of these guidelines is critical to save lives, but access to these medications remains scarce, especially in low- and middle-income countries.

In Q1, as part of the new essential medicines sourcing strategy, which has a particular focus on regionalization and the use of local wholesalers, GHSC-PSM established contracts and onboarded new local wholesalers in DRC and Malawi.

After releasing the essential medicines request for quotation (RFQ) to eligible wholesalers in Q4 FY 2022, GHSC-PSM completed clarification and contracting discussion phases in Q1. The project held a post-RFQ Sourcing Governance Board meeting with GHSC-QA and USAID leadership and obtained approval to proceed with fixed-price awards with eligible wholesalers. Implementation of sourcing events under the new fixed-price awards began in Q1.

GHSC-PSM continued contract negotiations with the manufacturer of amphotericin B liposomal, a critical advanced HIV disease commodity. These negotiations will enable the project to procure the commodity at market access pricing, ensuring product availability at a reduced price for PEPFAR countries. Finally, the

[13] USAID 2022 Voluntary Medical Male Circumcision Fact Sheet

project received a Technical Directive Memorandum for an urgent procurement for DRC to avert stockouts. Sourcing began in Q1.

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.

Previously, the preferred treatment regimen was six or nine months of isoniazid. Presently, three months of weekly high-dose isoniazid and rifapentine (3HP) is the preferred PEPFAR regimen for TPT for adults and adolescents.

Three months of weekly high-dose 3HP

In Q1, GHSC-PSM delivered two orders of rifapentine/isoniazid 300 mg/300 mg fixed-dose combination (FDC) tablets to DRC and one order of rifapentine 150 mg to Haiti.

GHSC-PSM began procuring from a new supplier of 3HP in Q1. Working closely with GHSC-QA and USAID, the project communicated procurement and quality requirements to this second supplier. This will lead to lower costs and shorter manufacturing times, enabling the project to process orders and meet demand more quickly. The first order for this new supplier was placed in Q1 and is currently pending QA testing before shipping.

GHSC-PSM used multiple project data sources to monitor stock status and progress of the transition to 3HP for TPT-supported countries. Using the TPT Monthly Commodity Risk Report, the project identified a stockout risk in Haiti and quickly released orders to prevent it.

Isoniazid preventive therapy (IPT)

Most GHSC-PSM countries transitioned to 3HP in FY 2022. However, the project is working with countries that need assistance in implementing IPT with the procurement of isoniazid, particularly isoniazid 100 mg pediatric tablets. GHSC-PSM delivered orders of isoniazid tablets to Ethiopia and Nigeria in Q1.

Additional WHO-endorsed regimens

WHO endorsed three other shorter regimens apart from 3HP. These are one month of daily rifapentine plus isoniazid (1HP), three months of daily isoniazid plus rifampicin (3HR), and four months of daily rifampicin (4R). In Q1, GHSC-PSM delivered an order of 2,000 packs of 3HR 75/50 mg dispersible tablets to DRC. The availability of dispersible tablets of 3HR makes this an attractive option for children in contact with someone with active TB.

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 better management 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. The project identified six stockout risks in Q1 and resolved them through emergency orders, expedited shipment requests, and stock transfers.

Supporting the Second 95: Treatment

Increased private sector involvement in ARV delivery

GHSC-PSM is increasing private sector engagement in the ARV supply chain by expanding its D-term program, supplier delivery of ARVs under Delivered at Place (DAP) and Delivered Duty Paid (DDP) Incoterms. Thus far, the project has qualified 10 high-volume ARV countries as D-term priority countries: DRC, Eswatini, Haiti, Kenya, Mozambique, Nigeria, Tanzania, Uganda, Zambia, and Zimbabwe.

In Q1, GHSC-PSM completed an annual sourcing activity that qualified and set rates for six ARV suppliers and their freight partners to deliver products under D-Incoterms. The project also worked with GHSC-QA to establish a process for more ARV suppliers to become eligible to offer D-term services. In Q1, 64 of the 119 purchase order lines (54 percent) released were issued under DAP or DDP Incoterms.

Supplying TLD

Over the life of the project, GHSC-PSM has **delivered 79 million bottles of TLD[14] to 58 countries**.

This is enough to provide almost **15.6 million patient years of TLD treatment**.

As of Q1, GHSC-PSM has **delivered over 48.3 million bottles of TLD 90 to 29 countries.**

TLD and multi-month dispensing

To achieve HIV treatment goals, GHSC-PSM supports PEPFAR countries' transition to TLD, the preferred first-line ARV. Multi-month dispensing of TLD is also a high priority in the global fight against HIV. TLD is provided in bottles of 30, 90, and 180 tablets. Over the life of the project, GHSC-PSM has delivered more than 79 million bottles of TLD to 58 countries, including more than 48.3 million bottles of TLD 90, 28.3 million bottles of TLD 30, and 2.4 million bottles of TLD 180.

In Q1, GHSC-PSM delivered more than 2.38 million bottles of TLD to nine countries.[15] All deliveries were 90-count bottles of TLD except for Côte d'Ivoire orders, which were delivered in 180-count bottles.

[14] This total figure includes 48.3 million bottles of TLD 90, 28.3 million bottles of TLD 30, and 2.4 million bottles of TLD 180. For more information, see Section B1. HIV/AIDS, TLD and multi-month dispensing.
[15] In Q1, GHSC-PSM delivered TLD to Angola, Burundi, Cameroon, Côte d'Ivoire, Haiti, Honduras, Kenya, Nigeria, and Zimbabwe.

As TLD pricing became progressively competitive, GHSC-PSM orders for TLD were fulfilled through a spot bidding process or from GHSC-PSM RDCs. Now that the TLD market has matured, the project switched to an annual allocation strategy for TLD, concentrating on five suppliers to help them improve planning to ensure appropriate stock levels of active pharmaceutical ingredients (APIs). This strategy will also simplify the ordering process for GHSC-PSM and reduce order cycle time metrics.

The project also earmarked an equal portion of FY 2023 TLD demand for the GHSC-PSM vendor-managed solutions program. Three TLD suppliers will begin prepositioning TLD in quality-assured warehouses by the end of Q2. The sourcing for this strategy reached the best and final offer stage of the tender process in Q1.

Supplying dolutegravir (DTG) 10 mg

Over the life of the project, GHSC-PSM has **delivered 2.3 million bottles of DTG 10 mg to 23 countries.**

In Q1 FY 2023, the project **delivered 268,436 bottles of DTG 10 mg valued at $5.9 million to 20 countries.**

Pediatric ARVs

GHSC-PSM supports PEPFAR countries to transition children living with HIV to DTG 10 mg—the preferred integrase strand transfer inhibitor pediatric ARV. GHSC-PSM analyzes orders and supply plan data monthly to increase USAID and stakeholder visibility into the pace and progress of country transitions. In Q1, the project delivered 268,436 bottles of DTG 10 mg valued at $5.9 million to seven countries.[16] These deliveries will assist countries in initiating or expanding DTG 10 mg transitions in line with their approved transition plans.

In Q1, GHSC-PSM also began working with USAID to plan for introduction of a triple fixed-dose combination (FDC) of ABC/3TC/DTG 60/30/5 mg (pALD). This product represents a "soft" transition since it has the same APIs found in current-use products, ABC/3TC 120/60 and DTG 10 mg. PEPFAR and the global buying community agreed that manufacturers should prioritize a 180-count bottle presentation. The project expects the product will be available in Q4 FY 2023. To assist with this transition, GHSC-PSM created a tool to help visualize the estimated demand for each product to ensure sufficient stock before the transition and prevent wastage. The project will pilot this tool in Q2.

In Q1, USAID/Ethiopia alerted GHSC-PSM of an imminent nevirapine stockout resulting from a delayed shipment from another source. The project analyzed country stock and order data and identified Cameroon as having an order ready for shipment and sufficient stock in-country. GHSC-PSM coordinated with the USAID Missions and Ministries of Health in Cameroon and Ethiopia to divert 12,000 bottles of Cameroon's planned nevirapine order to Ethiopia.

The project worked closely with USAID, suppliers, and logistics providers to expedite the delivery and clearance of nevirapine to Ethiopia within eight days. This process typically takes a minimum of 21 days,

[16] In Q1, the project delivered DTG 10 mg to Cameroon, El Salvador, Kenya, Nigeria, Tanzania, Uganda, and Zambia.

assuming stock availability. On December 14, GHSC-PSM oversaw successful delivery of the 12,000 bottles of nevirapine suspension to the Ethiopian Pharmaceutical Supply Agency. The collaboration and quick action on this emergency order prevented a stockout, ensuring HIV-exposed infants in Ethiopia receive an uninterrupted supply of prophylaxis.

Supporting the Third 95: Viral Load Testing

In FY 2022, GHSC-PSM implemented a new laboratory strategy designed to further improve the availability and visibility of laboratory services and commodities. The strategy focuses on strengthening and integrating data systems and collaborating with stakeholders through technical support and project coordination. 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 published in Beyond Diagnostic Network Optimization: A Network Approach to Strengthening and Scaling Up Laboratory Services. The components of this multi-pronged approach include diagnostic network optimization (DNO), performance management, improvement of sample transport referral networks, and accurate forecasting and supply planning coupled with stable cost-effective procurement and service agreements inclusive of key performance indicator (KPI) monitoring.

Implementing viral load awards

Preliminary data analysis shows that in Q1, GHSC-PSM delivered 1.9 million viral load/early infant diagnosis (VL/EID) tests, saving approximately $4.8 million compared to 2019 pre-global request for proposal (RFP) prices under the terms of the global service-level agreements. Total expenditure on these orders in Q1 was approximately $22.2 million. A total of 18 countries have now transitioned to all-inclusive pricing, and cumulative PEPFAR savings since 2020 compared with pre-RFP prices are more than $98 million.

In Q1, the project also completed developing all five basic modules of the Global VL Dashboard, and began to focus on additional functionalities and improvements based on user feedback. To help current and future users of the dashboard, GHSC-PSM developed five user guides, one for each module. These guides will be shared with internal and external stakeholders in Q2, along with other communication materials.

The pilot vendor-managed inventory (VMI) activity for VL commodities launched by the project in Q4 FY 2022 in one Mozambican laboratory will continue through Q2 FY 2023. GHSC-PSM will assess costs and implementation lessons from the pilot before rolling out the VMI solution throughout Mozambique to help streamline inventory management and order fulfillment. Lessons learned so far include ensuring that laboratories are not overstocked with legacy inventory ordered outside the pilot before going live. Preparations to launch a similar pilot VMI activity in Nigeria continued in Q1. The project is collaborating with USAID/Washington on a VMI Orientation Guide, which will be ready in Q3 for USAID Missions interested in this VMI solution.

GHSC-PSM is working with the manufacturer on transitioning from the soon-to-be discontinued COBAS AmpliPrep/COBAS TaqMan, or CAP/CTM, laboratory equipment to the new product series, which will

offer continued manufacturer support. Transition activities for this hepatitis C virus testing instrument are on track to be completed by the end of Q1 FY 2024.

Extending the global RFP for viral load and EID

GHSC-PSM continued in Q1 with the Wave-2 RFP process. This seeks to establish fair pricing for VL and EID testing commodities, create formal service-level agreements, and enable expanded instrument connectivity for the remaining 42 PEPFAR-supported countries not included in Wave 1.[17] The project conducted several rounds of negotiations with the global VL manufacturers who submitted their bids, with contracts expected to be awarded in Q2.

In Q1, GHSC-PSM worked with national laboratory technical working groups and the global PEPFAR team to finalize next year's VL/EID volume commitments with the global manufacturers—globally and for the largest PEPFAR-supported countries. This will determine PEPFAR pricing for calendar year 2023.

Procuring viral load and laboratory supplies

In Q1, GHSC-PSM delivered VL/EID reagents and consumables to Wave-1 and Wave-2 countries and other countries, such as Burkina Faso, Guatemala, and Nepal. This was the first time the project supplied reagents and consumables to Nepal. The project evaluated prices on a case-by-case basis (ceiling prices for these countries will be established in Wave 2).

GHSC-PSM continued to supply the new standardized dried blood spot (DBS) kits to Eswatini, Mozambique, Senegal, and Zambia in Q1. Senegal received DBS kits for the first time through GHSC-PSM. A supply issue was found for one of the (optional) components of the kit, the capillary tube. The specifications allow for only one kind of tube, currently manufactured by a company with serious capacity issues and volatile pricing. USAID and GHSC-QA approved an alternative capillary tube to address the supply issue for pending orders while reviewing the specifications to avoid such fragile sole-source situations.

GHSC-PSM successfully delivered shipments of rapid diagnostic tests (RDTs) for TB, syphilis, and Hepatitis B and C to Ukraine in Q1 using an expedited process. From the moment the RDTs were made available from the vendors, the waiver/importation process, transportation and importation took one month, instead of the standard three to four months.

Forecasting and supply planning

Accurate forecasting and supply planning (FASP) is key to a successful supply chain. As of Q1, GHSC-PSM had trained 31 countries on using the Quantification Analytics Tool (QAT) to submit quarterly supply plans to the project. The QAT forecasting module, which went live in FY 2022, forecasts demand for laboratory commodities such as products required for VL and EID testing. In FY 2023, the project will continue to roll out the module and work with stakeholders. For general information on QAT and the project's work in FASP, see section C2: Systems Strengthening Technical Assistance.

[17] The original six Wave-1 countries were Kenya, Mozambique, Nigeria, Tanzania, Uganda, and Zambia.

In Q1, GHSC-PSM worked with the Zambia Ministry of Health (MOH) as part of its HIV and malaria quantification workshops in training program managers to optimize commodity procurement and delivery schedules, monitor the stock status of products, and share data with key stakeholders. The project also provided remote training on the QAT forecasting module in preparation for upcoming HIV and malaria commodity quantification workshops in Burundi.

GHSC-PSM worked with USAID and PEPFAR to streamline the Country Operational Plan (COP) process in Q1 to allow countries to import required data directly from QAT into COP tools.

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 GIS visualization of data, as well as forecasting and supply planning.

GHSC-PSM leads DNO with multiple stakeholders—including USAID, CDC, ministries of health, other implementing partners, and donors. Once all input data are collected and cleaned, the project uses two tools—OptiDx and supplemental interactive maps developed using the Python Library Folium. Software applications like OptiDx—developed by Coupa™ in collaboration with USAID and FIND[18]—can increase coverage and reduce costs by generating models and potential scenarios that improve visibility into network performance and create opportunities to optimize laboratory equipment placement and multi-disease integrated testing.

The interactive maps visualize networks, including locations of health facilities, laboratories, and hubs, referral linkages, distances between facilities, testing volumes, machine capacity and utilization, and testing demand by administrative area. These maps have two main uses: first, at the initial stages of the DNO, they can present the data collected to validate accuracy before loading the data into OptiDx and identifying opportunities and optimization. Second, maps can highlight elements of the testing scenarios and the impact of changes on the diagnostic network in the final stages of analysis. Stakeholders can then review the scenarios and develop an operational plan that considers how the proposed changes to the lab network affect the budget, operations, human resources, and logistics.

In FY 2023, GHSC-PSM is improving diagnostic networks through detailed analysis using OptiDx in **Burundi**, **Ghana,** and **Uganda.**

The DNO activities conducted in Q1 include:

- In **Burundi,** the project presented diagnostic network data to stakeholders and discussed DNO objectives, constraints, and potential scenarios to prepare for an FY 2023 DNO workshop. GHSC-PSM completed data collation and reviewed the data together with stakeholders in preparation for establishing the network baseline.

[18] See https://www.finddx.org/about/

- **In Ghana**, stakeholders signed off on the network baseline and agreed on scenario constraints, allowing the project to begin building the baseline and scenario models in OptiDx for an FY 2023 DNO workshop.
- In **Uganda,** the project and regional stakeholders reviewed the DNO activity outcomes and began to develop an operational plan for FY 2023 implementation.

GHSC-PSM is finalizing its review of the instrument procurement questionnaire and developing standard operating procedures (SOPs) outlining requirements for instrument procurement. The project anticipates a Q3 rollout.

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 each month for more than 108 HIV medicines and commodities at the central, regional, and facility levels in 22 PEPFAR countries to identify stock imbalances across the globe. Data generated assists in monitoring commodity stock risks and progress made toward specific initiatives, such as the success of the TLD and MMD transition, the transition to optimal PrEP and TPT regimens, and scale-up of VL/EID programs. These reports help mitigate stock imbalances and avoid rationing and waste by raising awareness, identifying opportunities to shift GHSC-PSM shipments, and supporting redistribution within a country.

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 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 Q1, GHSC-PSM identified and reported monthly on 67 HIV commodity stockout risks across 17 countries. The most common causes of stockout risks were funding gaps (unfunded or underfunded commodities, or delays in release of funding), late delivery (host government–funded orders), supply constraints due to reduced manufacturing capacity, and late placement of USAID-funded orders). The products most commonly reported as stockout risks were VL/EID (21 risks), adult ARVs (14 risks), and HIV RTKs (11 risks).

Most stockout risks were mitigated through active donor and supplier coordination and bilateral data sharing. At times, GHSC-PSM supported stockout risk mitigations, including facilitating inter-country transfers, and emergency order procurement. GHSC-PSM reported nine commodity stockout risks resolved during the same period, with the most common resolution noted as deliveries by USAID and other donors.

Country Support

The HIV/AIDS task order funded supply chain systems strengthening in 28 countries in Q1 FY 2023.

In **Botswana**, GHSC-PSM delivered two presentations at the 8th biennial Botswana International HIV Conference organized by the Botswana HIV Clinicians Society at Gaborone International Conference Centre, November 8–11, 2022. The theme of the conference was "New Generation, New Opportunities: Building Resilience Within Our Communities." The project presented on "Maintaining Resilient Supply Chain Systems for Health Commodities" and "A Step Towards End-to-End Supply Chain Data Visibility: Supply Chain Dashboard and COVAX Tracker." The presentations showcased GHSC-PSM's key achievements, shared key lessons from the Emergency Supply Chain playbook implementation, and conveyed strategic recommendations to achieve end-to-end supply chain data visibility in Botswana. The conference was attended by local and international participants including HIV clinicians, program managers, civil society organizations, activists, non-government organizations, educational and research institutions, stakeholders from the private and public sectors, development partners, and donors.

Also in **Botswana**, GHSC-PSM began rolling out the Supply Chain Dashboard in Q1 for use by District Health Management Teams (DHMTs) following its approval by the Ministry of Health. This will ensure increased supply chain data visibility and informed, evidence-based decision making across different levels of the supply chain. By the end of Q1, the project had trained 158 DHMT officers on the dashboard, including DHMT leadership, pharmacists, lab technicians, and nursing staff. The project also continued training on the COVAX Tracker with training for 32 DHMT officers at Kgatleng DHMT, improving stock management and quality of supply chain data. Both dashboard and COVAX Tracker trainings will continue in Q2.

In **Burma**, GHSC-PSM provided technical assistance and training to 50 National AIDS Program (NAP) staff to help improve the distribution of HIV commodities from the NAP regional warehouse to district-level service delivery points. The program supported the implementation of a forecasting and stock monitoring tool and a complementary PowerBI-linked mSupply requisition form for ARVs. The Excel-based forecasting and stock monitoring tool helps project demand and flags stockout risks.

In **Burundi**, GHSC-PSM collaborated with the PNLS/IST (National AIDS Control Program) on in-service training workshops for lab technicians in Gitega and Ngozi Provinces. These workshops focused on improving standard operating procedures in VL and EID laboratories to ensure the quality of clinical specimens at all steps of the sampling process, from collection to analysis. Forty-three lab technicians were trained on HIV early neonatal diagnosis and HIV viral load measurement using the GeneXpert platform, preventive maintenance of the GeneXpert instrument, and interoperability between SIDAInfo (an electronic medical record designed for clients living with HIV) and the IBIPIMO dashboard. Named after the Kirundi word for "analysis," the IBIPIMO dashboard is used by laboratories to share VL/EID test results in real time.

In **El Salvador**, GHSC-PSM hosted 11 training sessions with 110 warehouse and supply chain staff as part of the MOH's Productive Warehouse Training Month. Topics included operational efficiency, cold chain operations, occupational health and safety, and technological innovation for warehouses. Strengthening the

capacity of MOH warehouse and supply chain staff improves the performance of the health supply chain and the level of service to patients in the country's national hospital network.

In **Ethiopia**, the MOH's 2014 (Julian calendar) annual report showed that the country has achieved 96 percent viral suppression for those ART clients tested. The report highlighted several factors for this success, including product availability at testing facilities, overall improvement in data quality, and inventory management and reporting at testing sites. Ethiopia has shown its commitment to achieving 95-95-95 by incorporating this target into its national strategic plan. An uninterrupted supply of VL/EID commodities is crucial to monitor the status of viral suppression for people on ART. VL/EID products were previously supplied using the generic logistics management information system (LMIS), which led to product wastage, stockouts, and poor data quality for decision making in resupplying testing sites. GHSC-PSM provided technical assistance to the Ethiopian Public Health Institute and the Ethiopian Pharmaceuticals Supply Services (EPSS) to improve storage, inventory management, and distribution of the products to branch warehouses and to testing facilities. GHSC-PSM worked with EPSS to develop an Excel-based requesting and reporting format with a built-in data validation system to be used by VL/EID testing sites to address data quality issues of the LMIS. The newly developed system contributed to a significant improvement in data quality and reporting accuracy and decreased the stockout rate from 22 percent to 4 percent for major VL tracer reagents as of November 30, 2022.

In **Lesotho**, GHSC-PSM is building sustainability within the health supply chain system through a peer-to-peer mentoring program with support from the Global Fund. The project helped the Supply Chain Management Directorate at the MOH to develop a framework within which the district logistics officers from 10 districts can continue to support, learn, and share supply chain best practices among supply chain staff between official visits from project and Directorate staff.

In **Nigeria**, the introduction of QAT is transforming the forecasting and supply planning process by allowing for greater integration and visibility for supply chain partners. In FY 2022, four GHSC-PSM staff attended a training of trainers workshop in Lusaka, Zambia on QAT. The trainees returned to Nigeria and trained other members of the National HIV Quantification team. Having been equipped to use QAT, the National HIV Quantification team organized a national semi-annual HIV products supply plan review meeting in Q1 and, for the first time, QAT was used to develop an 18-month (October 2022–March 2024) HIV commodity supply plan for Nigeria. The tool will contribute to Nigeria's efforts to reduce stockouts and improve overall supply chain efficiencies by decreasing inventory and storage costs over time.

"This is the first time we're using the QAT for our supply plan review. Previously, we would spend extra hours at the end of each supply planning review meeting calculating the commodities and funding requirements. However, using the QAT, we were able to finalize and agree on key output by the fourth day of our meeting," Uzoma Atu, the Chief Pharmacist at National AIDS and STDs Control Programme.

B2. Malaria

Delivered enough artemisinin-based combination therapies (ACTs) to treat more than **482.6 million malaria infections over the life of the project**, including **14.3 million** in Q1.

A total of 24 countries[19] are receiving health supply chain systems strengthening support with malaria funding in FY 2023.

A total of **22 countries procured malaria medicines and commodities** in Q1, **31 over the life of the project.**

Delivered enough long-lasting insecticide-treated nets (LLINs) to provide **protection from malaria for more than 19.7 million people in Q1 and 527.8 million people over the life of the project**.

GHSC-PSM's activities are focused on supporting achievement of the five goals outlined in PMI's 2021–2026 strategy: reaching the unreached, strengthening community health systems, keeping malaria services resilient, promoting innovation, leading malaria elimination, and supporting PMI stockout reduction initiatives in malaria task order countries.

Commodity Sourcing, Procurement, and Delivery

GHSC-PSM assesses the sources of critical commodities and market conditions—including key starting materials (KSMs) and APIs. The project uses these assessments to develop strategies that ensure product availability and accessibility.

