USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM
Procurement and Supply Management

FISCAL YEAR 2022

QUARTERLY REPORT | QUARTER 3

APRIL 1, 2022 TO JUNE 30, 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 2022

QUARTERLY REPORT

April 1, 2022, to June 30, 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)
3PL	third-party logistics
ABC	activity-based costing
AEFI	adverse events following immunization
ALu	artemether-lumefantrine
ACT	artemisinin-based combination therapy
AMF	Against Malaria Foundation
API	active pharmaceutical ingredient
APWG	ARV/3HP Procurement Working Group
ARPA	American Rescue Plan Act
ART	antiretroviral therapy
ARV	antiretroviral

AZ	AstraZeneca
BHA	Bureau of Humanitarian Assistance
BMGF	Bill & Melinda Gates Foundation
CAMEBU	Central Medical Store in Burundi
CHAI	Clinton Health Access Initiative
CHTF	Child Health Task Force
CMS	central medical store
CAPA	corrective and preventive action
CAP/CTM	Cobas Ampliprep/Cobas TaqMan
COC	combined oral contraceptive
COP	country operational plan
DAP	Delivered at Place
DCP	decentralized procurement

DNO	diagnostic network optimization
DOD	U.S. Department of Defense
DRC	Democratic Republic of the Congo
DTG	dolutegravir
DTG 10 mg DT	dolutegravir 10 mg dispersible tablet
EFDA	Ethiopian Food and Drug Authority
EFDA	Ethiopian Food and Drug Authority
EID	early infant diagnosis
eLMIS	electronic logistics management information system
ENAP	Every Newborn Action Plan
EPSS	Ethiopian Pharmaceuticals Supply Service
EUV	end-use verification
FASP	forecasting and supply planning

FLARE	First-Line ARV Reporting and Evaluation
FP/RH	family planning/reproductive health
FTO	Francophone Task Order
FY	fiscal year
GAD	goods availability date
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
GTIN	Global Trade Item Number
HDP	hypertensive disorders of pregnancy

HRP	histidine-rich protein
HSSP	Health Sector Strategic Plan
ICFP	International Conference on Family Planning
IRS	Indoor Residual Spraying
ITN	Insecticide-treated net
IUD	intrauterine device
J&J	Johnson & Johnson
KPI	key performance indicator
KSM	key starting material
LLIN	long-lasting insecticide-treated net
LMD	last mile distribution
LDH	lactate dehydrogenase
LMIS	logistics management information system

LOX	liquid oxygen
LQAG	LLIN Quality Assurance Group
MCH	maternal and child health
MEDS	Mission for Essential Drugs and Supplies
MHSC	Maternal Health Supplies Caucus
MIS	management information system
MMD	multi-month dispensing
MNCH	maternal, newborn, and child health
MOH	Ministry of Health
MOP	Malaria Operational Plan
MPA-IM	medroxyprogesterone acetate-intramuscular
mRDT	malaria rapid diagnostic test
MSF	Médecins Sans Frontières

MTaPS	Medicines, Technologies and Pharmaceutical Services
NPC	National Product Catalog
NMCP	National Malaria Control Program
NSCA	National Supply Chain Assessment
OC	oral contraceptive
OOS	out-of-specification
OTD	on-time delivery
OTIF	on-time, in-full delivery
PBO	Piperonyl Butoxide
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PLHIV	people living with HIV
PME	performance monitoring and evidence
PMI	U.S. President's Malaria Initiative

PO	purchase order
POC	point of care
PPE	personal protective equipment
PPH	postpartum hemorrhage
PQ	prequalified
PQM+	Promoting the Quality of Medicines Plus
PPH	postpartum hemorrhage
PPMRm	Procurement Planning and Monitoring Report for malaria
PrEP	pre-exposure prophylaxis
PRH	Population and Reproductive Health
PSA	pressure swing absorption
PSBI	possible serious bacterial infection
Q	quarter

QA	quality assurance
QAT	Quantification Analytics Tool
QBR	quarterly business review
QC	quality control
QMIA	Quality Management Improvement Approach
RDC	regional distribution center
RFI	request for information
RFP	request for proposal
RMNCH	reproductive, maternal, newborn, and child health
RMS	Rwanda Medical Supply Ltd.
RO	requisition order
RRF	report and requisition form
RTK	rapid test kit

SC	subcutaneous
SDP	service delivery point
SIAPS	Systems for Improved Access to Pharmaceutical and Services
SLA	service-level agreement
SGB	Sourcing Governance Board
SMC	seasonal malaria chemoprevention
SMO	social marketing organization
SOP	standard operating procedure
SP	sulfadoxine/pyrimethamine
SPAQ	sulphadoxine-pyrimethamine + amodiaquine
SSA	semi-synthetic artemisinin
SUMEVE	single system for monitoring and evaluation of HIV epidemiological surveillance
SWEPR	South West Ethiopian People Region