Commodity risk profiles

In Q1, GHSC-PSM finalized a method transfer for a second rectal artesunate suppository testing lab, improving testing agility. A rectal artesunate supplier executed two production runs in Q1 FY 2023 to fulfill GHSC-PSM country demand. The supplier has indicated its plans for three additional production runs in calendar year 2023, in line with the needs of GHSC-PSM countries and other major global procurers. An overstock of artesunate injectable in Nigeria enabled the project to redirect an already produced order to Senegal in Q1 to avoid a stockout.

In Q1, GHSC-PSM noted a change with one supplier's artemether + lumefantrine (AL) hard tablet assay method and assessed whether this change would cause order delays, particularly for Nigeria. The project

[19] Angola, Burkina Faso, Burma, Burundi, Cambodia, Cameroon, Ethiopia, Ghana, Guinea, Kenya (TO5), Laos, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sierra Leone, Thailand, Uganda, Zambia, Zimbabwe

determined that this would not be an issue. Also, GHSC-PSM transferred AL products from Zimbabwe, which identified an overstock due to lower consumption trends, to Senegal and Zambia, which were at risk of stockouts.

The project communicates frequently with all seasonal malaria chemoprevention (SMC) manufacturers on their production dates to align with countries' plans for upcoming SMC campaigns. In Q1, a supplier received official WHO prequalification on sulfadoxine-pyrimethamine + amodiaquine (SPAQ) for SMC, expanding the base from two to three eligible suppliers for 2024 SMC campaigns. In Q1, GHSC-PSM indicated that it was satisfied with the corrective and preventive actions implemented by another SPAQ supplier in Q4 FY 2022, again qualifying the company for future GHSC-PSM procurements.

In Q1,GHSC-PSM addressed multiple changes in sulfadoxine + pyrimethamine (SP) orders. Liberia delayed their original SP order to Q4 FY 2023, so the project redirected the volume to Burundi. Burundi subsequently canceled the redirection, hence the quantity was transferred to Mali. While this transfer prevented a stockout, Mali placed an additional order to meet its overall need.

In response to country preferences for round-tip lancets and inverted-cup accessories for malaria rapid diagnostic tests (mRDTs), three GHSC-PSM suppliers officially submitted change requests for their accessories to WHO, which are awaiting approval. One mRDT supplier delayed orders for Niger and Benin, citing an increase in external demand. A separate supplier delayed Angola, Burundi, and Senegal's orders by a month due to packaging material delays. None of the countries are at risk of stockout.

In Q4, lab orders for Nigeria were at different processing stages due to extensive pre-inspection and import requirements. In Q1, the orders had moved through the approval process (GHSC-PSM, Nigeria customs, etc.) and were pending pick-up. The project is closely monitoring new orders to be fulfilled from China at the start of the second quarter, given historical challenges surrounding the Lunar New Year, expected to be further complicated by China's border opening after three years of closure and an increase in COVID-19 cases.

Strategic sourcing

In Q1, GHSC-PSM strategic sourcing activities for malaria commodities included:

- **Finalizing a strategic tender for LLINs**. The project re-solicits offers annually to ensure that prices and other supplier offer aspects remain current, such as registration status, packaging configuration, and existing product portfolio. In Q4 FY 2022, GHSC-PSM closed the strategic tender for LLINs, and in Q1 FY 2023, the project finalized the evaluation of offers received and allocated target volumes to awarded suppliers. This will facilitate implementation of the FY 2023 sourcing strategy.

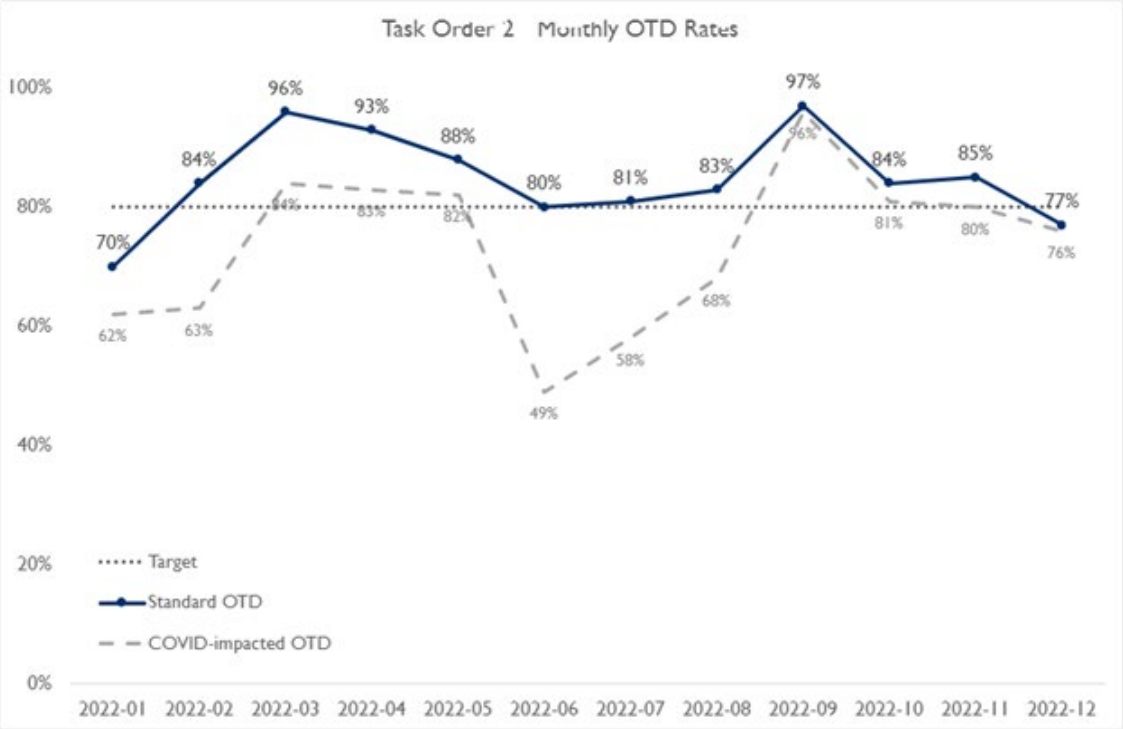
- **Engaging suppliers.** The project engages in regular correspondence with its suppliers on topics such as strategic objectives, operational status, risks, and opportunities. In Q1, GHSC-PSM hosted in-person and virtual meetings with LLIN and mRDT suppliers to review the ongoing business and share information. Also, delegates from the project met with pharmaceutical suppliers at the Convention on Pharmaceutical Ingredients (CPhI). Discussion topics included strategic priorities, such as supply security of KSMs and opportunities for regionalization of pharmaceutical manufacturing.

Procurement and deliveries

In Q1, GHSC-PSM procured malaria commodities for 22 countries[20] with a total value of $37 million.

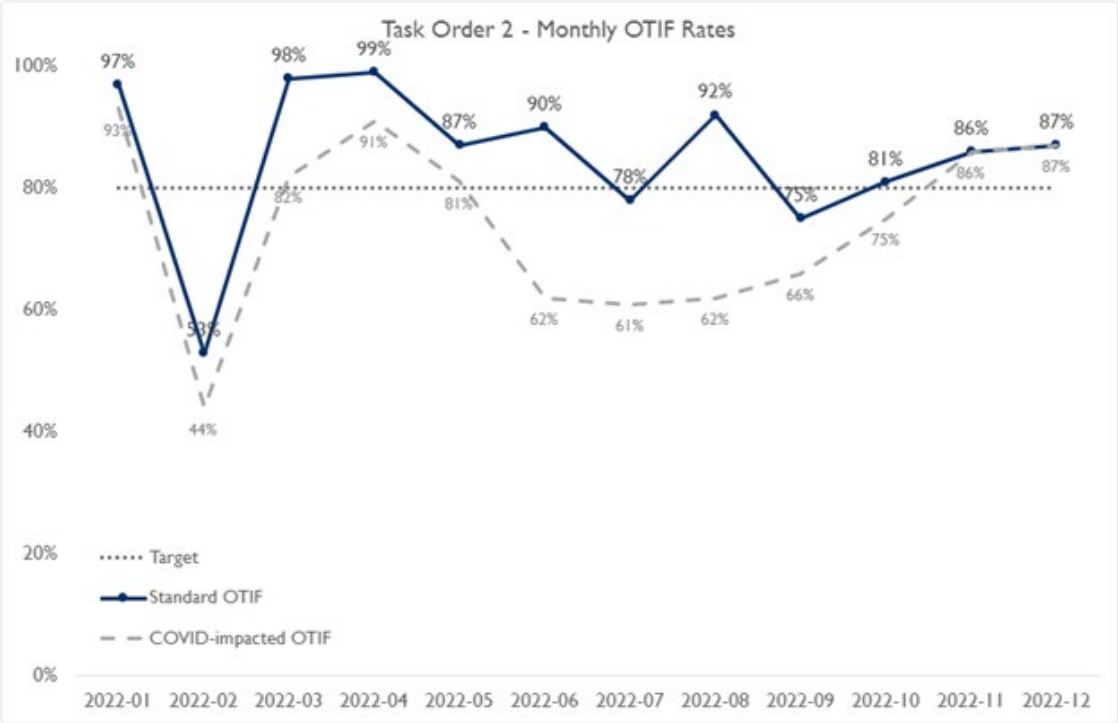
OTD and OTIF. The timeliness of GHSC-PSM deliveries remained consistent and robust for standard OTD and OTIF. In Q1, the OTD rate for malaria commodities was 82 percent (79 percent for COVID-impacted) (see Exhibit 6). The OTIF rate in Q1 was 84 percent (81 percent for COVID-impacted). This was despite the high degree of uncertainty and the extreme volatility in global supply chains caused by the pandemic and other shocks.

Exhibit 6. Malaria Commodities, OTD



[20] GHSC-PSM procured malaria commodities for the following countries: AFRICA: Angola, Burundi, Benin, Burkina Faso, Cameroon, DRC, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Senegal, Tanzania, Uganda, Zambia, ASIA: Thailand.

Exhibit 7. Malaria Commodities, OTIF



Global sourcing collaboration

GHSC-PSM participates in the Malaria Pharma Task Force,[21] mRDT Task Force,[22] Indoor Residual Spraying/Insecticide-treated Nets (IRS/ITNs) Task Force,[23] and LLIN donor collaboration call.[24] These groups provide valuable forums for exchanging information on market risks and promoting 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 plays a continuous role in the Malaria Pharma Task Force and KSM/API working group, which increases visibility and identifies and mitigates risks related to the upstream supply chains of finished malaria pharmaceutical products.

In Q1, the mRDT Task Force discussed recent false-positive complaints, including enhancing complaint reporting mechanisms in PMI countries.

[21] Pharma Task Force members include Clinton Health Access Initiative (CHAI), Bill & Melinda Gates Foundation (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 WHO.

[22] 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.

[23] IRS/ITNs Task Force members include the Against Malaria Foundation (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.

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

Proactive Procurement Strategy and Vendor Stored Inventory

GHSC-PSM applies a proactive procurement strategy for essential malaria commodities, such as SPAQ and AL. The project designs strategies to rapidly move commodities by leveraging a rotating emergency loan fund to secure large volumes of supplier production capacity in markets where the supply is particularly constrained. The project places orders based on data-driven demand signals, which secures production capacity earlier in the ordering process—often in advance of receiving orders.

Proactive procurement strategies ensure access to critical commodities when countries need them, reduce fulfillment lead times, and hedge against uncertainty and disruption in these markets. These strategies are partially informed by the use of demand data—derived from quarterly country supply plans and the monthly Procurement Planning and Monitoring Report for malaria (PPMRm)—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 of favorable market conditions (favorable pricing, etc.).

In Q1, GHSC-PSM began implementing a VSI strategy. The project negotiated VSI and completed contract negotiations with ACT suppliers of AL products; this is the first negotiation of VSI for the malaria task order. As a result the project placed an order for 8,223,840 20/120mg AL hard tablets. These ACTs will be deployed to countries that place orders with shorter requested delivery dates than the project's average lead times or to mitigate emergency stockout risks.

Quality Assurance

Implementing strategies and innovations

In Q1 FY 2023, the project participated in the 2022 consultation on the WHO Guideline for Prequalification of Insecticide-treated Nets (ITNs) in Geneva (Consultation - WHO Guideline for Prequalification of ITNs | WHO - Prequalification of Medical Products (IVDs, Medicines, Vaccines and Immunization Devices, Vector Control.) This meeting brought together stakeholders in the ITN market, including ITN procurers, manufacturers and suppliers, regulatory agencies, laboratories, and researchers.

Participants provided feedback on the draft WHO Guideline for Prequalification of ITNs. These guidelines target manufacturing and procurement agencies, establishing data requirements that are predictive of the field performance of ITNs. Steering groups will continue to work on various aspects of the guideline during biweekly meetings.

Fostering quality in commodities

In Q1 FY 2023, GHSC-PSM performed enhanced QA/QC activities to ensure that mRDTs from new suppliers met quality requirements for procurement by the project. These mRDTs were approved by the Global Fund's expert review panel but are undergoing WHO prequalification evaluation. The project performed batch record review in addition to 100 percent lot testing to confirm that the mRDTs met quality requirements for procurement by the project. The mRDTs were a special request from Ethiopia, which is experiencing histidine-rich protein II gene deletion, requiring parasite lactate dehydrogenase mRDTs. GHSC-PSM reviewed the batch records and the mRDT laboratory QC testing. Through these QC activities, GHSC-PSM cleared the way for procurement and delivery of quality mRDTs for Ethiopia.

The project investigated high false-positive rate complaints from Malawi regarding a particular mRDT brand. PMI requested further testing—the acceptable positive rate is equal to or less than 10 percent. GHSC-PSM collected samples from four locations within Malawi and sent them to the supplier and a WHO-prequalified lab for further testing. GHSC-PSM documented the storage conditions of the mRDTs as additional data points for the investigation. The project is monitoring this complaint while awaiting the test results from the laboratory and supplier. GHSC-PSM will make a final recommendation to PMI based on the quality of mRDTs once the test results are reviewed and available.

Promotion of Supply Chain Market Health

GHSC-PSM ensures QC testing efficiency and capacity for key products by expanding the number of testing labs. In Q1, the project completed a method transfer or method verifications for five products:

Product name	Activity Type
Artesunate Injectable	Method Transfer
Artesunate+Amodiaquine	Method Transfer
Artesunate suppositories	Method Transfer
Primaquine 7.5 mg tablets	Method Verification
Chloroquine 250mg	Method Verification

Product Review for Eligibility

Quality reviews facilitate the addition of products to the Restricted Commodity Waiver list governed by USAID Automated Directives System 312, making the product eligible for procurement. In Q1, GHSC-PSM reviewed two products (see table below).

Product category	Product subcategory	Product detail
mRDTs	mRDTs	P.f/P.v (10 tests/kit)
mRDTs	mRDTs	Pf HRP-II (10 and 25 tests/kit)

Key performance indicators
GHSC-PSM:

- Completed 100 percent of QA/QC processes within the required lead times, well above the target of 80 percent.
- In Q1, out-of-specification findings dropped to 0 percent of batches tested (below the target of one percent).
- In Q1, cost savings derived from randomized testing, instead of testing all batches, totaled $25,785.

Adoption of Standard-based Identification, Barcoding, and Data Sharing

In Q1, suppliers complied with identification, barcoding, and data-sharing requirements for procured products. GHSC-PSM conducted a phased implementation grounded in GS1 healthcare standards, creating an enabling environment for data exchange and visibility. Highlights and milestones of these standards in Q1 are included in Section C.

Priority Setting and Redirection of Orders

GHSC-PSM works with USAID to address country needs and market constraints, prioritize orders based on need, and conduct commodity order transfers to improve stock status. In Q1, the project:

- Initiated the transfer of orders from **Zimbabwe**, which had an overstock of all four presentations of AL 20/120mg, to **Senegal** and **Zambia** to prevent a stockout.
- Delivered 5,759 packs of AL 20/120mg 6x4s to **Liberia** from the RDC stockpile to prevent a stockout.

In Q1, 29 countries submitted their 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, as well as facilitating the review of forecasts and supply plans to optimize procurements. Based on PPMRm data, GHSC-PSM:

- Identified and mitigated stockout risks and took actions to expedite PMI and Global Fund shipments.
    - Expedited a PMI shipment for **Zambia**, that arrived in Q1 FY 2023, to prevent stockout of artesunate injectable 60 mg.
    - Sought approval from **Ghana**'s USAID Mission to initiate procurement of an additional order of the product to prevent a stockout of artesunate injectable 60 mg.

Stockout Reduction Initiative

In FY 2021, GHSC-PSM began implementing the Stockout Reduction Initiative with health facilities in 20 countries.[25] In FY 2022, the project reviewed the Stockout Reduction Playbook to identify cross-cutting guidance for health facilities and to provide specific guidance for community health workers (CHWs). In Q1 FY 2023, GHSC-PSM finalized updates and disseminated the playbook to all PMI-supported countries, including Kenya under Task Order 5 (TO5), and six non-field office countries.

Malaria Community Supply Chain Advocacy Paper and Landscape Analysis

In FY 2022, GHSC-PSM began drafting an advocacy paper to raise awareness of the importance of considering the community-level needs in supply chain strategies. The advocacy paper encourages the inclusion of community supply chain practices and highlights some best practices for long-term investment, targeting community health facilities and CHWs. In Q1 FY 2023, GHSC-PSM submitted the paper to PMI for review.

In FY 2022, GHSC-PSM conducted a malaria community supply chain landscape analysis survey to identify community supply chain systems in PMI-supported countries and understand how these systems work. In Q4 FY 2022, the project reviewed, analyzed, and discussed the survey results received from 55 key informants in 27 countries with PMI. In Q1 FY 2023, GHSC-PSM submitted the results to PMI for review.

Development of a Cost-Benefit Analysis Tool for Low Malaria Endemic Settings

Some low-malaria-endemic countries are concerned that low consumption of malaria products could result in product expiries and additional expenses incurred from product redistributions between facilities. To address this, GHSC-PSM is developing a cost-benefit tool to analyze and guide malaria strategy and operations in low-malaria-endemic countries and optimize supply chain management. From Q4 FY 2022 through Q1 FY 2023, the project interviewed GHSC-PSM staff in Cambodia, Ethiopia, and Thailand on supply chain operations to gauge challenges in countries that are considered to be in malaria pre-elimination (Ethiopia) and elimination (Cambodia and Thailand) stages as part of the tool development. GHSC-PSM will use the information collected in Q1 to develop the cost-benefit analysis tool.

Malaria Commodities Accountability Initiative

In Q1, GHSC-PSM drafted a guidebook for the malaria product accountability tool, which is under PMI review. This tool helps countries to identify discrepancies between the total number of malaria cases reported in District Health Information Systems 2 (DHIS2) and the quantity of malaria products consumed according to the LMIS during reporting periods. The tool also helps countries identify issues and prompt them to conduct root-cause analysis and develop interventions to improve accountability.

LLIN Distribution Support

In Q1, GHSC-PSM delivered 9.87 million LLINs to countries for distribution as a malaria prevention measure (Exhibit 8). Through this initiative, communities received nets before the rainy season. 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

[25] Angola, Burkina Faso, Burundi, Cambodia, Cameroon, Ethiopia, Ghana, Guinea, Liberia, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sierra Leone, Thailand, Uganda, Zambia, Zimbabwe

distribution. In Q1, nine countries[26] prepared for or launched large-scale LLIN mass distribution campaigns or school distribution campaigns.

Exhibit 8. Quantity of LLINs Delivered to Countries in Q1 FY 2023

Country	Number of LLINs Delivered
Benin	557,103
Congo DRC	1,117,400
Kenya	924,000
Laos	70,000
Malawi	333,150
Nigeria	4,762,000
Tanzania	578,968
Uganda	584,674
Zambia	600,000
Zimbabwe	350,000
Total	9,877,295

In Q1, GHSC-PSM supported LLIN distribution activities:

- In **Ghana**, GHSC-PSM, National Malaria Elimination Program (NMEP), and Vector Link conducted an assessment to identify LLIN last-mile distribution bottlenecks in the Volta, Oti, and Eastern Regions. As part of the assessment, GHSC-PSM visited two regional medical stores (RMSs), 54 service delivery points, and 16 district health directorates (DHDs). The assessment found that the current last-mile distribution strategy, through which NMEP transported nets from the central level directly to district warehouses across the country without passing through the RMSs, resulted in long waiting times due to limited resources, limited district warehouse storage space for LLINs, and travel costs incurred by health facilities to pick up nets. To address this issue, GHSC-PSM introduced LLIN last-mile delivery (LLIN-LMD) in some regions by integrating the RMSs into the LLIN distribution chain to the last mile. Based on the assessment findings and lessons learned from a similar pilot that took place in the Western region, GHSC-PSM and NMEP will identify and link private health facilities that provide antenatal and childcare services to RMSs to ensure consistent supply in these facilities and will redistribute surplus nets to facilities with inadequate stock. The DHDs are sensitizing the health facilities on the LLIN-LMD integration for a smooth transition.
- In **Liberia**, GHSC-PSM, along with the National Malaria Control Program, Ministry of Health, Ministry of Education, USAID, and PMI, developed a school distribution strategy for LLINs, applying best practices and lessons learned from an earlier round of school-based LLIN

[26] Ghana, Angola, Burundi, Ethiopia, Liberia, Niger, Rwanda, Zambia, Zimbabwe

distribution in Montserrado County. The group worked with county and district health officers, including district education officers and environmental protection representatives, to select schools in areas with low net access and high numbers of school enrollment.

- In **Zambia**, GHSC-PSM worked with the National Malaria Elimination Center (NMEC), Against Malaria Foundation (AMF), Evidence for Health (E4H), PAMO Plus, and VectorLink, to plan the 2023 LLIN mass campaign. The project will contribute warehousing and distribution services for the campaign. In Q1, GHSC-PSM drafted a request for information (RFI) for 3PL warehousing and distribution contracts. The project will also be responsible for post-LLIN campaign monitoring in six AMF provinces and three rural districts of the Copperbelt province.

Country Support

In Q1 FY 2023, GHSC-PSM supported the strengthening of supply chain systems for malaria medicines and commodities in 24 countries.[27]

In **Ethiopia**, GHC-PSM designed and implemented subnational supply chain network initiatives in the West Harerge, Gamo, and South Wollo zones, comprising 264 health facilities in 59 woredas. This initiative supports seamless subnational health supply chain operations networks to create high-performing sites and an uninterrupted supply of health products at health facilities. GHSC-PSM provided a reporting and requisition form (RRF) and pre-refill analysis as well as guidance on storage improvement, data triangulation, and stock status analysis to the zonal health departments and woreda health office logistics officers to strengthen their monitoring and evaluation (M&E) systems. The project undertook the following key activities in the subnational model zones during Q1 FY 2023:

- Worked with zonal and woreda-level supervisors and provided comprehensive on-the-job training (OJT), such as conducting joint-level problem solving, providing guidance on stock redistributions, and giving regular feedback on data quality issues and anti-malarial commodity shortages to health facilities. The project provided OJT at 255 health facilities out of 264 facilities—92 in West Harerge (100 percent of health facilities), 57 in the Gamo zone (100 percent of health facilities), and 106 in South Wollo (92 percent of health facilities).
- In collaboration with West Harerge and Gamo zones, GHSC-PSM compared the number of malaria cases to consumption quantities of the Health Management Information System (HMIS) and the LMIS. The comparison revealed significant discrepancies in 13 health facilities. The project worked with the logistics officers at these facilities to analyze the root causes of these discrepancies. We identified issues such as poor record keeping, missing dispensing units in RRFs, and poor data quality in the Health Post Reporting and Resupply report. GHSC-PSM presented the discrepancies and the root cause analysis report to health facility management for intervention.
- Improved supervision capacity for 50 of the 59 woredas with model sites by mentoring woreda logistics officers on RRF pre-refill analysis; providing facility-level storage improvement; carrying out a data triangulation exercise; implementing stock transfer mechanisms; and using data quality

[27] GHSC-PSM provided technical assistance to countries with malaria funding: AFRICA: Angola, Burkina Faso, Burundi, Cameroon, Ethiopia, Kenya (TO5), Ghana, Guinea, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Sierra Leone, Uganda, Zambia, and Zimbabwe; ASIA: Burma, Cambodia, Laos, and Thailand

monitoring. As a result, the woredas started to monitor and supervise facility RRF data quality and exercise stock transfer mechanisms for their catchment health facilities when appropriate.

In **Mali**, GHSC-PSM drafted the M&E component and finalized the logical framework of the Pharmacie Populaire du Mali (PPM) 2021–2025 strategic plan. The project worked with PPM to identify 12 KPIs for M&E. GHSC-PSM held an internal validation meeting with the PPM executive team, followed by a large stakeholder workshop with more than 20 national and 15 international organizations to validate the M&E plan.

In **Niger**, GHSC-PSM contracted and trained new 3PLs for last-mile distributions. The training and discussions with the 3PLs helped them understand the project's needs and develop a partnership relationship. The project expanded the 3PL base from one to four private transporters. The first distribution with the new 3PLs was successful.

B3. Family Planning and Reproductive Health

To date, GHSC-PSM has delivered enough contraceptives to provide **90.4 million couple-years of protection**, including **4.7 million in Q1.**

Procured FP/RH commodities[28] for 18 countries[29] in Q1, and provided **health supply chain systems-strengthening support** to 20 **countries[30] in FY 2023** with FP/RH funding.

Continued to successfully fulfill USAID-supported countries' orders in a timely manner, **achieving 88 percent (87 percent COVID-impacted) OTD** in Q1.

Participated in the 11th Annual Meeting of the Ouagadougou Partnership whose goal is to accelerate progress in the use of FP services.

Co-authored the article "What Have We Learned? Implementation of a Shared Learning Agenda and Access Strategy for the Hormonal Intrauterine Device" in the Global Health: Science and Practice Journal.

The FP/RH task order serves as the primary vehicle through which USAID procures and provides FP/RH commodities for its voluntary FP 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.

Addressing FP/RH Priorities

In line with USAID's FP/RH priorities, GHSC-PSM continued to strengthen its global supply operations and to collaborate with countries in building self-reliant supply chains.

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

[29] GHSC-PSM procured FP/RH commodities for the following countries: Afghanistan, Bangladesh, Benin, Burkina Faso, Côte d'Ivoire, Ghana, Haiti, Jordan, Kenya, Madagascar, Malawi, Mali, Mozambique, Rwanda, Senegal, Tanzania, Togo, and Zambia.

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

Securing reliable supply and maintaining high on-time performance

Despite ongoing global supply shortages of one-rod implants, GHSC-PSM continued to coordinate with the Consensus Planning Group to ensure access to a continuous and reliable supply.

In Q1, GHSC-PSM faced shortages of combined oral contraceptives, which are anticipated to continue into Q2. To mitigate these challenges, the project leveraged stock at the RDCs, regularly analyzed allocation of available stock, and temporarily discontinued overbranding to avoid stockouts.

Achieving OTD and OTIF

Timeliness of GHSC-PSM deliveries remained strong in Q1 for FP/RH commodities at 88 percent (87 percent COVID-impacted) OTD. OTIF numbers remained strong and consistent, at 88 percent for both standard COVID-impacted measures. GHSC-PSM has sustained strong performance through ongoing supplier relationship management to meet requested order quantities where available supply permits.

Exhibit 9. FP/RH Commodities, OTD

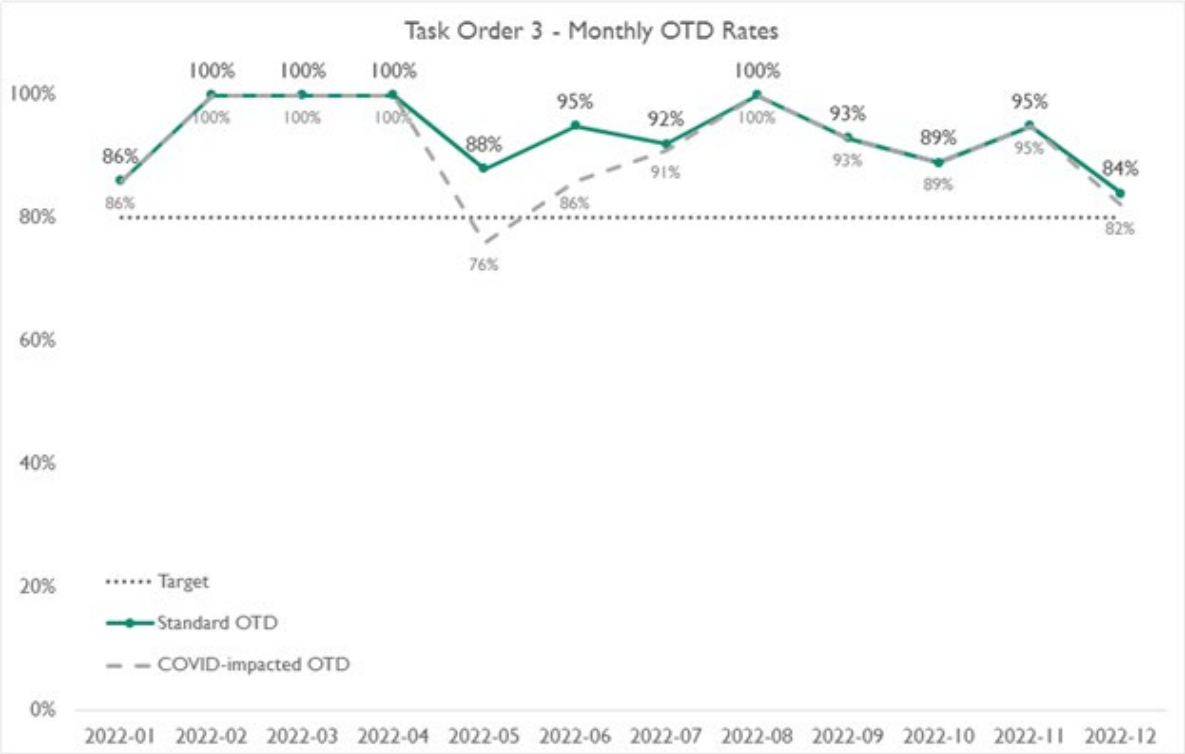
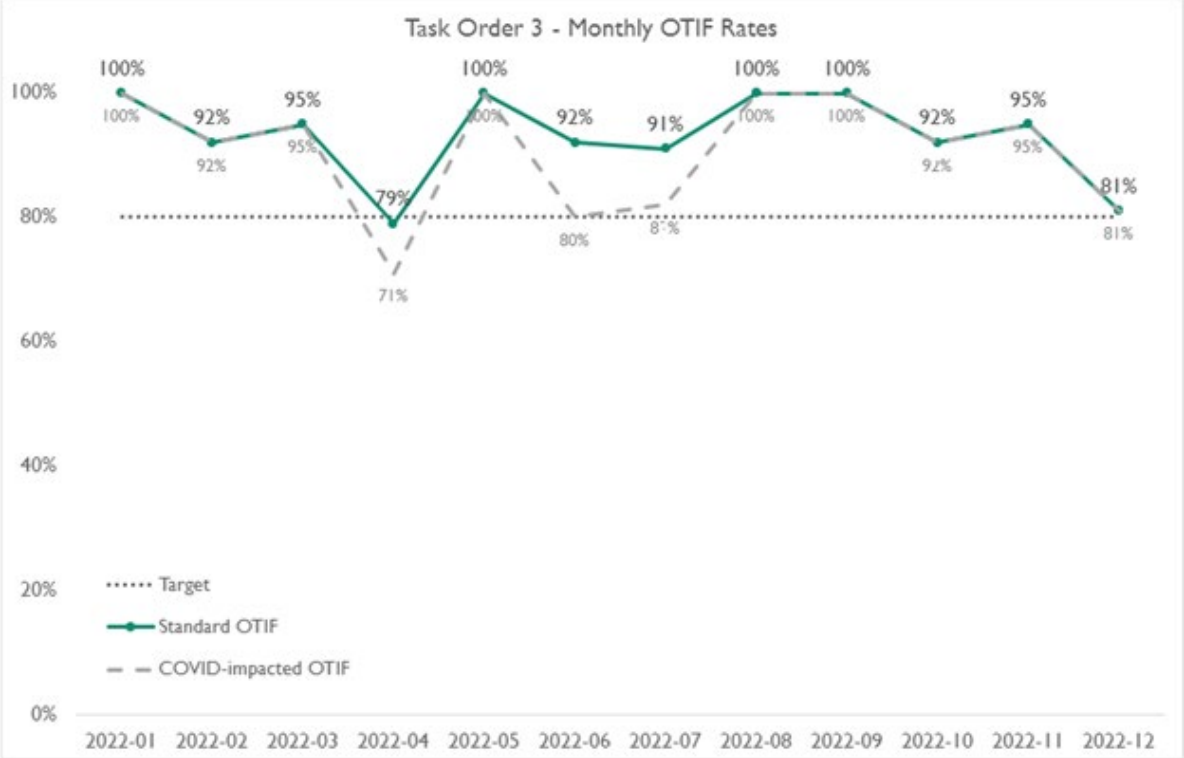


Exhibit 10. FP/RH Commodities, OTIF



Increasing accessibility of the hormonal IUD

GHSC-PSM actively participates in the Hormonal IUD Access Group and sub-working groups, including the Steering Committee, Partners Exchange, and Operations Group. In Q1, GHSC-PSM co-authored a review of early experiences in the procurement and delivery of the hormonal IUD that was published in sub-Saharan Africa in Global Health: Science and Practice. Key takeaways included:

- As several countries in sub-Saharan Africa are preparing to introduce the hormonal IUD on a wider scale, the addition of hormonal IUD to the USAID and United Nations Population Fund (UNFPA) catalogs will help expand public-sector access.
- Additional investments in method introduction—including provider training, demand creation, robust implementation research, and monitoring and evaluation—will be critical to understanding how best to scale the method.

Disseminating the updated business case for local manufacturing in sub-Saharan Africa

In FY 2023, GHSC-PSM contracted with IQVIA to build on work conducted in FY 2021 and FY 2022 and assess the demand for injectable contraceptives in FP2030 sub-Saharan Africa markets as well as South Africa. In Q1, IQVIA presented at USAID's Topical Tuesday on the modification made to the initial model developed in FY 2021 to account for revised assumptions, including those related to demand, packaging costs, marketing and distribution costs, time for production and WHO prequalification, and construction and operating costs. During the discussion portion of the presentation, USAID suggested potential next steps and opportunities for furthering the local manufacturing work in FY 2023. In Q2, GHSC-PSM and IQVIA plan to further disseminate the FY 2022 activity results by presenting to the Reproductive Health

Supplies Coalition (RHSC) Market Development Approaches Working Group. In discussions with USAID it was agreed that the project will share this assessment beyond the RH community and engage with the other project health areas in a cross-cutting discussion on regional manufacturing. To maximize the dissemination and impact of the assessment results, the project will develop a manuscript for submission to a peer-reviewed journal for publication.

Supporting social marketing engagement activities

GHSC-PSM monitors supply and demand for social marketing organizations (SMOs) supported by USAID. In Q1, GHSC-PSM's engagement with SMOs remained focused on creating and maintaining visibility. This includes SMO demand and supply, product transitions, local and supplier regulatory requirements on overbranding, product registration monitoring in regard to product fulfillment, SMO brand transitions, and SMO contract tracking to ensure the smooth function of the supply chain.

Analyzing supply chain mobile applications for community health workers (CHWs)

In Q1, GHSC-PSM finalized and published a landscape analysis and supporting technical brief highlighting five mobile applications for supply chain management at the last mile. This analysis aims to support organizations that work with CHWs and their partners to identify appropriate mobile applications to capture and share community health supply chain data. Internal and external dissemination efforts will continue in Q2. Thus far, the project shared the landscape analysis through various channels, including International Conference on Family Planning (ICFP), Global Health Supply Chain Summit, and the Health and Humanitarian Logistics Conference, internal project newsletters, project website, project-wide meetings, the International Association of Public Health Logisticians (IAPHL) listserv, and with all five mobile application developers whose apps were included in the analysis.

Updating the logistics landscape tracker for government and parastatal outsourcing

In Q1, GHSC-PSM concluded data collection for the logistics landscape tracker. The tracker indicates which governments and parastatals are outsourcing supply chain services, either as the financier or contract holder. The tracker also details where the project is outsourcing warehousing and distribution services. GHSC-PSM presented the preliminary findings from the logistics landscape tracker to USAID Commodity Security and Logistics Division. Out of the 40 countries sampled, only five—Botswana, Indonesia, Kenya, Mozambique, and Nepal—outsourced supply chain services to various levels of the supply chain in 2022. Data validation will conclude in Q2 FY 2023.

The tracker is applicable to other health task orders and will be disseminated to USAID as a resource for government outsourcing advocacy efforts as it covers not only government outsourced products, but also all products that are government outsourced through the in-country supply chain, from central warehouse to last-mile distribution.

Collaboration with Global Stakeholders

GHSC-PSM builds global partners' awareness of and support for the USG's FP/RH priorities and programs and supports USAID's leadership in contraceptive security through the following activities:

Presenting at international conferences

In Q1, GHSC-PSM delivered FP/RH presentations at three conferences:

- People that Deliver Global Indaba in Lusaka, Zambia: Delivered two presentations on approaches to leadership change management and supply chain professionalization**.**
- GHSC Summit: Presentation focused on the important role packaging can play in driving supply chain efficiencies, enhancing commodity security, and reducing environmental waste.
- ICFP: Delivered six presentations on topics including Contraceptive Security Indicators (CSIs), innovations in contraceptive packaging, digital health, the Drugs Out of Range stock alert tool, and local manufacturing in sub-Saharan Africa.

For more information, see section C3: Global Collaborations.

Contributing to the RHSC Systems Strengthening Working Group (SSWG)

The RHSC SSWG meeting held in November 2022 included presentations from GHSC-PSM on 2021 CSI Survey findings and the forecasting module of the QAT. The CS Indicators Survey is primarily conducted through in-country key informant interviews and document review, but also integrates data from the GHSC-PSM ARTMIS platform and the VAN. The survey captures the quantity and value of contraceptives procured through a country's government as well as any donated commodities. The VAN was utilized to capture the quantity, value, and types of contraceptives funded by donors that were delivered to a country within a given 12-month period. These data were then used to assess whether there was a funding gap for contraceptives compared to the forecasted need, and the relative levels of government and donor expenditures for contraceptives. The latter provided an overview of forecasting methods and described the new forecasting functionalities of the QAT. The next RHSC SSWG meeting is scheduled for early Q2 and will focus on the intersection between climate and supply chains.

Collaborating with the Consensus Planning Group (CPG)

GHSC-PSM continued ongoing collaboration with the CPG in Q1 to address stock imbalances of family planning commodities and plan responses to urgent supply needs. In conjunction with the United Nations Population Fund (UNFPA) and other organizations, GHSC-PSM engaged with stakeholders on activities related to supply-constrained products and addressed market shaping issues. GHSC-PSM's collaboration with the CPG in Q1 included:

- Streamlining the supply plan review process between CPG and the GHSC-PSM FASP team to tailor the feedback to family planning products
- Updating action request tickets with stock data and shipment updates to optimize delivery timing across procurers and flag potential issues to decision makers
- Participating in the following work streams: Exceptions Management, Global Markets, and Medroxyprogesterone Acetate Subcutaneous Injection (MPA-SC) Operations

Participating in the Annual Ouagadougou Partnership Meeting

In Q1, GHSC-PSM attended the 11th Annual Meeting of the Ouagadougou Partnership in Niger under the theme of socio-economic development and FP while focusing on youth. Made up of nine West African countries (Benin, Burkina Faso, Côte d'Ivoire, Guinea, Mali, Mauritania, Niger, Senegal, and Togo) the Partnership's overall goal is to accelerate progress in the use of FP services. Participants in the meeting included staff from ministries of health, finance, and youth, as well as USAID, UNFPA, implementing partners, and other FP stakeholders. It was the first in-person meeting since the COVID-19 pandemic started and allowed countries to share progress made over the last few years.

Participants discussed FP as a lever of development for future generations; improving sexual and RH and rights among adolescents and youth through the demographic dividend; demand generation; social norms and behavior change; gender equality; women's empowerment and reproductive rights; expanding FP access through innovations; and domestic financing of FP programs. Participants also called for the Ouagadougou Partnership countries to develop strong legislation for lasting funding for FP programs, particularly for commodities.

Tracking contraceptive security

In Q1, GHSC-PSM continued to disseminate the results of the 2021 CS Indicators Survey, presenting to the International Consortium for Emergency Contraception (ICEC). GHSC-PSM worked with ICEC to produce a brief on emergency contraception which highlighted EC-related results from the 2021 CS Indicators Survey and trends across all rounds of the survey since 2010. The Knowledge SUCCESS platform selected the survey in Q1 as one of 20 "Essential Resources for Reproductive Health Commodity Security and Supply Chain Management," and it was included as an RHSC publication. Several GHSC-PSM and Chemonics internal publications also featured the survey. In Q2, dissemination will wrap up with a presentation to UNFPA, launch of a secondary dashboard featuring the data on the impact of the COVID-19 pandemic, and dissemination to several more communities of practice such as IAPHL and the Implementing Best Practices Network. GHSC-PSM will begin to prepare for the 2023 round of the survey in Q2.

Enhancing visibility of FP supply data

GHSC-PSM serves as a key contributor in supporting the strategic development and scale-up of the Global Family Planning Visibility and Analytics (VAN) platform and processes. The VAN is the RH community's pioneering initiative to increase supply chain visibility and improve stakeholder collaboration. In Q1, the project focused on supporting GHSC-PSM Premium member VAN countries, or those selected in FY 2022 as candidates to transition to Premium membership, to use the tool. Activities included:

- Managed the Automated Requisition Tracking Management Information System (ARTMIS)-VAN, conducting regular integration reviews and data quality process checks to ensure timely updates to the VAN while GHSC-PSM performed root-cause analysis and implemented change requests.

- Facilitated payment of Premium membership fees to the VAN for Burundi, Ghana, Liberia, Nigeria, and Rwanda. TO3 Core Matching Funds covered 100 percent of membership fees for Burundi, Liberia, and Rwanda and 50 percent for Ghana (USAID Ghana funded the remaining 50 percent). USAID Nigeria funded 100 percent of Nigeria's membership fees.

- Collaborated with RHSC to develop an advocacy plan for the VAN sustainability model to make Ethiopia and Malawi aware of the costs associated with VAN Premium membership and enable them to provide funding for these costs in FY 2024.

- Provided technical support to Nigeria as it begins integration of the Nigeria Health Logistics Management Information System and the VAN.

- Supported countries transitioning to Premium membership: Burundi, Liberia, and Rwanda by identifying and establishing a timeline for their transition to the new membership level in coordination with the VAN team.

- Participated in the VAN Steering Committee (GHSC-PSM is a non-voting member) and provided input on the strategic direction of the VAN for the coming calendar year, including input on features and services where the VAN should focus or step back.

- Participated in regular VAN working groups, including the following task forces: Data Management, Technical Management, Data Sharing, Systems Strengthening, and Super User and Analytics.

Country Support

Developing a comprehensive reproductive health commodity security strategy

In **Ethiopia,** the project assisted the MOH in developing a five-year strategy for reproductive health commodity security through a comprehensive and consultative process that included obtaining input from national stakeholders and conducting an analysis of the current situation. This process helped stakeholders identify and prioritize responses to ensure that Ethiopia can meet its FP2030 commitments and targets. The new strategy provides a reliable supply of reproductive health commodities through sustainable domestic funding, coordination and supply chain system strengthening with multi-sectoral support.

Closing the contraceptive finance gap in Ethiopia

Ethiopia has experienced a rise in the use of modern contraceptives over the past 20 years, with the rate among married women rising from 8 percent in 2000 to 41 percent in 2019. Historically, most of the funding for contraception came from donor contributions and government sources, but is insufficient to meet rising demand as the country faces a decline in external funding. This has resulted in a projected finance gap of 71 percent in 2022/2023.

To overcome this shortfall, GHSC-PSM worked with the MOH to organize workshops to advocate for funding from stakeholders and donors. These efforts resulted in mobilization of an additional $11.8 million (U.S. dollars) from UNFPA, BMGF, and another major U.S. foundation, reducing the contraceptive finance gap by 30 percent (from 71 percent to 41 percent). This new funding is crucial to avoid a nationwide shortage of popular contraceptives, such as injectable contraceptives and Implanon.

Improving access to family planning products through data-driven decisions

Improved last-mile availability of family planning commodities encourages uptake, giving women and their partners more control over their reproductive health. The Ghana Health Service (GHS), with technical assistance from GHSC-PSM, identified stock imbalances of family planning products in the regions by analyzing monthly stock status data from regional warehouses and teaching hospitals. GHS and GHSC-PSM triangulated stock status data with historical consumption trends, allowing stakeholders to identify critical needs. Based on the results, GHSC-PSM assisted GHS in locating and redistributing surplus stocks to regions with supply gaps. The informed push distribution model, which is being implemented in select regions, was used to expedite delivery of FP commodities, thereby helping to stabilize stock levels. This intervention will help ensure that women seeking FP services receive their preferred method of family planning whenever they visit a health facility.

B4. Maternal, Newborn, and Child Health

15 countries[31] received MNCH supply chain strengthening support in Q1 FY 2023.

Four countries procured MNCH medicines and commodities in Q1. Since its beginning, the project has procured a total of **$27.77 million in MNCH commodities, including $2.8 million in Q1.**

Received and prepared **more than 164 pallets of emergency supplies** for distribution **to address the cholera outbreak in Haiti in Q1.**

Coordinated partners—United Nations Children's Fund (**UNICEF**), **USAID**, Promoting the Quality of Medicines Plus (**PQM+**), and Medicines, Technologies and Pharmaceutical Services (**MTaPS**)—in developing the **Call to Action Paper** to address pneumonia and possible serious bacterial infection (PSBI) in young children.

GHSC-PSM supports USAID's efforts to prevent child and maternal deaths by increasing access to quality-assured medicines and supplies under the 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 MCH task order objectives in Q1 FY 2023, including those of the core work contributing to the global dialogue on priority MNCH issues, and the performance of the project's global supply chain and country offices. The MCH task order objectives are as follows:

- **Objective 1. Provide international MNCH supply chain leadership and guidance**: GHSC-PSM contributes to the global MNCH commodity and supply chain knowledge base, engages with technical coordination bodies, and promotes international MNCH and supply chain best practices.
- **Objective 2. Support data-informed health supply chain decision making for MNCH commodities**: The project implements and trains staff in using MNCH data collection and

[31] GHSC-PSM provided MNCH technical assistance to 14 countries in Q1 FY 2023: AFRICA: Burkina Faso, Ethiopia, Ghana, Guinea, Kenya (TO5), Liberia, Malawi, Mali, Mozambique, Nigeria, Pakistan, Rwanda, and Zambia; ASIA: Nepal; CARIBBEAN: Haiti

analysis tools; advocates for data system investments; and works with countries to demonstrate the value of timely and accurate data for commodity management.

- **Objective 3. Improve adherence to globally recognized best practices in MNCH commodity management**: The project develops procurement, storage, and distribution resources and partners with national governments to implement MNCH commodity management best practices.

- **Objective 4. Enhance in-country MNCH supply chain coordination and collaboration**: GHSC-PSM guides national governments as they lead and institutionalize coordination among sub-national partners, programs, and donors involved in MNCH service delivery and commodity selection and management.

- **Objective 5. Conduct ad hoc strategic procurement and delivery to increase availability of quality-assured MNCH commodities** in project-supported countries.