TA	technical assistance
TB	tuberculosis
TE	tenofovir/emtricitabine
TL	tenofovir/lamivudine
TLD	tenofovir/lamivudine/dolutegravir
TO	task order
TPT	TB preventive treatment
UAT	user acceptance testing
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
ZPBF	Zambian Pharmaceutical Business Forum

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 to summarize our work and performance for the third quarter (Q3) of Fiscal Year 2022 (FY 2022). 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 (PMI), 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 Fast Facts

Over the life of the project, GHSC-PSM has:

- Delivered more than **75.8 million bottles of tenofovir/lamivudine/dolutegravir (TLD)** to **30 countries**[1]
- Delivered enough antimalarials to treat **455.3 million infections**
- Delivered enough contraceptives to provide **an estimated 105.77 million couple-years of protection**, when combined with proper counseling and correct use
- Procured a total of over **$24.77 million in MNCH commodities**
- Supported **50 countries** with technical assistance

In Q3, the project achieved strong on-time delivery (OTD) and on-time, in-full (OTIF) delivery while operating the global supply chain within the context of the continuing impact of the COVID-19 pandemic and in the face of unforeseen challenges, including the war in Ukraine and the COVID shutdown in Shanghai. The former, with the application of sanctions and no fly zones significantly disrupted air traffic routes and air cargo planes, while the latter disrupted both air and ocean freight. Since the pandemic began, the air freight industry has relied on freighter aircraft to compensate for the reduction in passenger flights. During the Shanghai lockdown, mass cancellations of freighters resulted in 20 fewer freighters per week departing Shanghai. The reduction in the number of freighters has reduced overall exporting capacity by 2,500 metric tons per week. This capacity constraint made it difficult to book air freight and increased the time required for shipments to depart China.

The war in Ukraine's impact on fuel prices and logistics eliminated possible improvements in global freight. In addition to ongoing constraints in the ocean freight market, significant vessel delays and port congestion created unreliable schedules that in turn are contributing to longer lead times for deliveries.

[1] This total figure includes more than 45 million bottles of TLD 90, 28 million bottles of TLD 30, and 2.3 million bottles of TLD 180. For more information, see Section B1. HIV/AIDS, TLD and multi-month dispensing.

GHSC-PSM closely monitors rate fluctuations in the freight market and freight capacity and works with suppliers and other logisticians to mitigate their impacts. (For more details, see section C1. Global Supply Chain)

COVID-19 continues to impact key areas throughout the supply chain. In Q3, vendors s highlighted significant manufacturing challenges due to delays in their supply chains. This delayed goods availability dates from all malaria laboratory equipment suppliers, but eased somewhat by the end of the quarter. (See section B2. Malaria)

Through it all, GHSC-PSM continues to focus on fulfilling its mandate of ensuring a secure, consistent, reliable supply of quality commodities when and where they are needed. Some highlights from Q3 include:

- GHSC-PSM continues to rise to the challenge when called upon to respond to emergencies. The project worked with USAID and 100% Life to deliver critical anti-retrovirals (ARVs) and an emergency order of 68 cases of male condoms to Ukraine. A notable achievement was extending delivery of ARVs to the central warehouse in Kiev. GHSC-PSM also delivered emergency orders to Cote d' Ivoire and the Democratic Republic of Congo. (For more information, see Section B1. HIV/AIDS.) The project also achieved a major milestone and made its last COVID-19-related commodity delivery to Italy. All activities under the Italy Workstream are now complete. (For more information, see Annex A. COVID-19 Response.)
- In Nigeria, GHSC-PSM is implementing a pilot to capture long-lasting insecticide-treated net (LLIN) campaign data at specific distribution points to enable verification of net authenticity. (For more information, see section B2. Malaria).
- A third party performed an independent audit of the annual stock count at the project's Belgium regional distribution center (RDC) and reported stock-keeping accuracy at 99.88 percent. (For more information, see section C1. Global Supply Chain.)
- GHSC-PSM provided technical assistance and related procurement support to various countries in their COVID-19 vaccine rollout. In Botswana, GHSC-PSM worked with the Ministry of Health (MOH) to develop and roll out a real-time data visibility tool for COVID-19 vaccines. In Malawi, the project supported the MOH in distributing approximately 270,000 vaccine doses to all the districts across the country. In El Salvador, GHSC-PSM added over 70 percent of the refrigerated warehouses in the country to the Cold Chain Monitoring Platform. (For more information, see Annex A. COVID-19 Response.)
- GHSC-PSM process improvement initiatives contributed to an ARV purchase order (PO) release average cycle time reduction of 35 percent from Q2 to Q3, and an end-to-end average cycle time reduction of 11 percent for the same time period. (For more information, see section B1. HIV/AIDS,)
- GHSC-PSM's "virtual' manager activity went live. This internal process mechanism uses advanced workflow strategies, single-source storage of data, user notifications, and machine learning data processing to enable a speedier life cycle management process. (For more information, see section C1. Global Supply Chain,).
- Chemonics hosted a virtual Health Supply Chain Technical Exchange as an opportunity for GHSC-PSM and GHSC-Technical Assistance (GHSC-TA) Francophone Task Order (FTO) staff to share technical knowledge, country experiences, and best practices. The event centered around four key supply chain themes: data-driven supply chains, risk management and resiliency, sustainability, and person-centered approaches to reach the last mile. Attendees included

representatives from GHSC-PSM, GHSC-TA FTO, Frontiers Health Market, and USAID. GHSC-PSM led or co-led every breakout session focused on the key supply chain areas. GHSC-PSM staff from 22 country offices presented 30 posters highlighting their latest project innovations and successes.

- GHSC-PSM is preparing for the transition to the NextGen suite of projects. After standing up its Transition Management team in Q2, the project continued to refine and roll out tools to support transition management. In Q3, GHSC-PSM rolled out the Country Workstream and Stakeholder Analysis Tool to 46 GHSC-PSM office and non-field office countries and began to update the project's inventory of information assets. The Transition Management team, in consultation with the Transition Advisory Group, also drafted a High-Level Transition Concept Note to outline the project's vision for a successful transition and organizing framework. This quarter, GHSC-PSM continued transition-focused meetings with USAID to coordinate on transition planning and related risk mitigation. Transition planning efforts will continue to ramp up in Q4.

Global Supply Chain Performance

Section C1 describes GHSC-PSM's global supply chain procurement and logistics activities and achievements. Highlights of our global supply chain performance in Q3 are below.

Procured over $115.13 million in drugs, diagnostics, and health commodities in Q3, and over $4.5 billion to date.

Delivered over $296 million in drugs, diagnostics, and health commodities in Q3, and over $4.3 billion to date.

Achieved OTD[2] **of 87 percent (74 percent COVID-impacted)**[3] **and OTIF of 84 percent (70 percent COVID-impacted)** (see Exhibits 1 and 2). The backlog of late orders was 1.2 percent.

OTD rates stayed consistently strong for all health areas in Q3. OTD was 87 percent (74 percent COVID-impacted) and OTIF was 84 percent (70 percent COVID-impacted) for the quarter, the 13th successive quarter that OTD has been above 85 percent. OTD was 87 percent (74 percent COVID-impacted) for HIV; 87 percent (71 percent COVID-impacted) for malaria; 95 percent (88 percent COVID-impacted) for FP/RH, and 93 percent (53 percent COVID-impacted) for MNCH medicines and commodities, each of which exceeded the contract's 80 percent quarterly target.

Additional delivery results, including OTIF, are discussed below in each health area section. Note that, as of the end of Q2 FY 2020, the number of COVID-impacted orders started to increase significantly and continued to adversely impact on-time delivery performance through Q3 FY 2022. The high degree of uncertainty and the extreme volatility in freight costs in global supply chains caused by the pandemic

[2] 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.

[3] 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.

continues to impact a large number of orders. GHSC-PSM continues to conduct root-cause analyses of late deliveries to refine procurement and supply chain processes and to continuously improve performance.