International MNCH Supply Chain Leadership and Guidance

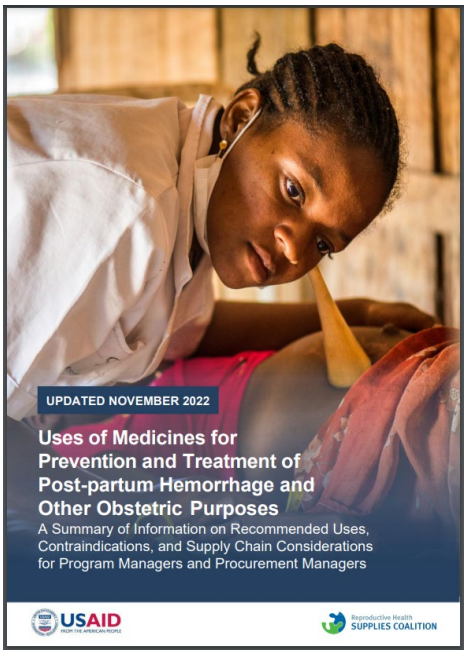
Participating in Bubble Continuous Positive Airway Pressure and Non-invasive Respiratory Management of the Newborn Conference

In Q1, GHSC-PSM joined health care professionals, researchers, and health program implementers to discuss bubble continuous positive airway pressure (CPAP) and non-invasive respiratory management for newborns at a conference in National Harbor, Maryland, USA. Participants gained information, instruction, and practical strategies on ventilation and the correct use of bubble CPAP for infants with respiratory distress. The conference presented novel approaches on critical newborn care as well as safe and effective use of oxygen from experts in the field of neonatology, respiratory therapy, and biomedical engineering. Lessons learned from the conference have informed GHSC-PSM in Ghana's work to analyze use of newborn respiratory commodities—Bubble CPAP, 100 percent oxygen, and pulse oximetry. More details are provided under "Improved Adherence to Globally Recognized Best Practices in MNCH Commodity Management" below.

Coordinating and providing inputs on NEST360 Newborn Implementation Toolkit

During Q1, GHSC-PSM collaborated with USAID, PQM+, and MTaPS to review the NEST360 Newborn Implementation Toolkit. The toolkit brings together knowledge, experiences, and resources for implementing small and sick newborn (SSNB) care. GHSC-PSM reviewed and provided feedback on expanded sections of the toolkit, including medical supplies and devices, leadership and governance, information systems, and human resources. To inform this process, GHSC-PSM presented resources to NEST360, WHO, and UNICEF that cover supply planning and procurement, such as the QAT and the Manual for Procurement and Supply of Quality Assured Maternal, Newborn and Child Health Commodities (updated in October 2022).

Updating "Uses of Medicines for Prevention and Treatment of Postpartum Hemorrhage and Other Obstetric Purposes"



In Q1, GHSC-PSM published an updated version of its postpartum hemorrhage (PPH) medicines guide, developed in conjunction with the Reproductive Health Supplies Coalition. The guide summarizes findings and recommendations for the procurement of medicines, such as oxytocin to prevent and treat PPH affecting mothers after childbirth. PPH continues to be a leading cause of maternal mortality in low- and middle-income countries.

Developing a Call to Action: Improve Access and Use of Quality Medicines to Save Lives

Of the infectious diseases that contribute to child mortality, pneumonia and PSBI rank among the highest. In 2014 and 2015, WHO recommended amoxicillin as treatment for pneumonia in children under five years old and recommended gentamicin injection combined with amoxicillin to treat newborns with PSBI. This combination is recommended for lower-level facilities when newborns cannot readily go to a higher-level facility such as a hospital (where other antibiotics would be more readily available). Despite progress since these announcements, access to and appropriate use of pediatric amoxicillin (dispersible tablets and suspension) and gentamicin injection remain a challenge.

In FY 2022, GHSC-PSM, MTaPS, PQM+, and other partners researched barriers and interventions for availing these commodities, specifically in the areas of quantification, finance, appropriate use, and quality. GHSC-PSM presented the information during three sessions hosted by the Child Health Task Force (CHTF) to a range of stakeholders and countries, to validate and prioritize proposed interventions. In Q1, GHSC-PSM,MTaPS, and PQM+ developed a paper, Call to Action: Improve Access and Use of Quality Medicines to Save Lives, to recommend actions to overcome the identified barriers. The solutions are tailored to specific actors—especially governments, multilateral organizations, and donors—to encourage specific steps they can take to avail these commodities. Call to Action will be published in Q2.

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

In Q1 FY 2023, GHSC-PSM reviewed and classified priority and essential medical devices and consumables from the WHO standard guidelines. The review included an assessment of select countries' newborn guidelines (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 with co-leads of ENAP's commodities-focused technical working groups (ENAP-C), including experts from USAID, WHO, and UNICEF.

Expanding the warehousing center of excellence

The center of excellence (COE) initiative is designed to accelerate change management across warehouses and warehouse systems through continuous improvement of operations using "lean" methodology—a commercially accepted approach that maximizes output while minimizing resources used. COE prepares the supply chain for activity-based costing and dynamic routing aligned with private sector best practices.

When warehouse management systems in countries become more efficient and cost-effective, country governments can use freed-up funds on other priority initiatives, critical for improving the health of their citizens.

During Q1, GHSC-PSM began using its knowledge and experience gained implementing COE with the Ethiopian Pharmaceutical Supply Agency and the Mission for Essential Drugs and Supplies in Kenya to inform a new resource, "How to Operate the Center of Excellence." Once completed, this resource will assist users in implementing the COE in a range of contexts.

Support for Data-informed Health Supply Chain Decision Making for MNCH commodities

Conducting end-use verification surveys in project-supported countries

MNCH data and analytics within national LMISs are not always adequate to identify and resolve supply chain issues. GHSC-PSM uses the end-use verification (EUV) survey to increase the availability of MNCH commodity data. The survey helps supply chain staff collect data on commodity availability, storage conditions, and factors that affect commodity availability at service delivery points. EUV data collection is also an opportunity for GHSC-PSM country teams to provide on-site capacity building for service delivery point staff and MOHs, gather supplemental qualitative data on reasons for stockouts, and cross-check LMIS data accuracy on stock availability trends.

The table below depicts countries that collected EUV data and submitted EUV reports to USAID/Washington and in-country stakeholders in Q1 FY 2023.

Countries that collected EUV data in Q1 FY 2023	Burkina Faso, Guinea, Mali, Zambia
Countries that submitted EUV reports in Q1 FY 2023*	Ghana, Zambia

**Not all reports have been formally approved by USAID/Washington*

Results from recent EUV in Zambia. In Q1, GHSC-PSM in Zambia conducted EUV data collection and submitted an EUV report to USAID. The survey found that stockout rates of several key commodities, including child health commodities like amoxicillin suspension and zinc sulfate, had increased compared to the previous EUV survey, primarily due to lack of funding from the MOH and its partners to procure the commodities. Given these stockouts, GHSC-PSM is continually sharing the stock status of MNCH commodities at the central and service delivery point levels with the Zambian MOH and partners and advocating for mobilization of resources to procure the stocked-out commodities. As a result, the MOH initiated procurement, and awaits delivery, of health center kits that will mitigate the stockout of some commodities. Looking forward, GHSC-PSM will continue to share data and advocate that resources are allocated for MNCH commodity procurement. GHSC-PSM will also engage the MOH and partners to consider alternative procurement plans for child health commodities.

Improving data analytics and information systems for MNCH commodity decision making. Electronic logistics management information system (eLMIS) platforms aggregate and help stakeholders analyze an array of national supply chain information. In FY 2021, GHSC-PSM developed a catalog of robust analytics tools that project-supported countries use alongside eLMIS to inform MNCH commodity management decisions. The catalog describes each tool, the platform it uses, and the data it requires to function. It is meant to be particularly helpful to countries with nascent eLMISs, providing a blueprint of analytics tools that already exist to support key supply chain decisions.

Refactoring analytics tools so they can be used more widely. Since FY 2021, GHSC-PSM has been refactoring select tools from the data catalog, or making the tools' code more widely usable, and helping countries (five countries by the end of Q1) implement these refactored tools in their health and logistics systems. Updates from this work in Q1 FY 2023 are included below.

- In **Liberia**, following the refactoring and initial testing of the Data Extraction Tool and Consumption Anomaly Tool, GHSC-PSM began integrating consumption and stock-on-hand data into both tools. The work is ongoing with regular check-ins and demo sessions where GHSC-PSM's in-country and global teams discuss implementation while familiarizing themselves with the tools. The finalized tools are expected to be transferred to Liberia for use in Q2. Improvements made to both tools are likely to increase usability and improve the tracking of persistent stock challenges throughout the supply chain.
- In **Malawi**, GHSC-PSM presented the data catalog to the USAID Mission and introduced options for designing data analytics tools capable of increasing visibility throughout the supply chain for MNCH commodities.

Enhanced In-country MNCH Supply Chain Coordination and Collaboration

Supporting the management of antihypertensives in Ghana
In FY 2022, GHSC-PSM worked closely with the GHS to assess the availability of commodities that address hypertensive disorders of pregnancy (HDPs) in Ghana's public sector. HDPs include pre-eclampsia, eclampsia, gestational hypertension, and chronic hypertension. Surveyors collected data in 85 health facilities at all three levels of the health system in five regions. In Q1 FY 2023, the project and its partner, Health Access Network, completed data analysis and developed two reports on the assessment:

- The first report covers a representative sample for the entire country of Ghana
- The second report focuses specifically on the five USAID priority regions in Ghana

The reports will be finalized in Q2. Assessment findings and recommendations will be shared with stakeholders to improve availability and management of antihypertensives and ensure that they are properly incorporated into national policies. Results from the study will help inform other countries' work, especially by establishing a methodology to assess antihypertensives and provide solutions for improving maternal health through effective supply chains for HDP commodities.

Presenting the Nigeria Drug Revolving Fund at the Global Health Supply Chain Summit
GHSC-PSM's team in Nigeria presented on its implementation of Drug Revolving Funds for MNCH commodity financing at the 2022 Global Health Supply Chain Summit in Dakar, Senegal, in Q1.

Improved Adherence to Globally Recognized Best Practices in MNCH Commodity Management

Providing systems strengthening technical assistance
GHSC-PSM is providing MNCH systems strengthening support to increase access to quality-assured MNCH commodities to 15 countries[32] in FY 2023. Specific country achievements are described below.

Assessing medical devices and consumables for small and sick newborns in Ghana. GHSC-PSM designed a comprehensive assessment of newborn medical devices and commodities, and providers' capacities to use these supplies in Ghana. The assessment will include situational analysis of 1) the prevalence of improvised bubble CPAP, 2) 100 percent oxygen use, and 3) pulse oximetry monitoring in district health centers. The analysis is designed to:

- Determine data gaps regarding the availability of resuscitation devices for the care of 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 oxygen ecosystem for SSNBs at health facilities

In Q1, GHSC-PSM coordinated in-country stakeholders (GHS, JHPIEGO's Reaching Impact, Saturation, and Epidemic Control project in Ghana, and the USAID/Ghana Mission) to prevent duplication of efforts and ensure that results can be shared widely for the improvement of newborn care. GHSC-PSM, GHS, and the Ghana MOH also began developing a tool to guide comprehensive MNCH assessments, which will be finalized in Q2 and piloted with this assessment.

Delivering emergency supplies to treat cholera in Haiti. Haiti is in the midst of a complex humanitarian crisis, seriously impeding Haitians' access to health care, both for medical staff and patients. Reports of kidnappings and attacks have been steadily growing, forcing many to avoid seeking care for fear they may get trapped in the violence. Medical personnel struggle to reach their health facilities, as barricades have been set up across the country. Transport and supply of equipment and medicines has also been hindered due to the shortage of fuel. In spite of all this, GHSC-PSM continued to operate effectively in Haiti in Q1 FY 2023.

- **Warehousing and distribution.** GHSC-PSM warehouses and distribution continued to operate with the requisite precautions for project staff. Distribution has not been interrupted due to agile planning and scheduling adjustments and constant communication with 3PL service providers.
- **Cholera emergency support.** With the outbreak of cholera that began in Haiti in October 2022, 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—to store, distribute, and track urgent deliveries of cholera commodities. The first round of commodities was procured by BHA with funds from USAID and

[32] GHSC-PSM provided MNCH technical assistance to 14 countries in Q1 FY 2023: AFRICA: Burkina Faso, Ethiopia, Ghana, Guinea, Kenya (TO5), Liberia, Malawi, Mali, Mozambique, Nigeria, Pakistan, Rwanda, and Zambia; ASIA; Nepal; CARIBBEAN: Haiti

the U.S. Department of Defense. The supplies will be distributed to the 270 health facilities supported by GHSC-PSM in Haiti in January 2023.

Ad Hoc Strategic Procurement to Increase Availability of Quality-assured MNCH Commodities

In Q1, GHSC-PSM supported four countries[33] in procuring priority MNCH products. This included an urgent request from USAID/DRC for select essential medicines that were in critically short supply. GHSC-PSM worked closely with two DRC-based suppliers to confirm available stock. While pharmaceutical manufacturing in DRC is nascent, wholesalers that import finished pharmaceutical products and resell to clients in the country are crucial suppliers of essential medicines, consumables, and equipment. As part of the sourcing process, GHSC-PSM is coordinating with GHSC-QA to verify documentation from the DRC suppliers and ensure the products meet quality standards.

Lastly, as mentioned earlier, GHSC-PSM has been supporting the Government of Haiti in managing the cholera outbreak by delivering oral rehydration salts, zinc, and select antibiotics to facilities. More than 136 pallets had been received by the end of Q1, with nearly 30 more pallets on the way. In Q2, the project will distribute the products and procure approximately $500,000 of additional cholera commodities to support Haitian health facilities. GHSC-PSM's responsiveness was commended by partners, who noted that the project's support allowed products to arrive in the country within five weeks of BHA's initial order.

[33] GHSC-PSM procured MNCH commodities for four countries in Q1 FY 2023: DRC, Mozambique, Nigeria, and Rwanda.

SECTION C

PROGRESS BY OBJECTIVE

C1. GLOBAL COMMODITY PROCUREMENT AND LOGISTICS

Procured $199 million in health commodities in Q1. Total values for the life of the project are over **$4.8 billion**.

Delivered 1,288 line-item orders in Q1, with a value of **$148 million**.

Delivered 89 percent (84 percent COVID-impacted) 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 83 percent (81 percent COVID-impacted) on-time and in-full.**

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

GHSC-PSM's procurement strategy focused on three primary objectives in Q1:

1. Maintain on-time deliveries, despite the impact of COVID-19 and the war in Ukraine.
2. Balance price, delivery, and quality to achieve the best value.
3. Reduce response/cycle times, lead times, and transaction costs.

In Q1, the project continued its record of strong OTD performance with OTD above the contractual target of 80 percent for the 15th consecutive quarter. This was achieved while operating the global supply chain within the context of the lingering impacts of the COVID-19 pandemic and the war in Ukraine, and in the face of unforeseen challenges, by focusing on performance and managing overall commodity and supply chain costs through the following initiatives:

A FOCUS ON 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. In addition to the below, see sections B1, B2, B3, B4, and Annex A for details.

Supplier relationship management

In Q1, GHSC-PSM conducted strategic business reviews with key suppliers while proactively managing operations affected by the market, supply chain, and logistics factors. Routine supplier meetings update the project on products, production capacities, delivery schedules, quality matters, and global supply chain risks, while commodity and supplier risk profiles inform performance assessments and order allocation strategies. The project held quarterly business reviews with eight laboratory suppliers, covering past performance and future forecasts.

At the ARV Buyer-Seller Summit in Q1 FY 2023, GHSC-PSM facilitated individual meetings with 11 manufacturers focused on production plans and new products under development. In November, the project met with six pharmaceutical suppliers and three active pharmaceutical ingredient (API) suppliers during the Convention on Pharmaceutical Ingredients (CPhI) to discuss the state of the artemisinin market and manufacturing in Africa.

Operational excellence

In Q1, GHSC-PSM reviewed and updated several tools.

- Modified the freight calculator code to adapt it to ARTMIS. The freight calculator helps the project determine the full landed cost of a requested order. This will be uploaded into ARTMIS in Q2.
- Updated the pipeline dashboard to include an additional delivered indicator and removed sensitive pricing data.
- Revised the ARV allocation and condom allocation tools to include the latest RFI and D-term formats.
- Launched the essential medicines allocation tool and updated the allocation logic, dashboard functionality, and RFI formats.
- Updated the order promising tool with more accurate lead times based on user feedback.

Regional distribution center operations

In Q1, GHSC-PSM leveraged the three RDCs to deliver more than $25 million worth of commodities to 23 destination countries with 87.25 percent OTD. The project used RDCs to deliver more than 54 percent of TLD while enabling HIV MMD rollout.

GHSC-PSM contracted external auditors to perform an annual stock count at the South Africa RDC. The inventory audit reported an accuracy rate of 100 percent.

DECENTRALIZED PROCUREMENT (DCP)

In Q1, GHSC-PSM achieved 89 percent OTD for orders managed through the DCP channel. To mitigate the impact of COVID-19-related logistics constraints on the global supply of VL/EID reagents and consumables, the project continues to hold bi-weekly order management meetings with manufacturers and distribute VL/EID on demand across all available platforms until this constraint is relieved.

In line with the GHSC-PSM's strategy to maintain decentralized procurement capability in Africa, in Q1, the project's DCP team based in Kenya continued laboratory procurements for Kenya and Tanzania. This strategy allows more orders to be managed in a similar time zone as the destination countries to avoid delays due to time differences.

GLOBAL STANDARDS

GHSC-PSM operationalizes its procurement requirements for pharmaceutical, medical device, sterile kit, laboratory reagent, and LLIN suppliers to adopt standardized product identification and labeling and exchange product master data leveraging GS1 standards. 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 a network called the Global Data Synchronization Network (GDSN).

The project engages with suppliers across its portfolio and the global health community to advance adoption of these standards, laying the groundwork to include this data in global and national supply chain processes and systems. Advancing compliance requires regular engagement with suppliers for existing and new items. In Q1, the project:

- Collected, validated, and added GTINs for 46 items to the GHSC-PSM catalog, bringing the total number of items in the catalog with GTINs to 3,468. This represents 84 percent of the total number of in-scope items in the catalogue (active, commercialized, and subject to requirements.)

- Collected master data for 32 items through the GDSN and maintained data on existing items, bringing the total number of items with GDSN data synchronized to 1,966. Over the course of Q1, the project sent and received more than 5,900 messages in the GDSN.

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 Q1 include:

- Facilitated collaboration between GHSC-PSM and external stakeholders (suppliers, clients, GHSC-QA) to manage quality incidents by expediting activities such as, including product quarantines to ensure patient safety, and facilitating product replacement to avoid stockouts.

- Received 28 new incidents in Q1 across HIV/AIDS, FP/RH, and MNCH health areas and completed 26 cumulative incidents, leaving about 33 open incidents as of the end of the quarter.

- Engaged with country offices to enforce on-time reporting of quality incidents and adherence to SOPs. This process ensures that only quality products are distributed in a timely manner to the end user.

- Revised the product quality work instructions and cold chain product transport directive to optimize, streamline, and clarify temperature-controlled product transport requirements and incident reporting of incidents related to temperature excursions. Created an SOP for complaint resolution and adverse events for commodity damage valued at less than $1,000.

QA for malaria commodities

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

IMPACTS OF GLOBAL CHALLENGES ON FREIGHT AND LOGISTICS

Origin challenges

In Q1, the COVID-19 pandemic continued to pose challenges to the supply chain industry. China rolled back some of its most restrictive COVID-19 policies, resulting in a massive spike in COVID-19 cases from less than 1,000 per day early in the quarter to over 62,000 per day at the end of the quarter. Countries started to impose restrictions on travelers from China. GHSC-PSM anticipates that this may result in reduced air freight capacity from mainland China if flights from China are restricted in Q2. Port Technology International reported that 90 percent of staff at China's major ports fell ill as of mid-December. Seaport congestion is back on the rise and may lead to further struggles in exporting from China.

In Q1, Europe and India were stable from a COVID-19 perspective. However, in Q1, a market-related drop in global demand led to export problems from Europe and India when shipping lines canceled sailings for sea freight services with the consequent drop in ocean freight prices. This affected GHSC-PSM as carrier schedules were unreliable and origin ports were frequently congested with exports.

Also, throughout Q1, dock worker strikes at European ports caused origin delays in EU exports. The strikes were due to working conditions and workers seeking compensation due to labor shortages in the post-COVID-19 environment. Rail and airline workers held strikes for similar reasons, which may lead to further interruptions in Q2.

Airfreight

Labor shortages led to airline strikes and airports restricted the number of flights in and out of many major hubs. These airline labor issues affect carriers in all areas.

The war in Ukraine continued to impact flight capacity in Q1. Heavy sanctions on Russian cargo operators forced the airfreight market to rely on belly space in passenger flights. High fuel prices and labor issues affected carrier rates and capacity; airlines responded by focusing their routes on popular destinations, using various (often smaller) aircraft types to adjust to demand. Although overall airline scheduling is rebounding, an ongoing concern for the project is a limited capacity for already underserved locations, which could worsen as fewer freighter aircraft serve these routes.

These struggles in the airline industry make shipping by air expensive and less reliable.

Ocean freight

One of the biggest concerns in Q1 was that shipping lines were manipulating capacity as demand and rates fell. Shipping lines canceled sailings and bypassed ports to raise prices, leading to bookings with longer routes, occasional booking changes, and transshipment delays.

In Q1, a late typhoon season affected ocean shipping schedules and port congestion. The affected ports were in South China but also affected South Asian ports that vessels carrying GHSC-PSM products would have called on.

Destination challenges

Weather and security affect deliveries to destination countries. In Q1, severe flooding impacted deliveries to Nigeria and Niger and had long-lasting effects.

Globally, security and instability remain a concern, particularly in West Africa and Haiti. In Haiti, for example, the lack of security brought ocean deliveries to a complete halt after a GHSC-PSM ocean container was hijacked in late Q4. The project followed up with intensive shipment management, working alongside 3PLs. For cargo already in transit, ocean carriers diverted and held containers in Panama and Jamaica while monitoring the situation in Haiti. Port facilities such as APN and Lafito port were used depending on security concerns and shipments moved based on available reefer facilities and only when the security situation permitted. Shipping lines restricted bookings to Haiti for two months, but resumed at the end of November 2022 under guidance from the project country office and 3PL agents to ensure logistics decisions were informed by current information.

EMERGENCY PROCUREMENT HIGHLIGHT

USAID maintains an HIV task order Emergency Commodities Fund (ECF) to support certain countries during periods of enormous financial uncertainty to enable emergency commodity procurement and delivery based on need.

In Q1, USAID alerted GHSC-PSM of an imminent ARV stockout risk in Angola and provided emergency funding to avert the projected fall in TLD stock level. GHSC-PSM promptly processed an order for four different ARV commodities and delivered 43,600 bottles of TLD to Angola in December 2022. The project will deliver additional TLD and other ARV commodities between Q2 and Q4 FY 2023, in line with the requested delivery dates.

Ethiopia and Kenya

In Q1, GHSC-PSM coordinated with the USAID Missions and MOH in Cameroon and Ethiopia to redirect 12,000 bottles of nevirapine from Cameroon to Ethiopia to avoid an imminent stockout. The project worked closely with USAID, suppliers, and logistics providers to expedite the delivery and clearance of nevirapine to Ethiopia within eight days (a process that typically takes a minimum of 21 days).

In Kenya, GHSC-PSM delivered 820,000 bottles of TLD urgently requested by USAID/Kenya in time for a scheduled distribution. Within a short time, the project issued four purchase orders and delivered 702,000 bottles of TLD in time for distribution.

See section B1. HIV/AIDS for more information

C1B. PROJECT PERFORMANCE

This section summarizes findings on key indicators of 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 Q1, GHSC-PSM OTD was 89 percent (84 percent COVID-impacted) and OTIF 83 percent (81 percent COVID-impacted), the 15th successive quarter that OTD has been above the project's 80 percent target (see Exhibits 11 and 12).

During the COVID-19 pandemic, GHSC-PSM presents two versions of OTD indicators:

1. According to the indicator definition, the "standard" version is calculated as laid out in the project's monitoring and evaluation plan and follows all associated policies.

2. The "COVID-19–impacted" version follows the same rules and definitions as the standard indicator but removed the "control" for pandemic impacts to demonstrate the adverse effect of COVID-19 on OTD from Q3 FY 2020 to date on GHSC-PSM shipments.