Exhibit 1. OTD April 2021–June 2022

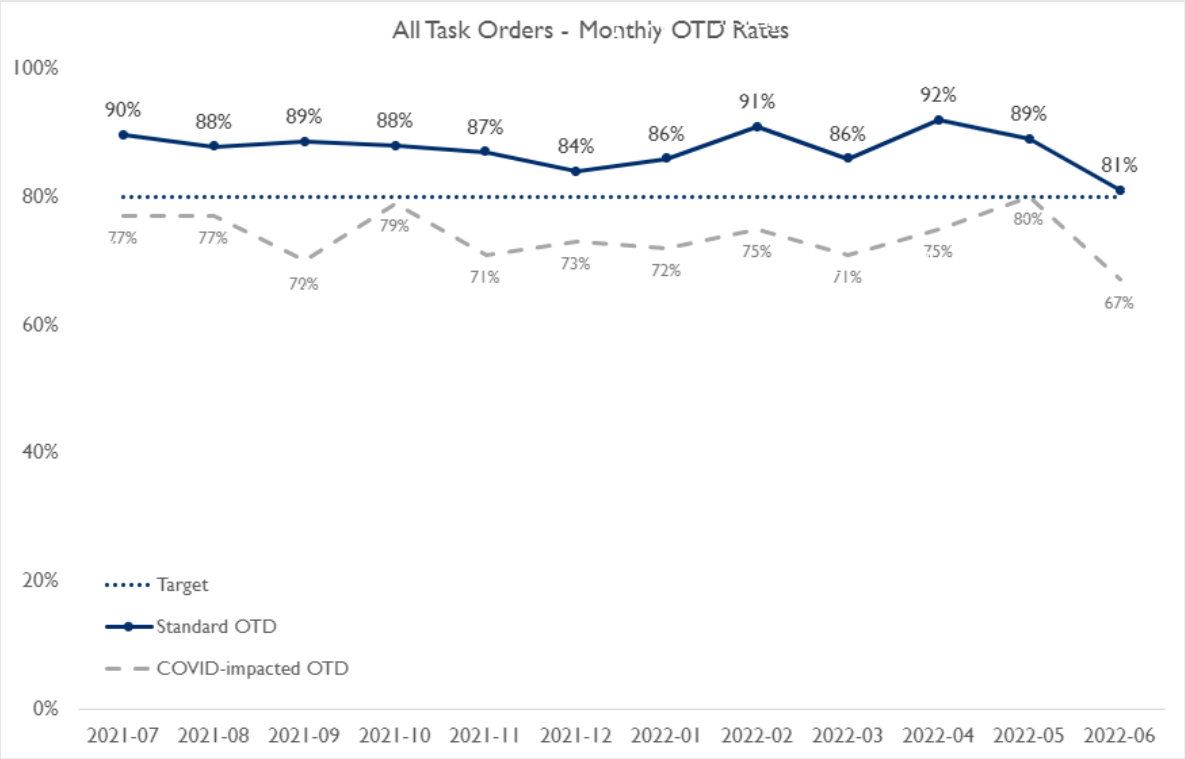
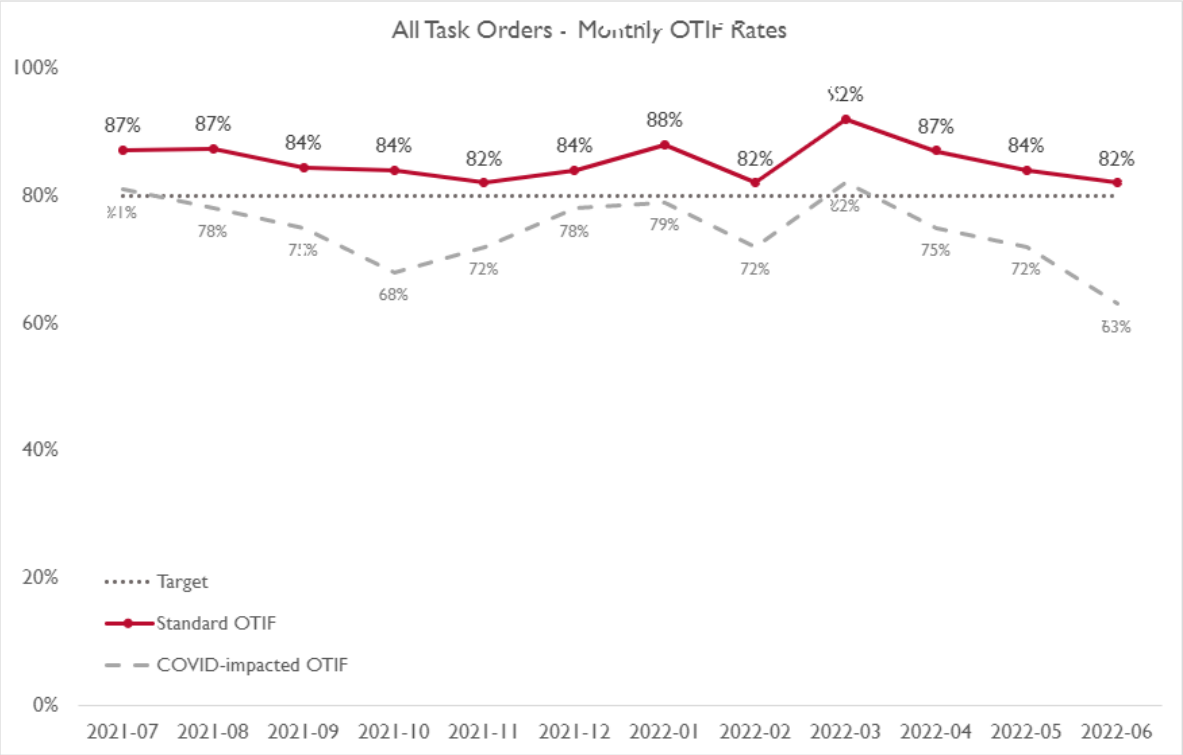


Exhibit 2. OTIF April 2021–June 2022



In Q3, GHSC-PSM made significant efforts to address the lingering impacts of COVID-19 on freight and logistics that were further exacerbated by Russia's invasion of Ukraine. The project continues to show its adaptability and flexibility in handling unforeseen shifts in the marketplace.

HEALTH AREAS

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

GHSC-PSM has delivered enough antiretroviral therapy to **provide nearly 19.76 million patient-years of HIV treatment to date.**

This includes **14.8 million patient-years of TLD treatment delivered to date.**

HIV/AIDS
Support for Country Operational Plans (COPs)

GHSC-PSM provided technical support for voluntary medical male circumcision (VMMC) during the COP22 quantification in collaboration with USAID/Tanzania and Tanzania-based U.S. Department of Defense (DOD), and U.S. Centers for Disease Control and Prevention (CDC) VMMC implementing partners.

Pre-exposure prophylaxis (PrEP). In Q3, GHSC-PSM delivered $3.5 million worth—almost 1 million PrEP bottles—to 13 countries. This is the sixth consecutive quarter with deliveries of more than 900,000 packs

Condoms. GHSC-PSM delivered condoms (male and female) and lubricant to 16 countries, including an emergency order of condoms and lubricants to Ukraine. The project published the Annual Comprehensive Agency Report on Condoms and Lubricants for FY 2021 showing consistent funding support for the condoms program over the last three years.

Access to essential medicines. GHSC-PSM began a strategy review process in Q3, including a number of internal sessions to discuss proposed changes, a review of the Essential Medicines Product List, and continued negotiations with a manufacturer to procure amphotericin B liposomal.

Transitioning to dolutegravir (DTG) 10 mg. Building on the transition to the new optimal pediatric ARV, DTG 10 mg, in Q3, GHSC-PSM delivered more than 493,000 bottles ($2 million) of DTG 10 mg—the preferred pediatric integrase strand transfer inhibitor (INSTI) ARV—to 13 countries. These deliveries will ensure that each country can initiate their DTG 10 mg transition in line with approved transition plans.

Actualizing multi-month dispensing. In Q3, GHSC-PSM delivered nearly 6.8 million bottles of TLD 90 and 180 valued at $95 million to nine countries, with $20 million being delivered to Zambia and Zimbabwe under Delivered at Place (DAP) IncoTerms.

Expanding the ARV DAP program. GHSC-PSM delivered $27.7 million in orders under DAP Incoterms in Q3, and processed an additional 33 orders valued at $12.2 million.

Implementing viral load awards. Preliminary end-of-year data analysis shows that in Q3, GHSC-PSM and designated non-project buyers (e.g., Global Fund, Ministries of Health, and national procurement agencies) procured more than 3.78 million viral load/early infant diagnosis (VL/EID) tests for delivery. and that the project achieved approximately $11.9 million in savings under the terms of global service-level agreements with the three VL/EID manufacturers.

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

To date, GHSC-PSM procured **over $1 billion in malaria medicines and commodities for 31 countries.**

This includes treatment for **28.6 million infections in Q3 and 455 million to date.**

In Q3, GHSC-PSM **delivered 18.4 million LLINs to 15 countries.**

Malaria

GHSC-PSM under the PMI-funded malaria task order supplies lifesaving prevention and treatment medicines for malaria. The project offers partner countries new approaches to strategic planning, logistics, data visibility, analytics, and capacity building in line with PMI strategies.

Achieving on-time delivery. GHSC-PSM achieved consistently high OTD performance for malaria drugs and commodities in Q3—87 percent (71 percent COVID-impacted) for the quarter.

Focusing on sourcing, procurement strategies, and supplier engagement.

The project concluded negotiations with one of two manufacturers for vendor stored inventory (VSI) contracts. Contract negotiations with a second manufacturer are expected to be completed in Q4. After both contracts have been completed, the project will begin planning to formally implement VSI as a key proactive procurement strategy for ALu.

Providing quality assurance (QA). GHSC-PSM facilitates robust quality and quality management systems for products the project procures.GHSC-PSM is using the insights gained to enhance the quality of LLINs.

The project also initiated out-of-specification investigations into an LLIN product and a malaria rapid diagnostic test product. GHSC-PSM is collaborating with PMI, the Global Fund, and United Nations Children's Fund on the QA approach for the investigations.

Prioritizing and redirecting orders. GHSC-PSM worked with USAID to prioritize orders based on need and conducted commodity order transfers to improve stock status. In Q3, the project transferred 3,000 packs of rectal artesunate from Burundi to Benin. Due to the country's urgent need, goods were made available for immediate distribution.