Exhibit 11. January 2022 through December 2022 Monthly IDIQ OTD

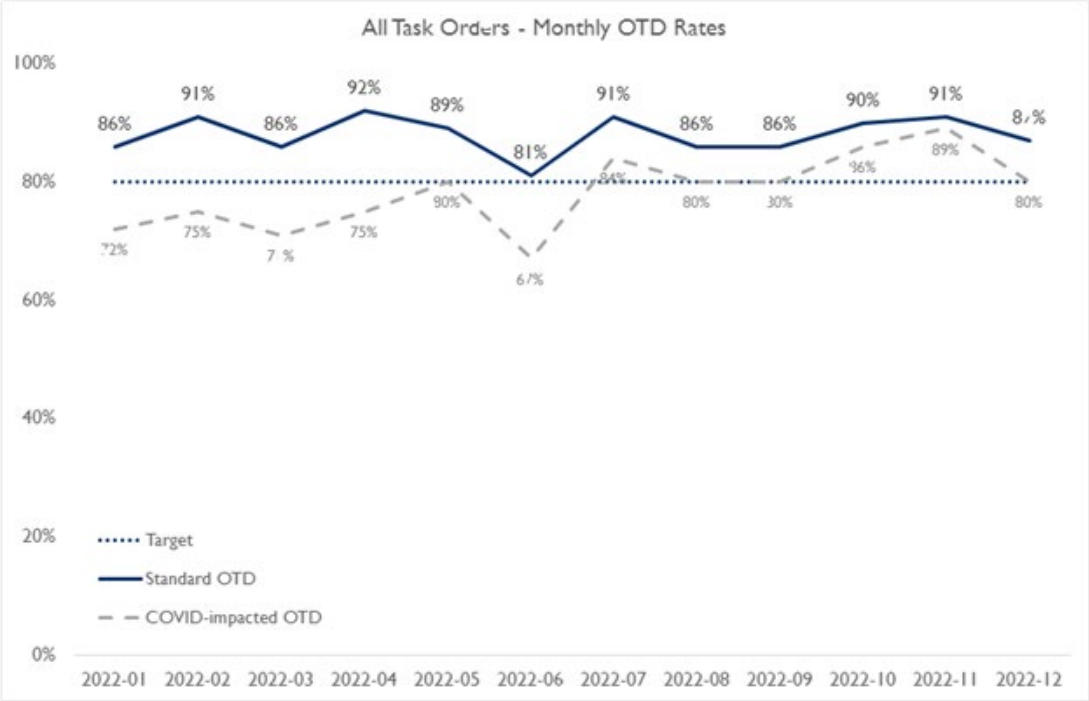
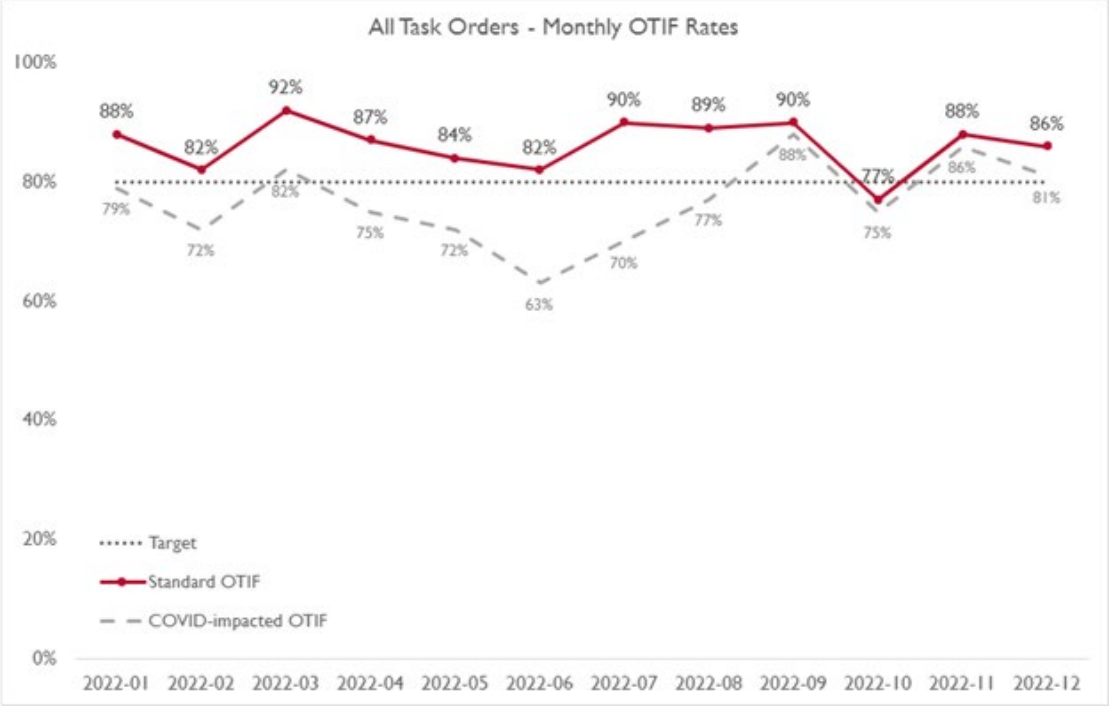


Exhibit 12. January 2022 through December 2022 Monthly IDIQ OTIF



C2. SYSTEMS STRENGTHENING TECHNICAL ASSISTANCE

Assisted 50 countries with health supply chain systems strengthening over the life of the project.

Provided **technical feedback on 173 supply plans this quarter** to strengthen national supply planning capabilities.

Since Q1 FY 2021, **assisted 30 countries** to transition from PipeLine to QAT, a modernized solution for country-led forecasting and supply planning.

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 places emphasis on 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, strategy and design (formerly 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, it collaborates on strategies to outsource functions to accountable private sector providers.

ADVANCED ANALYTICS

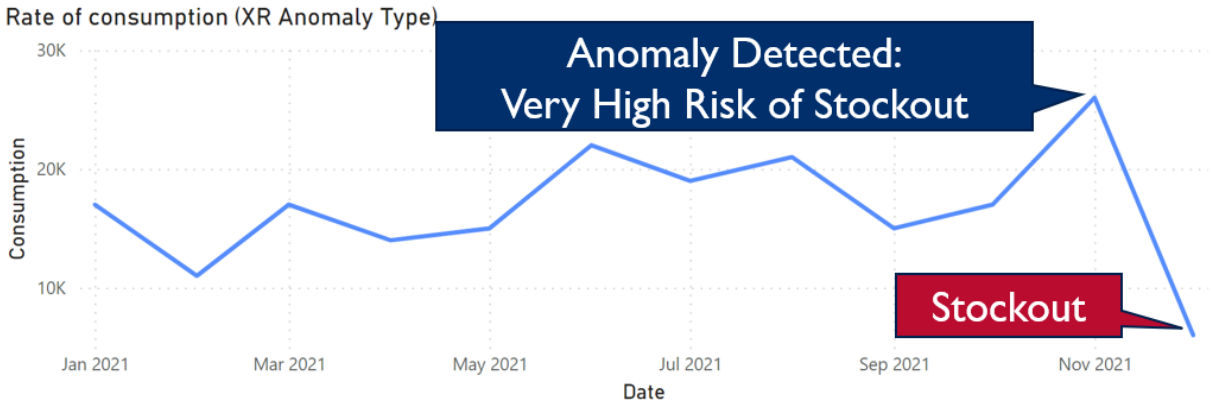
Advanced analytics expands countries' use of data for supply chain decision making—from day-to-day operations to high-level strategy. GHSC-PSM designs analytic tools that leverage management information system investments to make real-time data available and meet the countries' needs.

GHSC-PSM designs analytic tools to be repeatable, reusable, and adaptable in a range of contexts, so that countries reuse these tools in a way that encourages and improves self-reliance. In Q1, the project worked in Haiti, Liberia, Malawi, Zambia, and Zimbabwe to either incorporate data analytic tools within the country's context or refine existing data flow processes.

- GHSC-PSM developed the Anomaly Detection Tool that identifies anomalies such as very high peaks or dips in consumption reports or purchase and requisition orders. This tool provides supply chain actors with actionable information to prevent incorrect order amounts for facilities. In Q1, GHSC-PSM presented the Anomaly Detection Tool—originally developed for Zambia—to the USAID Mission in Malawi and began discussions with country stakeholders on the next steps

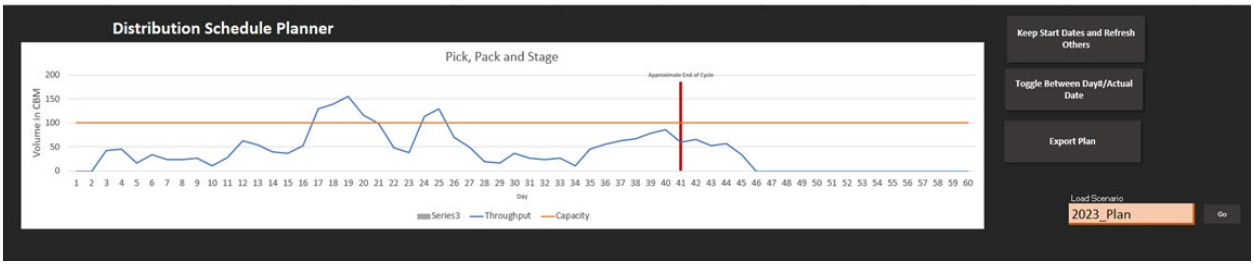
for implementing the tool. The Mission requested that the project demonstrate the tool's potential using historical data from 2021 to show how and where it identified stockout or overstock risks, and if the tool accurately predicted what would happen the following month. Exhibit 13 shows the tool's analysis of monthly consumption reports for cotrimoxazole. The tool detected an anomaly in November 2021, indicating a high stockout risk. In December 2021, a stockout occurred, which could have been predicted had the tool been available at that time to detect the large changes in monthly consumption of 50–60 percent between June and September.

Exhibit 13. Historical Demonstration of Consumption Anomaly Detection Using Cotrimoxazole at a Health Facility



- In Zambia, GHSC-PSM, alongside Zambia Medicines and Medical Supplies Agency (ZAMMSA), developed a six-month stock redistribution schedule. The project analyzed historical workload patterns driven by the distribution schedule—where and when there were peaks in workload, number, and cubic volume of orders—and introduced a tool to improve scheduling. An example of a scheduling challenge is when two routes with high cubic volume on the same day, creating an unnecessary pressure point on completing last-mile delivery. Exhibit 14 shows peaks in workload for pick, pack, and staging days 17–20, due to scheduling high-cubic-volume routes on the same or the next day, and the valley with low volumes on days 22–23. By highlighting these pressure points, stakeholders can adjust the distribution schedule in advance, reducing peaks and valleys in workload across the distribution schedule.

  Exhibit 14. Distribution Schedule Planner Showing Peaks and Valleys in Workload Patterns



- In Q1, GHSC-PSM uploaded inventory analysis (turnover and variability in consumption), anomaly detection, big data analysis for family planning, and dynamic routing tools on GitHub™ to promote sharing, reusing, and adapting analytics tools for public use. See the Management Information Systems section below for more information on the GHSC-PSM repository on GitHub.

GLOBAL STANDARDS AND TRACEABILITY

GHSC-PSM aims 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 Q1, GHSC-PSM supported 10 countries'[34] adoption of GS1 standards for product identification, location identification, and data exchange. More information on standards implementation within the project is provided in section C1. Global Supply Chain and in the Management Information Systems.

Adopting global standards can reduce costs, enhance efficiency, and improve the availability of health commodities in countries' public health supply chains.

GHSC-PSM is a key contributor to the Traceability & Verification System (TRVST), a new collaboratively designed solution that allows countries to verify the authenticity of health products and track and trace them through their supply chain. This initiative is designed to tackle the global counterfeit medicines industry as Rwanda and Nigeria became the first countries in Africa to authenticate vaccines using GS1 barcoding technology. TRVST is being developed under the Verification and Traceability Initiative (VTI), a multi-stakeholder partnership composed of UNICEF, Gavi, The Bill & Melinda Gates Foundation, the Global Fund, USAID, national regulatory authorities in Nigeria and Rwanda, Vital Wave, and the World Bank.

In Q1, the project provided technical support in data modeling, supplier engagement, and country technical implementation in Malawi, Nigeria, and Rwanda. GHSC-PSM also participated in user-acceptance testing for Release 2 of TRVST, worked with USAID to develop use cases for serialized data sharing among TRVST stakeholders, and developed an engagement strategy for ARV suppliers to provide serialized products to TRVST. Verification of ARVs is expected to inform USAID's strategy for receiving and managing serialized data from its suppliers.

In Q1, the project also supported the following countries in adopting global standards:

- In **Ghana,** GHSC-PSM facilitated the official signing of the National Pharmaceutical Traceability Vision and Strategy by the Minister of Health. The project provided strategic inputs into the document, including a cost implementation plan and KPIs to measure outcome-level changes against traceability priorities. In Q2, GHSC-PSM will begin implementing the strategy, starting with product master data management and regulation as the foundations to allow for traceability in Ghana.

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

- In **Nigeria,** GHSC-PSM is implementing a pilot to capture LLIN campaign data at distribution points. This approach takes manufacturer-provided serialized data on bags and individual nets and leverages GS1 standards to verify net authenticity. In Q1, the project configured the pilot's technology platform to capture and parse out data from LLIN barcodes and developed a dashboard to display verification results and KPIs. In Q2, GHSC-PSM will focus on micro-planning and user-acceptance testing for the system.
- In **Rwanda,** GHSC-PSM developed a regulatory compliance monitoring framework and updated the traceability implementation plan, which the Rwanda FDA and the Traceability Steering Committee are reviewing.
- In **Uganda,** GHSC-PSM is implementing an automatic identification and data capture (AIDC) solution, consisting of a handheld device software, a database, and an integration layer for barcode scanning of all pharmaceutical products at JMS warehouses. GTIN is a secondary product identifier to collect barcode data upon stock receipt and supports barcode label printing for non-GTIN products. In Q1, the project began phase 1 of the AIDC implementation, and it has operated smoothly. In Q2, the project will implement phase 2a, which adds pick, pack, and ship transactions, managing shipping containers, and stock taking. The project will implement these two phases at the main warehouse, and a subsequent phase 2b will introduce AIDC to additional JMS locations.
- In **Zambia**, GHSC-PSM is integrating the product catalog management tool (PCMT) with the GDSN and warehouse management system (WMS). This activity involves a two-phased approach that includes manual integration between GDSN and PCMT in phase 1, and between PCMT with WMS Expert in phase 2. The project worked closely with GS1 South Africa and Expert (WMS vendor) in the design, development, and configuration of phases 1 and 2 of data integrations and continued operations and maintenance activities for the PCMT.

  In Q1, GHSC-PSM helped assess the feasibility of ZAMMSA implementing AIDC. The project developed a technical report with AIDC considerations for implementation, including the:

  - Feasibility of WMS implementing AIDC with its existing infrastructure.
  - Status of GS1-compliant barcodes on products in the warehouse.
  - Status of warehouse master data files to leverage the capacity for GS1 standard data on barcodes (i.e., GTIN).
  - Identification of target warehouse functions to test the initial AIDC capabilities and areas of improvement based on GS1 standards.

More information on standards implementation can be found in the Management Information Systems (MIS) section below.

FORECASTING AND SUPPLY PLANNING

GHSC-PSM provided FASP technical assistance for 36 countries[35] to integrate FASP capabilities, develop country-led solutions, and improve program managers' ability to maintain enough inventory to meet

[35] 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.

disease prevention and treatment targets. This included quantification assistance, training, and supply plan monitoring. In Q1, GHSC-PSM reviewed 173 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 30 countries.

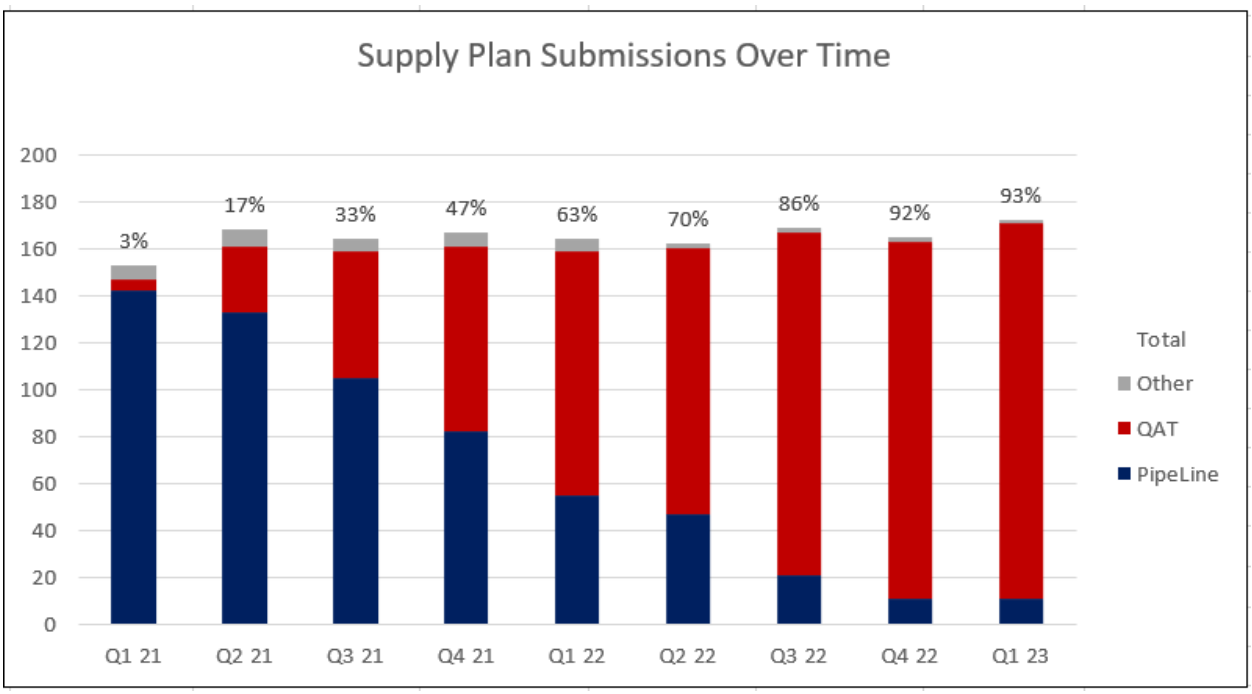
The QAT is a cloud-based software for in-country stakeholders to optimize commodity procurement and delivery schedules, monitor product stock status, and share data with external platforms and stakeholders. QAT leverages new technologies and has enhanced features over the existing PipeLine supply planning tool (see Exhibit 15 below). 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. So far, QAT has replaced PipeLine in 30 countries[36] and is used to manage more than 170 supply plans.

Exhibit 15. QAT's Enhanced Features over Existing Planning Software

[36] Angola, Benin, Botswana, Burkina Faso, Burundi, Cambodia, Cameroon, Democratic Republic of Congo, Eswatini, Ethiopia, Ghana, Guinea, Haiti, Laos, Lesotho, Liberia, Malawi, Mali, Mozambique, Myanmar, Niger, Nigeria, Rwanda, Sierra Leone, South Sudan, Thailand, Togo, Uganda, Zambia, and Zimbabwe.

Functionality	PipeLine	Quantimed	QAT
Ability to work offline	✓	✓	✓
Available in multiple languages	✓	✓	English, French, Spanish, Portuguese; with ability to add languages
Integration with external systems	✗	Can import into PipeLine	✓ See QAT Data Flow Ecosystem
Cloud-based	✗	✗	✓
Role-based access for data security	✗	✗	✓
Standardized master data	✗	✗	Can individually customize at the program-level
Forecasting & Supply Planning in one tool	✗	✗	Seamless integration between modules
Data analytics and visualization	Basic	Basic	Enhanced and user friendly
Supply Planning			
Supply planning logic	Basic	✗	Enhanced with ability to add batch & expiry data, avoid negative stock, & auto-calculate MAX parameter
"What if" scenario planning	✗	✗	✓
In-tool Supply Plan Review	✗	✗	✓
Forecasting			
Consumption Forecasts	✗	Basic	Multiple data adjustment methods & advanced extrapolation techniques
Demographic, Morbidity, & Services Forecasts	✗	Basic	Flexibility to design own forecast with advanced modeling/transitions or use QAT's standard templates
Ability to compare forecast methods	✗	✗	✓

Exhibit 16. QAT Supply Plan Submissions Over Time



In Q1, GHSC-PSM trained in-person and remote prospective users on QAT's forecasting and supply planning modules. In Mozambique, the project held an in-person training on both modules for more than 30 prospective users, including GHSC-PSM staff, and stakeholders from the Center for Medicines and Medical Articles (CMAM), National Directorate of Medical Services (DNAM), MOH, Global Fund, and UNICEF.

A key component of ensuring the sustainability of QAT is wide user adoption of the tool. **For any product/service to survive, there needs to be a significant demand for it.** Having a significant pool of users for QAT signals to other global players that the tool improves current processes. This may influence their buy-in, making the tool potentially less dependent on USAID funding. To this end, GHSC-PSM engages health supply chain partners and stakeholders to build a broader global user base for QAT. The project received funding from USAID's BHA to work with UNICEF to co-design and execute a pilot to use QAT for supply planning of nutrition products in three to five countries. In Q1, GHSC-PSM trained UNICEF's nutrition program personnel in Mozambique and held a remote training on QAT's supply planning module for UNICEF staff in Malawi.

In Q1, GHSC-PSM:

- Presented QAT to the Global Fund in Geneva and how QAT can be linked to its procurement management system.
- Discussed QAT with John Snow International (JSI) for vaccine supply planning.
- Remotely trained the Burundi project office on QAT's forecasting module for its upcoming HIV and malaria commodities quantification workshops
- Provided technical assistance to the Zambia MOH during its HIV and malaria quantification workshops.

- Facilitated an in-person training in Mozambique and held a laboratory quantification workshop in Zambia on the QAT forecasting module.

MANAGEMENT INFORMATION SYSTEMS

GHSC-PSM improves data accuracy and quality for MIS implementation, including GS1-compliant standardized product data to build master datasets—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 datasets across information systems to avoid redundancy, validate the accuracy, and ensure quality data.

In Q1, after USAID approved GHSC-PSM to publish open-source information technology solutions, including systems, applications, and tools developed under the project for public use, GHSC-PSM created a user account on GitHub and a project repository. The project published the first application, Dynamic-Optimization-Routing, with the MIT license in GitHub ghsc-psm (github.com).

To promote the USAID Digital Strategy initiative for public health, GHSC-PSM, with the Ministries of Health in Malawi and Rwanda, developed country-specific digital supply chain strategy and architecture frameworks and roadmaps. In Q1, the MOH in each country launched its vision to create an integrated information system that shares information within each country across agencies and donors. In Rwanda, GHSC-PSM provided two data warehouse servers to Rwanda Medical Supply Ltd. to support warehouse infrastructure for hosting e-LMIS data and promoting end-to-end real-time data visibility across logistics systems. These servers will support future health sector digitization initiatives led by the Rwanda MOH.

LABORATORY NETWORKS

GHSC-PSM promotes efficient and well-planned laboratory networks. The project supports quality service delivery through data-driven laboratory network optimization and global information system (GIS) visualization of data, as well as forecasting and supply planning.

GHSC-PSM leads DNO with multiple stakeholders—including USAID, CDC, ministries of health, other implementing partners, and donors. Once all input data are collected and cleaned, the project utilizes two tools—OptiDx and supplemental interactive maps developed using the Python Library Folium. The interactive maps visualize networks, including locations of health facilities, laboratories, and hubs, referral linkages, distances between facilities, testing volumes, machine capacity, and utilization, and testing demand by administrative area. These maps have two main uses: first, at the initial stages of the DNO, they can present the data collected, to validate data accuracy before loading into OptiDx and identifying opportunities and optimization. Second, maps can highlight elements of the testing scenarios and the impact of changes on the diagnostic network in the final stages of analysis. Stakeholders can then review the scenarios and develop an operational plan that considers how the proposed changes to the lab network affect the budget, operations, human resources, and logistics. (For more details, see section B1.)