Implementing the Stockout Reduction Initiative. In Q3, the project introduced a Microsoft Excel-based budget template to the 20 country offices to develop the budget for the investment planning for their FY 2023 work plans.

For more information, see section B2: Malaria.

Coordinating with Against Malaria Foundation (AMF). In Q3, to meet campaign distribution dates, GHSC-PSM prioritized the procurement of quality assurance and delivery services for the AMF procured 3,306,800 Piperonyl Butoxide LLINs for a distribution campaign in Bauchi, Nigeria, for production with the supplier. (For more information see section C3. Global Collaboration.)

GHSC-PSM has delivered enough contraceptives that, when combined with proper counseling and correct use, are estimated to **provide 105.77 million couple-years of protection to date.**

This includes **6.26 million couple-years of protection in Q3.**

FP/RH

Despite persistent and severe global supply shortages of injectable and implantable contraceptives, in Q3, GHSC-PSM maximized its strategic sourcing strategy to reduce supply risk and ensure countries had access to a continuous and reliable supply of FP/RH commodities. To mitigate the impact of COVID-19, the project continued to leverage stock at the RDCs and regularly analyzed allocation of production to ensure countries receive adequate supply to avoid any stockouts.

GHSC-PSM focuses on contraceptive security and the introduction of new products and innovations, including greener and harmonized packaging with the United Nations Population Fund. In Q3, GHSC-PSM continued to focus on realizing the benefits of the Global Family Planning Visibility and Analytics Network (VAN) by supporting and onboarding users; validating new features, processes, and data integrated with the VAN; and planning to codify VAN engagement by country offices in FY 2023.

On-time delivery. GHSC-PSM delivered 95 percent (88 percent COVID-impacted) of FP/RH commodities on time in Q3.

Collaboration with global stakeholders. The project supports global partners and raises awareness of the U.S. Government's FP/RH priorities and programs. It supported USAID's leadership in contraceptive security through various activities. In Q3, GHSC-PSM:

- Received six abstract acceptances to the International Conference on Family Planning 2022 (ICFP2022) taking place in Q1 FY 2023. Three abstracts focused on work conducted in Rwanda and Angola and the remaining three covered TO3 Core activities.

- Participated in the FP2030 Performance Monitoring and Evidence (PME) Working Group summer meeting in June. The members discussed the working group's role moving forward and provided input into future areas of investigation and advocacy.

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

In Q3, the project used maternal and child health funds to develop a **new electronic logistics management information system (eLMIS) application** to strengthen data quality **in Burkina Faso, piloting the application at 69 health facilities.**

MNCH

GHSC-PSM works to prevent child and maternal deaths by increasing access to quality-assured MNCH medicines and commodities, strengthening systems to ensure long-term financing and availability of MNCH commodities, and providing global technical leadership in these areas.

In Q3, the project focused on ensuring countries have the information and tools they need to avail and ensure the quality of commodities used to treat and prevent pregnancy-related disorders and childhood diarrhea, pneumonia, and possible serious bacterial infection (PSBI). GHSC-PSM also completed an activity to strengthen the domestic wholesaler operating environment for MNCH commodities in Zambia and provided significant MNCH commodity data collection and logistics management

information system (LMIS) support to help ensure sustainable systems are in place to improve child health and pregnancy outcomes.

Procuring and delivering commodities. Since the start of the project, GHSC-PSM has delivered over $24.77 million in MNCH drugs and commodities. Over the course of Q3, GHSC-PSM supported four countries[4] in procuring priority newborn and child health products and completed its final shipment of Zika commodities. The project also coordinated bilingual training for these commodities in three countries and for USAID staff.

Achieving on-time delivery. GHSC-PSM delivered 93 percent (53 percent COVID-impacted) of maternal and child health (MCH) commodities on time in Q3.

Providing international MNCH supply chain leadership and guidance. In Q3, GHSC-PSM continued a series of global technical discussions on availing commodities to treat childhood pneumonia and PSBI. GHSC-PSM also led a redesign of the Every Newborn Action Plan results framework. The project continued to work on two major MNCH resources, the Commodity Integration Playbook and the Postpartum Hemorrhage Compendium white paper.

Strengthening wholesalers' abilities to avail quality MNCH commodities. GHSC-PSM concluded its work to strengthen organizational capacity for the Zambian Pharmaceutical Business Forum and documented and published major takeaways from the activity in Q3.

Supporting systems for data-informed MNCH decision making. The project rolled out the Quantification Analytics Tool (QAT) forecasting module in Q3, integrating the recently updated, project-validated, Reproductive, Maternal, Newborn, and Child Health (RMNCH) quantification supplement. The project also continued to refactor Zambian data analytics tools and began refactoring tools from Liberia and Burkina Faso in Q3 so they can be used more broadly and effectively to track and make decisions around MNCH commodities. The project also provided eLMIS support with MCH funds in Burkina Faso, Nepal, and Zambia.

Working with countries to improve adherence to commodity quality standards and enhance in-country coordination and collaboration. The project facilitated MNCH supply chain successes through technical assistance to 14 countries in Q3. GHSC-PSM supported the management of antihypertensives in Ghana by assessing the system for barriers to supply and making them accessible to health providers and patients. The project also supported warehousing improvements in Nepal to ensure MNCH product quality, implemented a new approach for performance improvements at regional and service delivery point (SDP) levels to improve commodity management in Rwanda, and established an RMNCH technical working group in Zambia to troubleshoot supply chain issues and improve MNCH commodity availability and SDPs.

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. GHSC-

[4] GHSC-PSM procured MNCH commodities for four countries in Q3 FY 2022: DRC, Nigeria, Rwanda, and Zambia.

PSM manages 33 country or regional offices, supplemented by headquarters-based experts; these offices provide wide-ranging technical assistance to strengthen national health supply chains. Highlights in Q3 include:

- The project completed and launched the QAT forecasting module intended to support country-owned forecasting and supply planning. At the end of Q3, QAT users numbered 657 worldwide, including staff from host-country governments.
- GHSC-PSM provided technical support to 10 countries in Q3 to support their adoption of GS1 standards for product identification, location identification, and data exchange.
- In Kenya, the project rolled out the pilot of a "Stock Visibility System (SVS)" under Afya Ugavi to monitor commodities procured by USAID to fill a major data visibility gap as there was no mechanism in place to monitor the stock status of pharmaceutical commodities across the supply chain or at the point of dispensing to patients.
- The project continued to support Kenya with activity-based costing implementation at the Mission for Essential Drugs and Supplies (MEDS). Working closely with MEDS and USAID, GHSC-PSM developed a new profit and loss statement.
- In Zambia, the project is adapting a prototype dispatch optimizer, the Dynamic Routing Tool, at the central warehouse and in two regional hubs to strengthen last-mile delivery.
- In Botswana, the MOH and central medical store (CMS) launched the web-based Supply Chain Dashboard on DHIS2. CMS management team and inventory managers are using the tool to make decisions that prevent stock-outs in facilities.
- For the first time in Sierra Leone, the supply chain activities of community health workers at the last mile were mapped and completely accounted for in updated SOPs for the integrated health commodities logistics system.

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

Introduction

A1. Background

The 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.
- The U.S. Agency for International Development (USAID)'s Family Planning and Reproductive Health (FP/RH) program to ensure that key reproductive-health commodities are available for safe and reliable voluntary family planning.
- USAID's maternal and child health (MCH[5]) 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 7 below).

A2. About This Report

We are pleased to present our performance report for Q3 FY 2022 (April 1, 2022, through June 30, 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 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.

[5] 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 (MNCH) when discussing the technical content because we have a particular emphasis on supporting newborns.

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

- Annex B provides **performance indicators** for April 1, 2022, through June 30, 2022 (annual indicators).

Given the size and complexity of GHSC-PSM, this report summarizes our primary efforts and achievements in Q3 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	●		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	●		Republic of Yemen	●	
Ukraine	●				

PROGRESS BY HEALTH AREA

This section summarizes GHSC-PSM's support in Q3 for HIV/AIDS, malaria, FP/RH, maternal, newborn and child health (MNCH) and other public health threats.

B1. HIV/AIDS

GHSC-PSM has delivered enough antiretrovirals (ARVs) to provide nearly **19.7 million patient-years of HIV treatment over the life of the project**, including nearly **1.9 million patient-years of treatment in Q3**.

To date, GHSC-PSM has delivered over **75.8 million bottles of tenofovir/lamivudine/dolutegravir (TLD)**[6] to 30 countries, which would provide over **14.8 million patient years of treatment**.

Multi-month dispensing packages of TLD first-line treatment accounted for **100 percent of all quantities delivered** in Q3.

In Q3, **a total of 27 countries procured HIV/AIDS medicines and commodities.**[7]

28 countries[8] **are receiving health supply chain systems strengthening** with HIV/AIDS funding in Fiscal Year 2022 (FY 2022).

Thanks to multi-month dispensing (MMD), patients likely saved **over 15.4 million trips** to the pharmacy in Q3 and **more than 102 million trips over the life of the project, saving patients time and money**.

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

[6] This total figure includes more than 45 million bottles of TLD 90, 28 million bottles of TLD 30, and 2.3 million bottles of TLD 180. For more information, see Section B1. HIV/AIDS, TLD and multi-month dispensing..