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 to a distribution center model. This requires infrastructure and process changes to ensure warehouses can keep up with the increased speed

necessary for frequent inventory turns and shorter order cycle times. Focus areas include improving data-driven decision making across the supply chain, optimizing distribution networks, and increasing efficiencies in warehousing and distribution operations.

The project continued to roll out the cycle count and inventory variance policy to establish an acceptable level of warehouse inventory variance and cycle count methodology for all GHSC-PSM stakeholders. The policy applies to all operations 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 counterparts within various ministries of health (e.g., through a central medical store or a parastatal).

3PL subcontracting

In Q1, the project finalized the standardized storage contract template for USAID-supported countries to use. This template emphasizes transitioning from transaction to performance-based logistics contracting and includes commercial supply chain KPIs to measure and monitor 3PL performance. Transitioning to performance-based contracts ensures that services are paid for based on the amount of work involved in receiving, storing and distributing commodities rather than on the cost of goods.

GHSC-PSM uses KPIs in 3PL subcontracts to manage performance and minimize risk. Angola, Ethiopia, Ghana, Haiti, Liberia, Malawi, Sierra Leone, and Zambia currently use KPIs in their RFPs for upcoming contract modifications or renewals. GHSC-PSM is developing a KPI tool and dashboard for each country to establish a robust mechanism and record of 3PL performance. This will allow GHSC-PSM to compare KPI results across countries. In FY 2022, Angola and DRC began piloting a KPI dashboard and are now in the user acceptance testing and feedback phase.

Activity-based costing/activity-based management

GHSC-PSM implements private sector approaches, such as activity-based costing/activity-based management (ABC/ABM). The project 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.

In Q1, GHSC-PSM provided virtual technical assistance to Ghana, Kenya, and Uganda, all of whom are in various stages of ABC/ABM implementation:

- In **Kenya** and **Uganda**, GHSC-PSM reviews profit and loss results with the Mission for Essential Drugs and Supplies (MEDS) and Joint Medical Stores (JMS) quarterly. The project, MEDS, and JMS developed profit and loss statements that give insight into MEDS and JMS operational costs. The profit and loss statements also provide MEDS and JMS with detailed visibility into their own expenses to improve planning. The project has supported JMS and MEDS ABC/ABM implementation since FY 2018 and 2021, respectively.
- In **Ghana**, GHSC-PSM provided virtual technical assistance for ABC/ABM implementation at the Ashanti and Eastern region medical stores (RMSs). GHSC-PSM holds weekly meetings with the RMSs' finance team to discuss their daily planner, monthly labor report, and customization and use of the profit and loss statements. In Q1, the project worked with the RMS finance team to refine

the daily planner template to capture time spent on completing indirect supply chain functions such as cleaning, organizing, and conducting physical inventory.

WORKFORCE DEVELOPMENT

GHSC-PSM strengthens public health supply chain workforces through the project's country offices. These activities build sustainable workforces through professionalization and systematic assessment and approaches to workforce development.

In Q1, GHSC-PSM updated the Introduction to Supply Chain Management course to train USAID staff in Q2. GHSC-PSM and Arizona State University designed this hybrid course using a combination of asynchronous and synchronous learning experiences for self-learning through video lectures, discussion boards, interview lectures, panel discussions, eight live sessions, and post-evaluations within a two-week period. 26 USAID staff and four GHSC-PSM staff are expected to enroll in the course in Q2.

Country-specific workforce development activities in Q1 include the following:

- In **Lao People's Democratic Republic**, GHSC-PSM, the Center for Malaria Parasitology and Entomology (CMPE), and CHAI assessed the malaria commodity logistics system and prioritized recommendations for improvement. The project reviewed procurement, forecasting, supply planning, Pipeline monitoring, warehousing, storage and distribution activities, and the LMIS domain at the central, provincial, district, and health facility levels to identify challenges and recommend solutions. GHSC-PSM facilitated capacity-building sessions with the CMPE, CHAI, the Medical Products Supply Center (MPSC), and the Provincial Malaria Unit staff on health supply chain management. Following these engagements, the CMPE committed to review the malaria commodity SOPs, participate in technical working group meetings, de-junk/rearrange warehouses, improve logistics data management (including engaging with other stakeholders to resolve issues with DHIS2), and develop a commodity distribution plan that incorporates the knowledge acquired.

Supportive supervision practicum on data collection in Luang Prabang Provincial Warehouse, Laos

- In **Rwanda**, GHSC-PSM shared four country case studies with People that Deliver (PtD) and the BioMed Central (BMC) health services research for review and potential publication in peer-reviewed journals. GHSC-PSM, the Rwanda Ministry of Health, PtD, and IntraHealth developed these case studies in FY 2022 with the intention to publish in FY 2023. The case studies illustrate USAID efforts to strengthen supply chain management human resources in Rwanda. They include 1) applying a theory of change for human resource development in public health supply chains; 2) strengthening labor markets for health supply chain management: a qualitative study of stakeholder perspectives; 3) developing a

framework to professionalize health supply chain management; and 4) taking a holistic approach to comprehensive workforce development.

STRATEGY AND DESIGN (FORMERLY LEADERSHIP AND GOVERNANCE)

Beginning in FY 2023, this technical area is now called "strategy and design" rather than "leadership and governance." This reflects the project's shift from providing technical assistance for "governance" activities—public accountability and oversight—to strategic planning and supply chain system design, especially max-min inventory control.

Country-specific technical assistance activities in Q1 included:

- In **Botswana**, GHSC-PSM worked with local consultants to create a five-year supply chain strategy. The project focused on supporting those high priority activities in the strategy that are more likely to have an impact on the country's supply chain system.
- In **Malawi**, the project worked with the MOH to develop the national health sector strategic plan (HSSP III). GHSC-PSM reviewed the draft supply chain section of the document, which contains 10 strategic areas to improve the health supply chain and supported the finalization and printing of the plan in Q1. The HSSP III is expected to run from 2022 to 2030.

In Q4 FY 2022, GHSC-PSM proposed alternative metrics to assess warehousing and distribution capability and performance at all supply chain levels to demonstrate technical assistance gains over time. The five focus areas for measurement are:

1. Stockouts/In-stock/Stock Available
2. Inventory Turns
3. Geographic Cycle Counting /Inventory Accuracy
4. Warehouse Throughput (per hour)
5. Cost Per Unit

In Q1, the project finalized the performance metrics reference sheets, which guide data collection for focus areas 1 and 2. GHSC-PSM incorporated focus area 3 as a standard metric for contracts with 3PLs. While the project recommends tracking all five focus areas, country offices will decide if they will include these metrics as part of their TA to the central medical stores (CMS). Adoption of focus areas 4 and 5 depends on whether countries have included ABC/ABM implementation in their work plans.

END-USE VERIFICATION

GHSC-PSM assesses the availability of malaria, FP/RH, and MNCH commodities using the EUV survey to collect data on attributes that contribute to commodity availability, including storage conditions, staff capacity, and data management. The project presents findings to Missions and MOHs and helps facilitate conversations and activities to improve commodity availability. The survey captures qualitative data, which provides insights into the reasons for stockouts. This data can be used to triangulate LMIS results and determine stock availability trends. EUV data collection also provides 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 Q1, GHSC-PSM supported countries as they implemented changes to the EUV survey. Burkina Faso, Guinea, Liberia, Mali, and Sierra Leone successfully implemented the survey. Burkina Faso, Ghana, Niger, and Zambia also submitted the COVID-19 continuity of care module developed in FY 2020 to track COVID-19 disruptions to end-use.

NATIONAL SUPPLY CHAIN ASSESSMENT

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

In Q1, GHSC-PSM supported the implementation of the NSCA in Burundi, DRC, Guatemala, and Madagascar:

- In the **DRC**, GHSC-PSM and the USAID Global Health Supply Chain-Technical Assistance (GHSC-TA) project Francophone Task Order incorporated report feedback from in-country stakeholders and USAID. The project expects the final report in early Q2.
- In **Burundi**, GHSC-PSM reviewed the NSCA scope and timing with in-country stakeholders. The project scheduled a scoping trip to finalize all details in early Q2.
- In **Madagascar**, GHSC-PSM completed the final report and received positive feedback from country stakeholders on the process and results.
- In **Guatemala,** GHSC-PSM finalized logistical and technical details for implementation, which is scheduled in Q2.

GHSC-PSM is engaged in discussions with countries to scope additional potential FY 2023 NSCAs with initial plans for possible assessments in Ethiopia and Lesotho.

LEARNING AGENDA: SUPPLY CHAIN TECHNICAL INDEPENDENCE INDICATOR

In Q1, GHSC-PSM incorporated USAID's feedback on the results of a learning activity investigating the supply chain technical independence indicator into the final deliverable. The supply chain technical independence indicator is a measure developed by the project to understand the percentage of targeted supply chain activities in which the host country entity has become technically independent in its implementation and management of that activity. The learning activity focuses on understanding the acceptability, utility, and viability of the indicator from country office teams, USAID Missions, and MOH representatives. From the inception of this process, the project and the GHSC-TA Francophone Task Order, which was conducting a similar learning activity, worked closely to ensure both projects used similar methodologies, sample sizes and approaches as well as allow for a comparison of the two studies' results. GHSC-TA Francophone Task Order presented their findings in Q1, and GHSC-PSM conducted a comparative analysis to identify points of concordance and discordance. A combined final product synthesizing the results of both studies will be submitted to USAID in Q2.

GHSC-PSM embarked on developing the study design for a follow-on activity. In FY 2022, one of the project's key findings was that the technical independence indicator is well received and useful. The project will explore the relationship between technical independence and technical quality, e.g. whether a host country entity increases its performance on a particular supply chain activity through the process of reaching technical independence. The project will finalize the study design and share it with USAID in Q2.

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 help establish priorities for the project's health systems strengthening support and, over time, will allow 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 highlights the efforts and importance the project places on capacity strengthening as a key contributor to improved supply chain outcomes. GHSC-PSM trained 2,289 individuals in Q1 (567 women and 1,722 men).

Most trainings are cross-cutting and address topics relevant to multiple health areas. By funding source, 13 percent were trained with HIV/AIDS funding; 71 percent with malaria funding; 8 percent with FP/RH funding; and 8 percent with MCH funding. Trainings focused on warehousing and inventory management, LMIS, governance and finance, transportation and distribution, and human resources capacity development.

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 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 Q1, GHSC-PSM requested an extended deadline from USAID to submit the FY 2022 Environmental Mitigation and Monitoring Report (EMMR). The project added a new annex, containing a high-level overview of all activities organized by intervention category, to the report and will share the final version with USAID in Q2.

C3. GLOBAL COLLABORATION

Presented at five global conferences: **six** for **ICFP 2022**, **14** for the **People that Deliver Global Indaba**, **six** for **American Society of Tropical Medicine & Hygiene 2022**, **two** for the **Botswana International HIV Conference** and **10** for the **Global Health Supply Chain Summit**.

Presented on multiple panels at the 2022 **Health and Humanitarian Logistics Conference** in Aidex, Brussels, sharing insights from project work to deliver commodities in Ukraine.

Published an updated version of **Uses of Medicines for Prevention and Treatment of Postpartum Hemorrhage and Other Obstetric Purposes**. This key resource provides supply chain considerations for PPH commodities to address maternal mortality.

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. Highlights of groups the project participates in are recapped below.

- Host 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. (For more details, see section B1.)

- Participate in the **ARV/3HP Procurement Working Group**, sharing 3HP demand status and experiences with global suppliers. (For more details, see section B1.)

- Participated in the 2022 consultation on the **WHO Guideline for Prequalification of Insecticide Treated Nets (ITNs) in Geneva**. (For more details, see section B2.)

- Serve as a member of the **Global Donor Technical Working Group** and participate in bi-weekly meetings to coordinate actions and resolve problems with malaria commodity suppliers who cannot fulfill demands because of capacity constraints due to COVID-19.

- Supported Premium member countries or those selected to transition to premium membership in the **VAN** in FY 2023 to effectively use the platform. (For more details, see section B3.)

- Participate in the **Newborn Technical Working Group** alongside experts from USAID, UNICEF, and WHO. This group oversees the ENAP. GHSC-PSM led an ENAP activity in Q1 to classify newborn devices and supplies and review six countries' newborn guidelines to assess the degree to which they are aligned with WHO guidelines. (For more details, see section B4.)

- Participate in and share and create resources with the **Maternal Health Supplies Caucus** (MHSC) and the USAID and BMGF-funded **Child Health Task Force**. (For more details, see section B4.)

- Participated in the **Bubble CPAP and Non-invasive Respiratory Management of the Newborn Conference** held in Maryland, United States to discuss commodities and practices related to newborn respiratory distress in Q1. (For more details, see section B4.)

- Participate in the **Verification and Traceability Initiative** (VTI), a multi-stakeholder partnership composed of UNICEF, Gavi, BMFG, the Global Fund, USAID, national regulatory authorities in Nigeria and Rwanda, Vital Wave, and the World Bank. (For more details, see section C2.)

Knowledge Sharing

To ensure that the ministries of health, supply chain managers, donors, and other supply chain 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 some highlights from Q1:

- Delivered 14 presentations at the People that Deliver 2022 Global Indaba in Lusaka, Zambia and 10 presentations at the 2022 Global Health Supply Chain Summit in Dakar, Senegal.

- Delivered two presentations at the 8th biennial Botswana International HIV Conference on maintaining resilient health supply chain systems and supply chain data visibility. (For more details, see section B1.)

- Delivered six presentations at ICFP 2022. (For more details, see section B3.)

- Delivered six presentations at the American Society of Tropical Medicine and Hygiene 2022 conference, focused on project work in Ethiopia and Cameroon. (For more details, see section B2.)

- Participated in the 37th GS1 Global Healthcare Conference in Paris, France. Leading up to the conference, GHSC-PSM worked with representatives from Botswana, Uganda, and Zambia, to develop a presentation on "Achieving Supply Chain Efficiency Through Innovation," chaired by USAID. The country speakers— representing the Botswana MOH, Ugandan Joint Medical Stores, and Zambian Medicine Regulatory Authority—shared compelling stories about leveraging GS1 Standards in their efforts to strengthen their supply chains and their master data repositories.

- Presented on multiple panels at the 2022 Health and Humanitarian Logistics Conference in Aidex, Brussels, sharing insights from project work to deliver commodities in Ukraine.

- Participated in the 11th Annual Ouagadougou Partnership Meeting in Niger, which focuses on accelerating progress in FP services in nine West African countries. (For more details, see section B3.)

- Met with pharmaceutical suppliers at the Convention on Pharmaceutical Ingredients (CPhI) to discuss strategic priorities for regionalization of pharmaceutical manufacturing. (For details, see section B2.)

- Participated in the ARV Vendor Summit in South Africa and presented on the evolution of GHSC-PSM's procurement strategy, including the project's D-term strategy, vendor-managed solutions, and regionalization goals. (For more details, see section C1.)

- Collaborated with USAID, PQM+ and MTaPS to review and update the NEST360 Newborn Implementation Toolkit in Q1. (For more details, see section B4.)

- Co-authored **What Have We Learned? Implementation of a Shared Learning Agenda and Access Strategy for the Hormonal Intrauterine Device** a review of early experiences in providing the hormonal IUD in sub-Saharan Africa. (For more detail see section B3.)

- Presented the 2021 CSI survey findings and the forecasting module of the QAT at the RHSC SSWG meeting. (For more details, see section B3.)

- Published the technical report "**Using a Data Science Approach to Build Timely, Sustainable, Repeatable and User-centered Analysis to Drive Actions**" that explores strengthening M&E processes through a data science approach to analytics that enables supply chain decision makers to act based on timely, transparent, and repeatable analysis.

- Following a year-long series of CHTF meetings to discuss barriers to availing childhood pneumonia and PSBI commodities, and validation and prioritization of stakeholder actions to make these commodities accessible to families, GHSC-PSM, MTaPS, PQM+, and other CHTF partners developed a resource capturing recommendations, "**Call to Action: Improve Access and Use of Quality Medicines to Save Lives**." (For more details, see section B4.)

- Worked with RHSC to publish an updated version of the **PPH Medicines Guide** with supply chain consideration for new and commonly used commodities that prevent and treat PPH (a leading cause of maternal mortality). (For more details, see section B4.)

Other Global Collaboration

- GHSC-PSM continued providing the USAID MOSAIC program with commodity procurement and logistics support. (For more details, see section B1.)

- In Q1, GHSC-PSM updated the Introduction to Supply Chain Management course in preparation for USAID staff training in Q2; 26 USAID staff and four GHSC-PSM staff are expected to participate. (For more details, see section C3.)

Country Collaboration

- In **Mozambique**, GHSC-PSM conducted an in-person QAT training for more than 30 prospective users including stakeholders from the Center for Medicines and Medical Articles, (CMAM), National Directorate of Medical Services (DNAM), MOH, Global Fund, and UNICEF. (For more details, see section C3.)
- In **Zambia**, GHSC-PSM worked with NMEC, AMF, E4H, PAMO Plus, and VectorLink to plan the 2023 LLIN mass campaign (for details see section B2).
- In **Zambia,** GHSC-PSM collaborated with USAID's eSCMIS project to develop analytics for supply chain decision making. This collaboration will increase reporting rates, data quality, and champion data use for decision making at all levels of the supply chain. (For more details, see section B1.)
- In **Malawi**, the project held a remote training on QAT's supply planning module for UNICEF staff in support of the UNICEF/BHA pilot on the use of QAT for nutrition programs. (For more details, see section C3.)
- Since May 2022, when fuel shortages and insecurity in **Haiti** reached concerning levels, the GHSC-PSM country office has been sending out weekly "Business Continuity Updates" to USAID/Haiti, USAID Washington, Global Fund, and World Vision International counterparts. Through these communications—along with ad-hoc five corners calls as needed—GHSC-PSM provides key updates on the security situation, current fuel levels at the warehouse, warehouse stock levels by funding source, staffing levels, planned shipments and in transit, and key warehouse operations updates. These communications ensure our clients and partners are abreast of current risks to in-country operations and engaged in discussions of innovative solutions the project proposes to mitigate these risks.

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.
- Identified areas for process and communication improvements among the project, suppliers, and GHSC-QA in reporting quality incidents, more specifically, related to transport of temperature-controlled products and reporting of incidents related to temperature excursions.
- Worked with GHSC-QA to streamline and optimize lab commodity procurement from local eligible suppliers. (For more details, see section B1.)
- Worked with GHSC-QA to provide input and support toward COVID-19–related commodity procurement. (For more details, see section Annex A.)

- In collaboration with USAID and GHSC-QA, the project established contracts and onboarded new local wholesalers to project systems and processes in DRC and Malawi. (For more details, see section B1.)
- Worked with GHSC-QA to address supply issues for one of the components of the DBS kits to Eswatini, Mozambique, Senegal, and Zambia. (For more details, see section B1.)
- Working closely with GHSC-QA and USAID, the project communicated procurement and quality requirements to a new supplier of 3HP, and the first order is currently pending QA testing before shipping. (For more details, see section B1.)
- The project coordinated with GHSC-QA to establish a process for more ARV suppliers to become eligible to offer D-Term services. (For more details, see section B1.)

Annex A. COVID-19 Response

In Q1 the project delivered more than **4 million** COVID-19 commodities to **seven countries** approved for American Rescue Plan Act (ARPA) funding, including COVID-19 rapid test kits, N95 face masks, and disposable syringes.

In Q1, the project did not place any new oxygen orders. However, by the end of Q1, the project had **delivered 26 lines of oxygen consumables and durables** to Kenya and Mozambique.

Global Procurement and Logistics

In Q1, GHSC-PSM worked on the following **global supply chain** activities to manage and respond to COVID-19.

COVID-19 Test-to-Treat Program

In FY 2022, GHSC-PSM received funding to support the COVID-19 Test-to-Treat Program for 10 countries: Bangladesh, Botswana, Côte d'Ivoire, El Salvador, Ghana, Lesotho, Malawi, Mozambique, Rwanda, and Senegal. In Q1, the project worked with implementing partners in El Salvador to deliver an order for COVID-19 RTKs under this program.

In collaboration with GHSC-QA, GHSC-PSM pursued negotiations with three suppliers to begin the procurement of WHO prequalified COVID-19 therapeutics. In Q1, GHSC-QA qualified one supplier's Monupiravir for procurement by GHSC-PSM. GHSC-PSM executed a contract with this supplier in Q1, and orders of Monupiravir for nine countries will be placed in Q2.

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 personal protective equipment (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 Q1, GHSC-PSM delivered critical medical supplies and equipment to nine countries across Central America, the Caribbean, South East Asia, Africa, and Eastern Europe:

- **Haiti:** 100,000 COVID-19 RTKs, 400,000 examination gloves, 300,000 surgical face masks, 50,000 plastic face shields, 100,080 N95 face masks

- **Honduras:** 111,624 surgical gowns, 12,120 plastic face shields, 333,750 surgical face masks, 148,900 examination gloves, 338,000 surgical gloves, 51,200 bouffant caps, 34,000 N95 face masks, 8,612 protective goggles, 12,000 shoe covers, 2,000 liters of antibacterial hand soap, 7,600 liters of hand sanitizer

- **Malawi:** 160,000 examination gloves, 20,000 surgical face masks, 18,000 N95 face masks, 120,000 surgical gloves

- **Mozambique:** 290 water purifier and distiller units, 491 oxygen hose sets, 300 pentaflow splitters, 300 10-liter oxygen concentrators and spare parts kits, 300 oxygen hoses, and 1,100 medical oxygen cylinders

- **Namibia:** 300,000 surgical gloves

- **Panama:** 1,200,000 examination gloves, and 100,000 N95 face masks

- **Pakistan:** 480 COVID-19 detection tests, 400 Mycobacterium tuberculosis detection tests

- **Tunisia:** 150,000 COVID-19 RTKs

- **Ukraine**: 402,200 COVID-19 RTKs

COVID-19 stockpile

In Q1, GHSC-PSM prepared a comprehensive summary of country orders fulfilled through the project's RTK and PPE stockpiles. Products available in the PPE stockpile include surgical gowns, barrier gowns, coveralls, examination gloves, face shields, and face masks. These products are held at the supplier warehouses at no risk to the project and made available within seven calendar days of PO issuance. In Q1 GHSC-PSM delivered 882,575 COVID-19 RTKs from the RTK stockpile to four countries: Haiti, Honduras, Tunisia, and Ukraine. The project delivered approximately 3,228,792 products from the PPE stockpile to three countries: Haiti, Honduras, and Panama.

Procuring consumables and durables for ventilator support. In Q1, GHSC-PSM distributed replacement filters to Bangladesh and shipped replacement filters to Paraguay. The project monitored the progress of an order placed in Q4 of 14 line items of ventilator consumables and preventative maintenance training for biomedical engineers in Mongolia. GHSC-PSM also developed a quote for USAID in response to a new request for ventilator consumables and preventative maintenance tools for Afghanistan.

Procuring oxygen-related commodities and providing technical assistance for their management. 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, oxygen disaster manifolds, as well as consumable and durable items.

In Q1, GHSC-PSM delivered consumable and durable items including feeding tubes, pulse oximeters, and automatic voltage regulators to Kenya and one order of 20 oxygen cylinder wrenches to Mozambique and shipped one of five pressure swing adsorption plants to Kenya. The next four units are scheduled to ship in Q2.

In Q1, GHSC-PSM supported bulk liquid oxygen (LOX) projects in Botswana and Namibia. The project executed a contract with one GHSC-QA qualified and eligible South African supplier of LOX to supply

bulk LOX to eight hospitals in Namibia and delivered 21,142 kilograms of bulk LOX to two hospitals in Namibia.

GHSC-PSM is establishing a project charter with the Mission and MOH in Botswana for three hospitals located in Francistown and Masunga. The scope of work includes installing vacuum-insulated evaporators with tank telemetry systems for level and pressure monitoring and cylinder manifold systems to ensure the need for oxygen is met during normal and peak consumption at each hospital. In Q1, GHSC-QA finalized supplier eligibility and quality assurance reviews and GHSC-PSM evaluated the proposal for the equipment and supply of bulk LOX. GHSC-PSM pursued contractual negotiations with the one GHSC-QA qualified supplier, with an agreement set to be executed in Q2, and the installation of equipment and orders of bulk LOX to follow later in FY 2023.

COVID-19 In-Country Technical Assistance

In the Q1 report and previously, GHSC-PSM utilized selected narrative information from the last finalized COVID quarterly reporting submission in DIS. In the case of Q1 for example, the activities reported in the IDIQ Q1 report were conducted in FY22 Q4, because the FY23 Q1 data was not yet submitted in DIS and available for this report.

Moving forward, GHSC-PSM will compile updates from selected countries for activities completed in the quarter of the IDIQ report being submitted. GHSC-PSM will continue to report on COVID activities in DIS using the established reporting timelines.

Below are activities reported on in Q1:

Vaccine distribution and management

- **Angola:** GHSC-PSM conducted provincial and municipal training of 14 technicians on the notification of adverse events post-vaccination and on capturing case data in DHIS2. In Q4, the project developed a job aid for rapid vaccination teams on waste management and SOPs on completing the adverse events post-vaccination notification form.
- **Botswana:** GHSC-PSM participates in weekly meetings for the Incident Management Structure, a multistakeholder structure for coordinating COVID-19 activities. During Q3, GHSC-PSM demonstrated the DHIS2 vaccine tracker, which is being rolled out to the DHMTs. The project has been working with the MOH M&E department to incorporate vaccine expiry indicators into the national database. GHSC-PSM visited six districts to provide on-the-job-training on inventory management and LMIS reporting for COVID-19 vaccines and related products, cold chain management, and oxygen supply chains. The site visits help health care facility staff to stay on track with the pandemic response and ensure continuous availability of supplies for ongoing vaccination campaigns, including the recently introduced COVID-19 vaccination for pediatrics.
- **Ethiopia:** GHSC-PSM supported the Ethiopian Food and Drug Administration to provide Adverse Effects Following Immunization (AEFI) training for 83 Expanded Programme on Immunization (EPI) focal persons in the south Gondar zone. The training aimed to build trainees' knowledge and awareness in the prevention, detection, monitoring, and reporting of AEFI for COVID-19 vaccination using passive or active surveillance as well as AEFI investigation, causality assessment, and communication.
- **Guinea:** GHSC-PSM organized an orientation workshop for 15 EPI and WHO staff on emergency management tools and e-GIS. The project also trained four COVAX logistics assistants from Mamou, Faranah, Kankan, and N'zérékoré on eSIGL emergency management tools to support the implementation of the tools at regional levels.

- **Lesotho:** GHSC-PSM conducted a data quality assessment on products, including COVID-19–related supplies at the CMS. GHSC-PSM also conducts monthly reviews of the CMS COVID-19 stock status and developed COVID-19 district and national stock status reports.
- **Mozambique:** GHSC-PSM continued to conduct regional visits to Maputo and Zambezia provinces to assess key challenges in using the software known as SIMAM (electronic management system) in the effective management of electronic product information. To address the issues identified through the software, the project conducted training and presentations on management standards for EPI. In Q4, GHSC-PSM held meetings with implementing partners, EPI/MOH, UNICEF, and Project Last Mile on the installation of ultra-cold chain freezers for vaccine storage at the Zimpeto warehouse and engaged in ongoing discussions to develop the most efficient distribution plan given the short shelf-life of the vaccines.
- **Nigeria:** GHSC-PSM supported the traceability and verification system of Nigeria's Food and Drug Regulatory Agency by procuring serialization equipment and training agency staff, health care workers, and logisticians to ensure COVID-19 vaccine supply chain visibility and traceability across the 36 states and the Federal Capital Territory. The project tracks stock-on-hand data of COVID-19 vaccines at the states and LGAs to ensure prompt resupplies or redistributions and the development and review of distribution plans.
- **Pakistan:** GHSC-PSM assisted the Federal Directorate of Immunization in timely reverse logistics of Pfizer COVID-19 vaccine thermal boxes as per agreed SOPs. During Q4, the project collected and arranged shipment of 1,839 Pfizer thermal boxes through DHL back to Pfizer, for a total of 8,165 thermal boxes managed by the project through September 2022.

COVID-19 Emergency Preparedness and Response

In addition to vaccine support, in Q1 the country teams reported the following engagements with national government stakeholders to assist them in responding to the COVID-19 pandemic.

- In **Angola**, GHSC-PSM is working to improve health authorities' ability to successfully store and distribute all approved vaccines. The project installed and programmed ultra-cold chain freezers across eight provinces. COVID-19 vaccine distribution required mobilizing both government fleets and private-sector 3PL providers to distribute from all levels to the last mile and in a manner that guarantees the safety and efficacy of the vaccines to meet immunization demands. The project provided technical assistance to the MOH fleet for vaccine distribution down to the municipal level and contracted 3PLs to aid in direct distribution from the central to the provincial level.

- During the third wave of the COVID-19 pandemic, **Botswana** became one of the global hotspots for the disease. GHSC-PSM intensified support for the government of Botswana's preparedness and response by conducting stop-gap procurement and delivery of COVID-19 commodities including PPE in various sizes of coveralls; passive cold chain equipment (cold boxes, vaccine carriers, programmable temperature data loggers and ice packs); rapid COVID-19 test kits; and a computer server and laptops for improved logistics data management. In Q1, GHSC-PSM, in collaboration with other USAID implementing partners, conducted the official handover of all COVID-19–related health commodities and equipment to the Botswana MOH. The official handover was between the U.S. Chargé d'Affaires and Assistant Minister of Health in the presence of senior MOH officials.

- In **Haiti,** as part of oxygen ecosystem work plan activities for Haiti's response to the COVID-19 pandemic, GHSC-PSM completed a final round of distribution to the last mile of oxygen consumables and durables. Consumables included in the distribution were oxygen tubes, nasal cannulas, oxygen flowmeters, and more. These items are intended for health facilities providing

COVID-19 care and treatment. GHSC-PSM also transferred a portion of the remaining stock to the USAID EpiC project so that they may complete the distribution when security conditions allow during this period of civil unrest that Haiti is experiencing.

- In **Nigeria,** GHSC-PSM collaborated with the relevant government agencies to develop and implement an optimized distribution model for COVID-19 vaccines at the national, state, and local government levels. The project also redeployed staff across the 36 states and the Federal Capital Territory to provide technical assistance to the government to coordinate vaccine logistics activities, develop distribution plans, deploy developed tools and job aids, and monitor COVID-19 vaccine stock status. Cumulatively, GHSC-PSM helped transport over 77.5 million vaccine doses across the different levels of distribution in Nigeria. USAID support to the Government of Nigeria through GHSC-PSM has contributed to the national vaccination rate of over 66.9 million (59.8 percent) eligible Nigerians within 16 months of the commencement of the COVID-19 mass vaccination campaign in the country.

Current Reporting Period

2023-Q1

GLOBAL HEALTH SUPPLY CHAIN PROGRAM

Procurement and Supply Management

Delivery Impact to Date

Number of ACT treatments delivered

482,604,114

Number of Couple Years Protection delivered

90,394,145

Person-years of ARV treatment delivered

20,549,560

Global Supply Chain M&E Indicator Performance

FY2023 Quarter 1, October - December 2022

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-Q1

TO	Analysis
Crosscutting	Overall delivery performance is strong and has deviated slightly from the last quarter. OTIF results decreased to 83 percent, and OTD increased to 89 percent. The backlog has increased compared to the last quarter, from 3.7 percent to 4.6 percent of line items. Overall delivery volume has decreased from last quarter.
TO1 - HIV	Overall delivery performance for HIV commodities was strong for the period. OTD was at 90 percent in this quarter, above the goal of 80 percent. The backlog increased to 4.9 percent this quarter, below the goal of 5 percent. There was a decline in OTIF for this quarter, which stood at 82 percent. Most delays occurred in laboratory and condom products. The issues with laboratory products ranged from insufficient lead time provided by vendors to production capacity issues. Some laboratory products were also delayed because the shelf life of commodities was below the country requirements which led to longer wait periods for countries. Other issues within laboratory products were administrative comprising of delays in issuing certain shipping documents by vendors. For condom products, most of the delays were related to transportation issues at the final destination and waiver delays.
TO2 - Malaria	Overall delivery performance for Malaria commodities has remained stable. OTIF and OTD results were at 84 and 82 percent respectively this quarter, above the goal of 80 percent. The backlog increased from last quarter to 2.6 percent, while remaining within the target of 5 percent. Most delays were found in laboratory and severe malaria medicines orders. Laboratory products included commodities which were procured for the first time, leading to certain documentation and logistics delays. Some of the orders under severe malaria medicines were delayed due to late completion of quality control inspections and transit problems. To a lesser degree, there were delays among some ACT and LLIN orders, which were accounted for by similar reasons of late completion of quality control inspections and supplier delays. The overall delivery volume stood at 188 line items for this period.
TO3 - FP/RH	Overall delivery performance for family planning commodities was strong for the period, with OTIF and OTID both at 88 percent, well above the target of 80 percent. The backlog reduced to 1.8 percent from 2.4 percent in the last quarter. Delivery volume increased noticeably this quarter to 81-line items from 44-line items in the last quarter. This was mainly due to a significant order placed for DRC. Amongst product groups, most delays were found in implantable and injectable contraceptives and progestin-only pills (POP). The delays in implants and POPs were mostly due to unanticipated shipping times which were longer than expected. For injectables, there were some quality assurance issues which impacted certain lines in an order. A similar trend was observed in copper-bearing IUDs with regard to waiver delays.
TO4 - MNCH	Delivery performance for maternal and child health products remained strong for the period, increasing to 100 percent for both OTIF and OTD. Overall delivery volume increased this quarter to 12 line items. The backlog for this quarter was at 2.6 percent, well below the target of 5 percent. This represented one line item, a medical supplies commodity order.

A1a. On-time, In-Full Delivery

Task Order	Total # of Line Items Delivered	OTIF	OTIF Target
TO1 - COVID19	68	90%	80%
TO1 - HIV	939	82%	80%
TO2 - Malaria	188	84%	80%
TO3 - FP/RH	81	88%	80%
TO4 - MNCH	12	100%	80%
Total	**1,288**	**83%**	**80%**

A1b. On-time Delivery

Task Order	Total # of Line Items with ADDs in the quarter	OTD	OTD Target
TO1 - COVID19	85	95%	80%
TO1 - HIV	875	90%	80%
TO2 - Malaria	198	82%	80%
TO3 - FP/RH	85	88%	80%
TO4 - MNCH	12	100%	80%
Total	**1,255**	**89%**	**80%**

A16. Backlog Percentage

Task Order	Total # of line items with ADDs in the last 12 months	Backlog	Backlog target
TO1 - COVID19	279	7.9%	5%
TO1 - HIV	4,176	4.9%	5%
TO2 - Malaria	869	2.6%	5%
TO3 - FP/RH	228	1.8%	5%
TO4 - MNCH	37	2.7%	5%
Total	**5,589**	**4.6%**	**5%**

Delivery Performance

Current Reporting Period

2023-Q1

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	**90%**	**68**	**95%**	**85**	**7.9%**	**279**
COVID19	90%	68	95%	85	7.9%	279
TO1 - HIV	**82%**	**939**	**90%**	**875**	**4.9%**	**4,176**
Adult ARV	78%	59	84%	62	5.0%	317
Condoms	81%	52	91%	53	4.1%	195
Food and WASH					100.0%	1
Laboratory	81%	665	91%	597	4.5%	2,911
Other Non-Pharma	87%	55	86%	57	6.2%	225
Other Pharma	97%	34	97%	34	15.8%	165
Other RTK	79%	14	77%	13	6.7%	30
Pediatric ARV	73%	26	79%	24	3.4%	148
TB HIV	86%	7	86%	7	0.0%	89
Vehicles and Other Equipment					0.0%	9
VMMC	96%	27	89%	28	3.5%	86
TO2 - Malaria	**84%**	**188**	**82%**	**198**	**2.6%**	**869**
ACTs	89%	45	93%	44	0.4%	282
Laboratory	86%	65	80%	70	5.2%	173
LLINs	85%	27	83%	29	4.4%	159
mRDTs	91%	11	100%	10	1.6%	62
Other Non-Pharma	100%	1	100%	1	0.0%	21
Other Pharma	100%	1	33%	3	42.9%	7
Severe Malaria Meds	68%	34	75%	32	1.1%	92
SMC	100%	3	100%	3	0.0%	39
SP	100%	1	67%	3	2.9%	34
Vehicles and Other Equipment			0%	3		

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	**88%**	**81**	**88%**	**85**	**1.8%**	**228**
Combined Oral Contraceptives	90%	10	91%	11	6.5%	31
Copper-Bearing Intrauterine Devices	100%	7	88%	8	7.1%	14
Emergency Oral Contraceptives	100%	1	100%	1	0.0%	3
Implantable Contraceptives	88%	26	88%	26	0.0%	65
Injectable Contraceptives	77%	13	85%	13	1.8%	55
Levonorgestrel-Releasing Intrauterine Devices					0.0%	1
Other Non-Pharma	0%	1	100%	1	0.0%	4
Progestin Only Pills	89%	19	86%	21	0.0%	38
Standard Days Method	100%	4	100%	4	0.0%	17
TO4 - MNCH	**100%**	**12**	**100%**	**12**	**2.7%**	**37**
Other Non-Pharma	100%	11	100%	11	0.0%	24
Other Pharma	100%	1	100%	1	7.7%	13

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-Q1

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	68	188	250	184	250
TO1 - HIV	939	257	250	250	250
TO2 - Malaria	188	372	340	327	300
TO3 - FP/RH	81	278		276	
TO4 - MNCH	12	472	350	472	350
Total	**1288**	**273**		**260**	

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	**81**	**278**		**276**	
Direct drop fulfillment	26	336	300	332	300
Warehouse fulfillment	55	250	250	249	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 slightly this quarter, to 257 days, just above the target. Dwell-adjusted cycle time was 250 days, falling at exactly the target. This quarter saw a slight increase in almost all cycle time segments, except for the Manufacture segment, which had an average decrease of 9 days. Purchase orders, which constituted about 95 percent of all HIV/AIDs orders this quarter, had an average cycle time of 255 days . Laboratory products, which account for two-thirds of HIV/AIDs products this quarter had an average cycle time of 243 days, with 43 line items having holds applied. Adult ARVs, the second largest product group this quarter, had a cycle time of 233 days. During the quarter, the procurement team has focused on transitioning HIV/AIDs products to D-term orders, which have a lower average cycle time than other products: 234 days. Out of the 939 line items for HIV/AIDs products this quarter, 91 had holds applied, for an average hold of 64 days, mostly in the supply planning stage or while awaiting client approval or funding.
TO2 - Malaria	End-to-end cycle time for malaria commodities increased from last quarter to 372 days. Dwell-adjusted cycle times also increased this quarter, for a cycle time of 327 days. There were increases in the cycle time for the Clarify, Sourcing and Planning, and Manufacture and Pick Up segments. There was, however, a decrease in the Deliver segment. There were five particularly long country cycle times this quarter (over 450 days for both standard and dwell-adjusted): Myanmar, Tanzania, Guinea, Thailand, and Cote d'Ivoire. Each of these countries had 3 line items or less, and in all countries except Myanmar, the orders contained severe malaria medicines, which were held due to quality control investigations which required re-sourcing or due to customs clearances. Myanmar had one hold placed on ACTs due to waiver lead time delays. Out of the 188 line items for malaria products this quarter, 84 had holds applied, for an average hold of 103 days, mostly in the pre-allocation stage pending funding or clarifications from countries.
TO3 - FP/RH	End-to-end cycle times for family planning products decreased this quarter. For warehouse fulfillments, the cycle time decreased to 250 days (249 dwell-adjusted), falling just at the target. Kenya had an order of implantable contraceptives for a warehouse distribution order, with a 50 day hold while funding was finalized. Cycle times for direct drop fulfillments decreased to an average of 336 days, with the dwell-adjusted cycle time also decreasing to 332 days. Nepal and Zambia both had direct drop purchase orders with a line item each that had a hold. Nepal had a delay on an order of injectable contraceptives, with a hold of 80 days, while Zambia had a delay on an order of implantable contraceptives, with a hold of 13 days. These implantable and injectable contraceptives had holds while waiting for funding to finalize.
TO4 - MNCH	Cycle times for maternal and child health increased to an average of 472 days this quarter, both standard and dwell-adjusted. Given fluctuations in the number of line items delivered each quarter, performance often varies. Performance in low-volume quarters is typically driven by circumstances for individual orders, more so than broader trends. This quarter saw large increases in the Process PO/DO and Clarify and Source segments. Other non-pharma constitutes 11 of the 12 line items this quarter, with an average cycle time of 471 days. Production of these 11 orders faced difficulties in regards to procurement of components from international vendors who could not ship semiconductor chips on the promised ship date, leading to a delay in production. All 12 line items were routed to Rwanda. Per the M&E plan, segment data is only displayed if milestone dates are complete for at least 60% of line items in the quarter. In this period, that threshold was not met for the Actual Goods Availability Date and the Pick Up dates, which are requirements for the Manufacture/Prepare, Pick Up, and Deliver segments. Due to a rare occurrence of all three of these segments not having sufficient data, we could not include them in the visual The average cycle time for the combined duration of the three segments that cannot be displayed is 63 days.

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 end-to-end cycle times. Targets are not set for individual segments.

Cycle Time Performance

Current Reporting Period

2023-Q1

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

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment			Total
Task Order	Air	Land	Sea	Air	Land	Sea	
TO1 - COVID19	**205**	**131**	**186**	**64**	**56**		**188**
COVID19	205	131	186	64	56		**188**
TO1 - HIV	**246**	**235**	**358**	**311**	**310**	**250**	**257**
Adult ARV	230		200	315	22	192	**233**
Condoms			380	401	454	261	**360**
Laboratory	243	235	379				**243**
Other Non-Pharma	240	222	397				**240**
Other Pharma	355	310	470				**397**
Other RTK	335						**335**
Pediatric ARV	251		292	385			**276**
TB HIV	155			212		542	**235**
VMMC	198	189	337				**248**
TO2 - Malaria	**381**	**413**	**374**			**152**	**372**
ACTs	203	308	308			124	**255**
Laboratory	429		331				**427**
LLINs		517	385				**395**
mRDTs	277		350				**343**
Other Non-Pharma	565						**565**
Other Pharma	191						**191**
Severe Malaria Meds	452		432				**436**
SMC						171	**171**
SP			202				**202**
TO3 - FP/RH	**307**	**382**	**344**	**214**		**260**	**278**
Combined Oral Contraceptives	217		349	126		255	**240**
Copper-Bearing Intrauterine Devices						266	**266**
Emergency Oral Contraceptives	394						**394**
Implantable Contraceptives	473		408	214		219	**269**
Injectable Contraceptives	173	365	346	185		314	**282**
Other Non-Pharma		417					**417**
Progestin Only Pills				271		300	**294**
Standard Days Method			291				**291**

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

Fulfillment Channel	Direct Drop Fulfillment		Total
Product Category	Air	Sea	
Other Non-Pharma	425	476	**471**
Other Pharma		476	**476**
Total	**425**	**476**	**472**

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 end-to-end cycle times. Targets are not set for individual segments.

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	**74**	**3**	**54**		**93**	**55**	**44**
TO1 - COVID19	44	0	22		18	73	34
TO1 - HIV	60	2	60		103	49	44
TO2 - Malaria		5	31		91	59	45
TO3 - FP/RH		7	38		109	40	53
TO4 - MNCH	207	0	201				7
Warehouse fulfillment	**64**	**6**	**47**	**56**	**8**	**45**	**82**
TO1 - COVID19	11	0	20	19	4	15	11
TO1 - HIV	48	1	96	62	11	50	75
TO2 - Malaria		0	13	33	5	28	57
TO3 - FP/RH		10	15	55	7	45	91
Total	**73**	**3**	**53**	**116**			**49**

Quality Assurance Performance (TO2 only)

Current Reporting Period

2023-Q1

A2. QA processes completed within required lead times

Task Order	Total # of QA processes completed	% QA Processes On Time	A2 Target
TO2 - Malaria	**77**	**100%**	**80%**
ACTs	29	100%	80%
LLINs	9	100%	80%
mRDTs	8	100%	80%
Other Pharma	2	100%	80%
Severe Malaria Meds	22	100%	80%
SMC	2	100%	80%
SP	5	100%	80%

A13. Out-of-specification percentage

Task Order	Total # of batches tested	Out-of-specification percentage	A13 Target
TO2 - Malaria	**169**	**0.0%**	**1%**
ACTs	42	0.0%	1%
LLINs	22	0.0%	1%
mRDTs	25	0.0%	1%
Other Pharma	0		1%
Severe Malaria Meds	65	0.0%	1%
SMC	6	0.0%	1%
SP	9	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			
ACTs			
LLINs			
mRDTs			
Other Non-Pharma			
Other Pharma			
Severe Malaria Meds			
SMC			
SP			

Ref	Analysis
A02	All of the QA/QC processes were completed within the required lead times. No COVID-19-related delays were reported this quarter, as well.
A13	Out of specification findings fell this quarter to 0 percent of batches tested, recovering from last quarter, with a very strong performance.
A14b	The vendor scorecard rating for lab service providers this quarter was 93 percent, remaining relatively consistent with the previous quarter. Scores were high across the board, as well, with invoice accuracy scoring 100 percent, completeness scoring 97 percent, responsibleness scoring 95 percent, reliability scoring 92 percent, and service scoring 82 percent. Responsiveness and service had the only decreases in score this quarter, while invoice accuracy remained the same for the third quarter in a row, and reliability and completeness saw increases in scoring.

Warehouse Performance and Product Losses

Current Reporting Period

2023-Q1

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	Nigeria	Damage	ARVs	$303,679	$47,953,008	0.63%
TO1 - HIV	Kenya	Damage	Laboratory	$1,164	$6,228,263	0.02%
TO1 - HIV	Malawi	Damage	Laboratory	$1,541	$1,258,720	0.12%
TO2 - Malaria	Angola	Damage	Laboratory	$3,514	$106,833	3.29%
TO1 - HIV	RDC	Expiry	NA	$644	$4,825,553	0.01%
TO2 - Malaria	RDC	Expiry	NA	$0	$336,337	0.00%
TO3 - FP/RH	RDC	Expiry	NA	$0	$5,584,084	0.00%

A8. Shelf life remaining

Task Order	Inventory Balance	% Shelf Life Remaining	Shelf life target
TO1 - HIV	$4,780,392	84%	70%
TO2 - Malaria	$134,309	85%	70%
TO3 - FP/RH	$6,066,116	87%	80%
Total	**$10,980,818**	**85%**	

Ref	Task Order	Analysis
A08	TO1 - HIV	Average shelf life remaining for HIV products was 84 percent in FY23 Q1, an increase from 81 percent in the last quarter. This was mostly due to the high shelf life of adult ARVs. These commodities include TLD and PrEp(Emtricitabine/Tenofovir) have high value and were stocked in December.
A08	TO2 - Malaria	Average shelf life remaining for the AL stockpile was at 85 percent in FY23 Q1. The products exceeded a shelf life of 80 percent, well above the 70 percent target. The project is expecting a replenishment order for the RDCs in the latter quarters of FY 2023.
A08	TO3 - FP/RH	The average weighted shelf life remaining for family products has increased to 87 percent in FY23 Q1, with almost all product categories exceeding the 80 percent target except copper-bearing IUDs, which is at 79. The main products stored in the RDC are 1 and 2-rod implants and injectable contraceptives. Following an overstock of implants in the last quarter, there was a demand spike in the present quarter which resulted in faster rotation of implant products from the RDC. Some commodities under Injectables like MPA 150mg were restocked again in December after a long period.
C07a	TO1 - HIV	The RDCs experienced expiries of adult ARVs in this quarter. The total value of expired ARVs amounted to $644. The expired amount was a significant reduction from last quarter's figure of $ 19, 794. The expired ARVs were Tenofovir/Emtricitabine products which were originally intended for Tanzania but could no be reallocated in time, which led to expiry of the product. The expiries represented 0.01 percent of the overall HIV inventory.
C07a	TO3 - FP/RH	There were no expiries of family planning 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 included product damage that occured 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. A few larger incidents occured, including a temperature excursion for lab products in Nigeria. In this instance, the vendor replaced the products and is working with GHSC-PSM to prevent similar incidents from occuring in the future. In Angola, the team discovered damaged malaria lab equipment in a 3PL warehouse. The items are believed to have been damaged in transit to the warehouse but investigation into the root cause is still ongoing.

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.

Procurement Performance

Current Reporting Period

2023-Q1

A10. Framework contract percentage

Task Order	Procurement total	Framework contract percentage	Framework contract target
TO1 - COVID19	$592,243	65%	
TO1 - HIV	$142,858,985	94%	90%
TO2 - Malaria	$38,650,483	100%	95%
TO3 - FP/RH	$15,871,720	100%	95%
TO4 - MNCH	$2,853,466	87%	85%
Total	**$200,826,897**	**95%**	**NA**

A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
TO1 - COVID19	**65%**	**$592,243**
COVID19	65%	$592,243
TO1 - HIV	**94%**	**$142,858,985**
Adult ARV	100%	$70,662,461
Condoms	100%	$3,619,571
Laboratory	85%	$51,201,599
Other Non-Pharma	77%	$1,359,674
Other Pharma	100%	$2,294,188
Other RTK	0%	$372,843
Pediatric ARV	100%	$5,173,484
TB HIV	100%	$6,078,745
VMMC	100%	$2,096,421
TO2 - Malaria	**100%**	**$38,650,483**
ACTs	100%	$11,301,145
Laboratory	100%	$62,615
LLINs	100%	$5,164,033
mRDTs	100%	$11,210,251
Other Non-Pharma	100%	$2,511
Other Pharma	100%	$133,400
Severe Malaria Meds	100%	$4,559,008
SMC	100%	$4,950,815
SP	100%	$1,266,705

A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
TO3 - FP/RH	**100%**	**$15,871,720**
Combined Oral Contraceptives	100%	$673,983
Copper-Bearing Intrauterine Devices	100%	$90,180
Implantable Contraceptives	100%	$11,052,180
Injectable Contraceptives	100%	$3,672,115
Levonorgestrel-Releasing Intrauterine Devices	100%	$41,130
Other Non-Pharma	100%	$85,000
Progestin Only Pills	100%	$240,192
Standard Days Method	100%	$16,940
TO4 - MNCH	**87%**	**$2,853,466**
Laboratory	100%	$32,567
Other Non-Pharma	28%	$534,708
Other Pharma	100%	$2,286,191

Task Order Analysis

Task Order	Analysis
TO1 - HIV	Use of framework agreements for HIV/AIDS products increased to 94 percent in FY23 Q1, above the framework contract target of 90 percent. This increase was due in part to the general increase in the amount procured in Q1 and a proportional increase in the use of framework contracts. Laboratory products and other non-pharma products both had an increase in framework contract usage, while all other products maintained Q4's framework contract percentage. Laboratory products remained the largest category (in terms of number of products) using non-framework contracts, for consumables, equipment, reagents and other lab products. 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	Maternal, child, and newborn health commodities had a dramatic increase in the value of procurements this order, procuring 36 orders for Mozambique, DRC, and Rwanda. The framework contract usage for these procurements was 87 percent, above the 85 percent target. Laboratory and other pharma products had a 100 percent framework contract usage, while other non-pharma utilized some non-framework contracts. Other non-pharma had a few orders of equipment like pulse oximeters, suction pumps, and others, with a total value use of non-framework contracts of $383,000, 72 percent of contracts for other non-pharma, which lowered the overall framework contract use percent to 87 percent in total.

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	**9.0%**	**188**
Laboratory	0.0%	65
ACTs	2.2%	45
Severe Malaria Meds	23.5%	34
LLINs	7.4%	27
mRDTs	36.4%	11
SMC	0.0%	3
Other Non-Pharma	0.0%	1
Other Pharma	100.0%	1
SP	100.0%	1
TO3 - FP/RH	**3.7%**	**81**
Implantable Contraceptives	3.8%	26
Progestin Only Pills	0.0%	19
Injectable Contraceptives	0.0%	13
Combined Oral Contraceptives	10.0%	10
Copper-Bearing Intrauterine Devices	0.0%	7
Standard Days Method	0.0%	4
Emergency Oral Contraceptives	100.0%	1
Other Non-Pharma	0.0%	1
Total	**7.4%**	**269**

Task Order	Analysis
TO2 - Malaria	The project used registration waivers for 9 percent of line items delivered this quarter. The malaria program has continued to use waivers as more countries are expanding their registration requirements. GHSC-PSM has been able to apply for registration waivers while vendors work to obtain registrations in these countries. This quarter, use of waivers was concentrated among severe malaria medicines, including rectal and injectable artesunate. For rectal artesunate, which has two prequalified suppliers, limited production from one supplier has lead to increased procurement from the other, which is not registered in all countries. Injectable artesunate is similar. Production capacity has been booked or unavailable for two suppliers, leading to greater procurement from the remaining third supplier. In both cases, the suppliers are working to obtain registrations in the countries where registration requirements have recently increased, such as Cameroon. The project also used waivers for some RDT, LLIN, and other pharma orders. Only one ACT order required a waiver; registration for the supplier is in progress in the destination country.
TO3 - FP/RH	The project used registration waivers for just under 4 percent of line items delivered this quarter, representing three line items. One of these was for combined oral contraceptives with non-iron placebo for Côte d'Ivoire, which was the country's first GHSC-PSM order for this product. Other waiver requirements included one order for emergency oral contraceptives and one for implantable contraceptives, both for Rwanda.

Supply Plan Submissions

Current Reporting Period

2023-Q1

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

Product Group	# of supply plans required	Supply plan submission rate	Submission target
ARVs	21	100%	95%
Condoms	21	100%	90%
FP commodities	23	96%	95%
Lab (HIV diagnostics)	15	100%	93%
Malaria commodities	27	100%	90%
RTKs	20	100%	95%
TPT	15	100%	93%
VMMC	5	100%	80%
Total	**147**		

Task Order	Analysis
TO1 - HIV	Submission rates for HIV supply plans have remained strong across product groups, with 100 percent submissions recorded for ARVs, Lab, VMMC, TPT, RTKs and condoms.
TO2 - Malaria	Malaria supply plans submissions increased to 100 percent this quarter.
TO3 - FP/RH	Supply plan submissions for family planning commodities and condoms remained strong this quarter, with 96 and 100 percent of supply plans submitted for family planning commodities and condoms. Nepal is the one country which did not submit a supply plan for family planning commodities, because of closing out of the project.

Supply Plan and Forecast Performance

Current Reporting Period

2023-Q1

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	15%	15%	6%	22%	-6%
Condoms	26%	-26%	21%	30%	21%
Laboratory	52%	52%	33%	25%	33%
Pediatric ARV	9%	9%	10%	30%	10%

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	87%	87%	56%	35%	56%
mRDTs	93%	93%	40%	25%	40%

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	4%	-4%	5%	25%	5%
Copper-bearing Intrauterine Devices			12%	30%	-12%
Implantable Contraceptives	3%	3%	8%	25%	-8%
Injectable Contraceptives	22%	-22%	7%	22%	-7%
Progestin Only Pills	44%	-44%	2%	25%	-2%

Task Order	Analysis
TO1 - HIV	Forecast error for condoms increased to 26 percent for the quarter due to a slight overforecasting for December 2022, where forecasted demand was unrealized. Forecasts had remained optimistically high to account for any short lead time orders which did not appear during this timeframe. This problem should not occur in the future as the project resumes adhering to a three-month pre-review for forecasting going forward. The rolling four quarters supply plan error decreased to 21 percent this quarter, falling within the 30 percent target.
TO1 - HIV	Supply plan error for adult ARVs this quarter is 15 percent, a recovery from last quarter's 26 percent. The four quarter metric for adult ARVs also saw a slight recovery, decreasing to 6 percent from last quarter's 16 percent. In Q1, variance can be accounted for by three orders: Vietnam ordering 230,000 adult ARVs that were not planned, Zimbabwe ordering 352,000 adult ARVs that were not planned, and Uganda ordering 93,000 pediatric ARVs that were not planned. For pediatric ARVs, supply plan error decreased greatly to 9 percent for the quarter, from last quarter's 45 percent, due to the recovery from Q4's underplanning. The pediatric ARV four quarter metric remained low at 10 percent this quarter.
TO1 - HIV	Supply plan error for lab commodities widened this quarter, from 12 percent in Q4 to 52 percent. All lab products this quarter were underplanned, with unexpected orders for all types of lab products being placed. Uganda over-ordered CD4 products, Tanzania placed an unexpected EID order, Nigeria placed an unexpected VL order and an unexpected molecular order, and both Zambia and Tanzania placed unexpected orders for other lab products. The rolling four quarters metric also increased this quarter to 33 percent, falling outside of the goal of 25 percent. The VL/EID team is currently in the process of expanding service level agreements to Wave-2 countries, which are offered a "volume incentive" pricing scheme, where the total volume of ordered tests in a specific year determines the price per test for the following calendar year, which may have an impact on the forecast error rates in coming quarters.
TO2 - Malaria	Supply plan error for ACTs increased this quarter to 87 percent, with a rolling four quarter error metric of 56 percent. Supply plan error for AL specifically also increased this quarter to 87 percent, with a rolling four quarters metric of 69 percent. This quarter observed significant discrepancies between supply plans and actual orders. Mozambique received several orders that were on hold from earlier in the year. Zambia had emergency orders, and many other countries received orders that were not planned. However, Nigeria and Liberia ordered exactly in accordance with their supply plan for this quarter. Many of the intended orders for FY22 were shifted to this quarter. For ASAQ, the forecasted quantity was exactly what was delivered this quarter with nothing forecasted and nothing delivered, having a forecast error of 0 percent for the quarter and 50 percent for the rolling metric. Among ACT products, ASAQ had previously been a challenging commodity as countries adjusted to changing consumption trends, but it seems countries have made the necessary adjustments to their expected ACT consumption, both forecasting and ordering no ASAQ products this quarter. The rolling four quarters metric for mRDTs increased to 40 percent this quarter, with a single-quarter error of 93 percent, primarily attributed to a delay in order from the previous year for Mozambique, who had planned for about 300,000 deliveries but had 12 million. In addition, six other countries had planned for nothing this quarter and also recieved orders. For the remainder of this year, TO2 will engage with FO staff to ask more questions about supply plans to encourage countries to report more accurate plans that better align with their ordering intentions for each quarter.
TO3 - FP/RH	Forecast errors for implants decreased from the previous quarter's 15 percent to 3 percent in Q1, which also slightly decreased the rolling four quarters metric to 8 percent. The forecast error for injectable contraceptives increased this quarter from 10 percent to 22 percent, and the four quarter rolling metric increased to 7 percent, falling within the target of 22 percent. Combined oral contraceptives had a decrease in forecast error, from 20 percent to 4 percent this quarter, and the rolling four quarters supply plan error has recovered from past quarters and remains low at 5 percent. All COC orders in this period except for one line item from Togo were placed with sufficient lead time. Progestin-only pills saw a widening in the error this quarter, to 44 percent, due to an overforecasting of December 2022's needs and unrealized demand. This also slightly decreased the four quarters metric to 2 percent, due to the negative forecasting error counteracting the previous four quarters' positive errors. Lastly, copper-bearing IUDs had an interesting performance this quarter, with an unmeasurable error, because 29,300 units were forecasted and 0 were ordered. This, however, is captured in the four quarters rolling metric, which had a narrowing this quarter to 12 percent from last quarter's 48 percent. Having a quarter, especially the first quarter of the fiscal year, with no orders of IUDs is not unusual for the project, given how few IUD orders are placed in general, and does not point to any future trends All orders for implantable contracptives except for two line items from Cote d'Ivoire were placed with sufficient lead times.

Vendor Performance

Current Reporting Period

2023-Q1

A14a-c. Average vendor rating score

Vendor Type	Average vendor rating
Commodity Supplier	60%
Freight Forwarder	82%
QA Lab	93%

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?	92%	48%	44%
2 - Responsiveness	Does the lab provide prompt response after receipt of GHSC-PSM request for testing	95%	15%	14%
3 - Completeness of Documentation	Frequency of modification to Certificates of Analysis (CoA)	97%	18%	17%
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)	82%	10%	8%
Total			**100%**	**93%**

Analysis

This quarter's average freight forwarder vendor rating shows a result of 80 percent for average 3PL performance. Performance within the EDI status performance saw a decrease this quarter in the timeliness category, while completeness had an increase. ETA Delivery Accuracy/Reliability, Customer Service, Rate of Deliveries without NCRs, and On-time Spot Quote Turnaround saw increased or consistent scores. On-time performance, which is the most heavily weighted category, declined slightly but maintained a high score this quarter at 83 percent. Invoicing accuracy saw a decrease in scores. The project is taking several steps to improve scores in this area, including 1) providing formalized invoicing guidance to 3PLs, 2) reviewing data and revising internal targets to better communicate expectations, and 3) integrating invoicing timeliness criteria into the current rate refresh and lane awards.

The vendor scorecard rating for lab service providers this quarter was 93 percent, remaining relatively consistent with the previous quarter. Scores were high across the board, as well, with invoice accuracy scoring 100 percent, completeness scoring 97 percent, responsibleness scoring 95 percent, reliability scoring 92 percent, and service scoring 82 percent. Responsiveness and service had the only decreases in score this quarter, while invoice accuracy remained the same for the third quarter in a row, and reliability and completeness saw increases in scoring.

High-risk high-value supplier on-time performance (OTP) decreased slightly from 62 percent in FY22 Q4 to 60 percent in FY23 Q1. Improvements were achieved with TO2 and TO3 performance, notably with a 10 percent increase in TO2 performance, but this was offset by the decline in performance with TO1, which accounted for the majority of lines during the quarter (699 lines out of a total of 901 lines). TO1 commodities mostly showed similar declines in performance, particularly with lab and ARV commodities. The primary driver of the drop of overall OTP is a drop in OTP in laboratory products, due to slow response times from suppliers. However, VMMC commodities and condoms did improve their performance.

Data notes

Per the GHSC-PSM M&E plan, targets are not required for vendor performance indicators.

Complete Quarterly Results (TO1)

Reporting Period

2023-Q1

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	**90%**	**68**	**95%**	**85**	**7.9%**	**279**	**65%**	**$592,243**
COVID19	90%	68	95%	85	7.9%	279	65%	$592,243
TO1 - HIV	**82%**	**939**	**90%**	**875**	**4.9%**	**4,176**	**94%**	**$142,858,985**
Adult ARV	78%	59	84%	62	5.0%	317	100%	$70,662,461
Condoms	81%	52	91%	53	4.1%	195	100%	$3,619,571
Food and WASH					100.0%	1		
Laboratory	81%	665	91%	597	4.5%	2,911	85%	$51,201,599
Other Non-Pharma	87%	55	86%	57	6.2%	225	77%	$1,359,674
Other Pharma	97%	34	97%	34	15.8%	165	100%	$2,294,188
Other RTK	79%	14	77%	13	6.7%	30	0%	$372,843
Pediatric ARV	73%	26	79%	24	3.4%	148	100%	$5,173,484
TB HIV	86%	7	86%	7	0.0%	89	100%	$6,078,745
Vehicles and Other Equipment					0.0%	9		
VMMC	96%	27	89%	28	3.5%	86	100%	$2,096,421
Total	**82%**	**1,007**	**90%**	**960**	**5.1%**	**4,455**	**94%**	**$143,451,228**

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	15%	15%	6%	-6%
Laboratory	52%	52%	33%	33%
Pediatric ARV	9%	9%	10%	10%
A6b - Forecast Error				
Condoms	26%	-26%	21%	21%

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment			**Total**
Task Order	Air	Land	Sea	Air	Land	Sea	
TO1 - COVID19	**205**	**131**	**186**	**64**	**56**		**188**
COVID19	205	131	186	64	56		**188**
TO1 - HIV	**246**	**235**	**358**	**311**	**310**	**250**	**257**
Adult ARV	230		200	315	22	192	**233**
Condoms			380	401	454	261	**360**
Laboratory	243	235	379				**243**
Other Non-Pharma	240	222	397				**240**
Other Pharma	355	310	470				**397**
Other RTK	335						**335**
Pediatric ARV	251		292	385			**276**
TB HIV	155			212		542	**235**
VMMC	198	189	337				**248**
Total	**244**	**235**	**309**	**298**	**247**	**250**	**252**

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
84%	$4,780,392

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
ARVs	100%	21
Condoms	100%	21
Lab (HIV diagnostics)	100%	15
RTKs	100%	20
VMMC	100%	5

C7a and C7b. Product loss due to expiry, theft, damage, and other causes

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
Nigeria	Damage	ARVs	$303,679	$47,953,008	0.63%
Kenya	Damage	Laboratory	$1,164	$6,228,263	0.02%
Malawi	Damage	Laboratory	$1,541	$1,258,720	0.12%
RDC	Expiry	NA	$644	$4,825,553	0.01%
Botswana	Incorrect Product Ordered	Other Non-pharma	$1,453	$469,932	0.31%
Nigeria	Temperature Excursion	Laboratory	$1,357,196	$15,079,946	9.00%

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	60%
Freight Forwarder	82%

Complete Quarterly Results (TO2)

Reporting Period

2023-Q1

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	**84%**	**188**	**82%**	**198**	**2.6%**	**869**	**9.0%**	**188**	**100%**	**$38,650,483**	**100%**	**77**	**0.0%**	**169**		
ACTs	89%	45	93%	44	0.4%	282	2.2%	45	100%	$11,301,145	100%	29	0.0%	42		
Laboratory	86%	65	80%	70	5.2%	173	0.0%	65	100%	$62,615						
LLINs	85%	27	83%	29	4.4%	159	7.4%	27	100%	$5,164,033	100%	9	0.0%	22		
mRDTs	91%	11	100%	10	1.6%	62	36.4%	11	100%	$11,210,251	100%	8	0.0%	25		
Other Non-Pharma	100%	1	100%	1	0.0%	21	0.0%	1	100%	$2,511						
Other Pharma	100%	1	33%	3	42.9%	7	100.0%	1	100%	$133,400	100%	2		0		
Severe Malaria Meds	68%	34	75%	32	1.1%	92	23.5%	34	100%	$4,559,008	100%	22	0.0%	65		
SMC	100%	3	100%	3	0.0%	39	0.0%	3	100%	$4,950,815	100%	2	0.0%	6		
SP	100%	1	67%	3	2.9%	34	100.0%	1	100%	$1,266,705	100%	5	0.0%	9		
Vehicles and Other Equipment			0%	3												
Total	**84%**	**188**	**82%**	**198**	**2.6%**	**869**	**9.0%**	**188**	**100%**	**$38,650,483**	**100%**	**77**	**0.0%**	**169**		

A3. Cycle time (average)

Fulfillment Channel / Task Order	Direct Drop Fulfillment Air	Land	Sea	Warehouse Fulfillment Sea	**Total**
TO2 - Malaria	**381**	**413**	**374**	**152**	**372**
ACTs	203	308	308	124	**255**
Laboratory	429		331		**427**
LLINs		517	385		**395**
mRDTs	277		350		**343**
Other Non-Pharma	565				**565**
Other Pharma	191				**191**
Severe Malaria Meds	452		432		**436**
SMC				171	**171**
SP			202		**202**
Total	**381**	**413**	**374**	**152**	**372**

C7a and C7b. Product loss due to expiry, theft, damage, and other causes

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
Angola	Damage	Laboratory	$3,514	$106,833	3.29%
RDC	Expiry	NA	$0	$336,337	0.00%

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Malaria commodities	100%	27

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
85%	$134,309

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	87%	87%	56%	56%
mRDTs	93%	93%	40%	40%

A14. Average vendor rating - QA labs

Average vendor rating
93%

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	60%
Freight Forwarder	82%

Complete Quarterly Results (TO3)

Reporting Period

2023-Q1

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	**88%**	**81**	**88%**	**85**	**1.8%**	**228**	**100%**	**$15,871,720**
Combined Oral Contraceptives	90%	10	91%	11	6.5%	31	100%	$673,983
Copper-Bearing Intrauterine Devices	100%	7	88%	8	7.1%	14	100%	$90,180
Emergency Oral Contraceptives	100%	1	100%	1	0.0%	3		
Implantable Contraceptives	88%	26	88%	26	0.0%	65	100%	$11,052,180
Injectable Contraceptives	77%	13	85%	13	1.8%	55	100%	$3,672,115
Levonorgestrel-Releasing Intrauterine Devices					0.0%	1	100%	$41,130
Other Non-Pharma	0%	1	100%	1	0.0%	4	100%	$85,000
Progestin Only Pills	89%	19	86%	21	0.0%	38	100%	$240,192
Standard Days Method	100%	4	100%	4	0.0%	17	100%	$16,940
Total	**88%**	**81**	**88%**	**85**	**1.8%**	**228**	**100%**	**$15,871,720**

A7. Temporary Waiver Percentage

Task Order	Temporary registration waiver percentage	Total # of line items delivered
TO3 - FP/RH	**3.7%**	**81**
Emergency Oral Contraceptives	100.0%	1
Combined Oral Contraceptives	10.0%	10
Implantable Contraceptives	3.8%	26
Copper-Bearing Intrauterine Devices	0.0%	7
Injectable Contraceptives	0.0%	13
Other Non-Pharma	0.0%	1
Progestin Only Pills	0.0%	19
Standard Days Method	0.0%	4
Total	**3.7%**	**81**

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment		**Total**
Task Order	Air	Land	Sea	Air	Sea	
TO3 - FP/RH	**307**	**382**	**344**	**214**	**260**	**278**
Combined Oral Contraceptives	217		349	126	255	**240**
Copper-Bearing Intrauterine Devices					266	**266**
Emergency Oral Contraceptives	394					**394**
Implantable Contraceptives	473		408	214	219	**269**
Injectable Contraceptives	173	365	346	185	314	**282**
Other Non-Pharma		417				**417**
Progestin Only Pills				271	300	**294**
Standard Days Method			291			**291**
Total	**307**	**382**	**344**	**214**	**260**	**278**

C7a and C7b. Product loss due to expiry, theft, damage, and other causes

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
RDC	Expiry	NA	$0	$5,584,084	0.00%

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Condoms	100%	21
FP commodities	96%	23

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	4%	-4%	5%	5%
Condoms	26%	-26%	21%	21%
Copper-bearing Intrauterine Devices			12%	-12%
Implantable Contraceptives	3%	3%	8%	-8%
Injectable Contraceptives	22%	-22%	7%	-7%
Progestin Only Pills	44%	-44%	2%	-2%

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
87%	$6,066,116

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	60%
Freight Forwarder	82%

Complete Quarterly Results (TO4)

Reporting Period

2023-Q1

	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%**	**12**	**100%**	**12**	**2.7%**	**37**	**87%**	**$2,853,466**
Laboratory							100%	$32,567
Other Non-Pharma	100%	11	100%	11	0.0%	24	28%	$534,708
Other Pharma	100%	1	100%	1	7.7%	13	100%	$2,286,191
Total	**100%**	**12**	**100%**	**12**	**2.7%**	**37**	**87%**	**$2,853,466**

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	60%
Freight Forwarder	82%

A3. Cycle time (average)

Task Order	Direct Drop Fulfillment	Total
TO4 - MNCH	**472**	**472**
Other Non-Pharma	471	**471**
Other Pharma	476	**476**
Total	**472**	**472**

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
A03	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. The project is implementing new dwell tracking procedures, with the intent of reporting dwell-adjusted cycle time by FY2021.

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.

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.