[7] 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, Senegal, Sierra Leone, Rwanda, Tanzania, Togo, Uganda, Zambia, Zimbabwe; ASIA: Philippines CARIBBEAN: Haiti; CENTRAL/SOUTH AMERICA: Guatemala; EUROPE: Ukraine.

[8] GHSC-PSM is providing HIV-funded technical assistance support to the following countries: AFRICA: Angola, Botswana, Burkina Faso, Burundi, Cameroon, Eswatini, Ethiopia, Ghana, Kenya, Lesotho, Liberia, Malawi, Mozambique, Namibia, Nepal, Nigeria, Rwanda, Sierra Leone, Tanzania, Uganda, Zambia, Zimbabwe; CARIBBEAN: Haiti; CENTRAL/SOUTH AMERICA: El Salvador, Guatemala; Honduras, Panama EUROPE: Ukraine.

load testing commodities to monitor treatment efficacy. This requires global collaboration with suppliers, other donors (Global Fund), 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 HIV infected people know their status, **95** percent of these are on HIV treatment, and **95** percent of these have no detectable virus.

HIV/AIDS SUPPLY CHAIN ON-TIME DELIVERY

Procurement

GHSC-PSM has procured more than $3.025 billion in HIV commodities over the life of the project.

Deliveries

In Q3, GHSC-PSM delivered $192.26 million in HIV commodities to countries. Over the life of the project, GHSC-PSM has delivered nearly $2.89 billion in HIV commodities to countries. As previously mentioned, the timeliness of GHSC-PSM HIV deliveries remained consistently strong despite the high degree of uncertainty and volatility in the global supply chain.

OTD and OTIF

Timeliness of GHSC-PSM deliveries remained consistently strong for standard on-time delivery (OTD) over the reporting period, as shown in Exhibit 6. In Q3, OTD was at 87 percent for HIV (74 percent for COVID-19 impact). GHSC-PSM's on-time in-full (OTIF) rate measures the percentage of deliveries delivered on time and in full during a given period. Delivery of late orders in a subsequent month to the agreed-upon delivery date drives down the OTIF rate, as can delivery of split shipments, which helps explain the difference between OTD and OTIF rates. For OTIF, project performance continued to exceed the target of 80 percent, achieving 83 percent in Q3. See Annex A for further details.

Exhibit 4. HIV Commodities, OTD

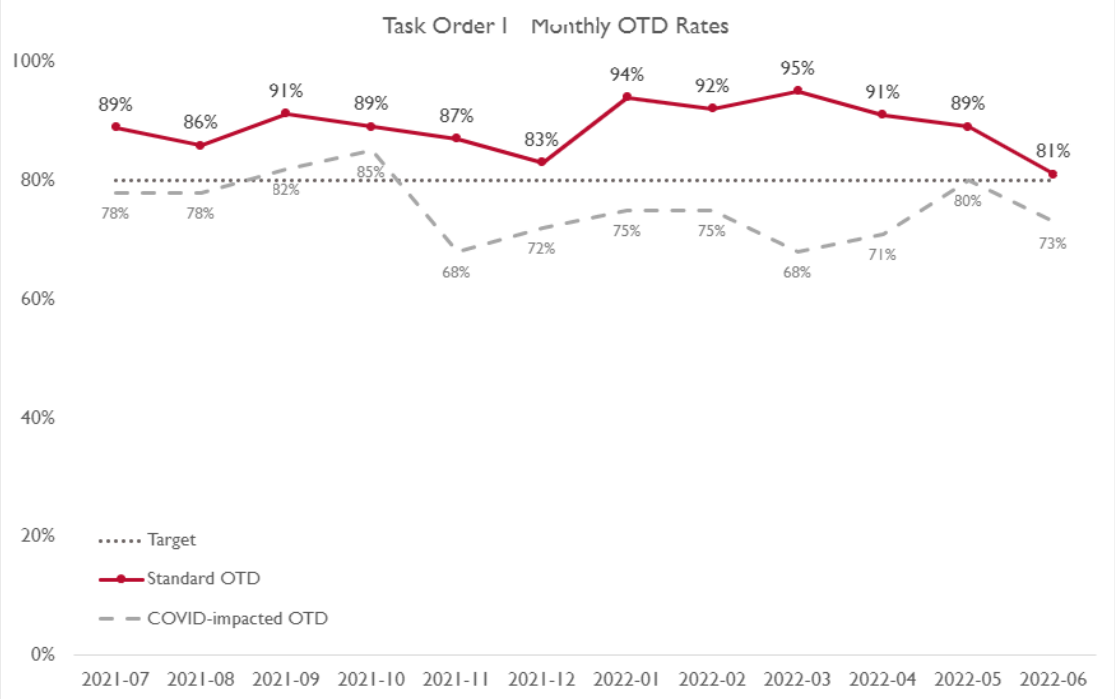
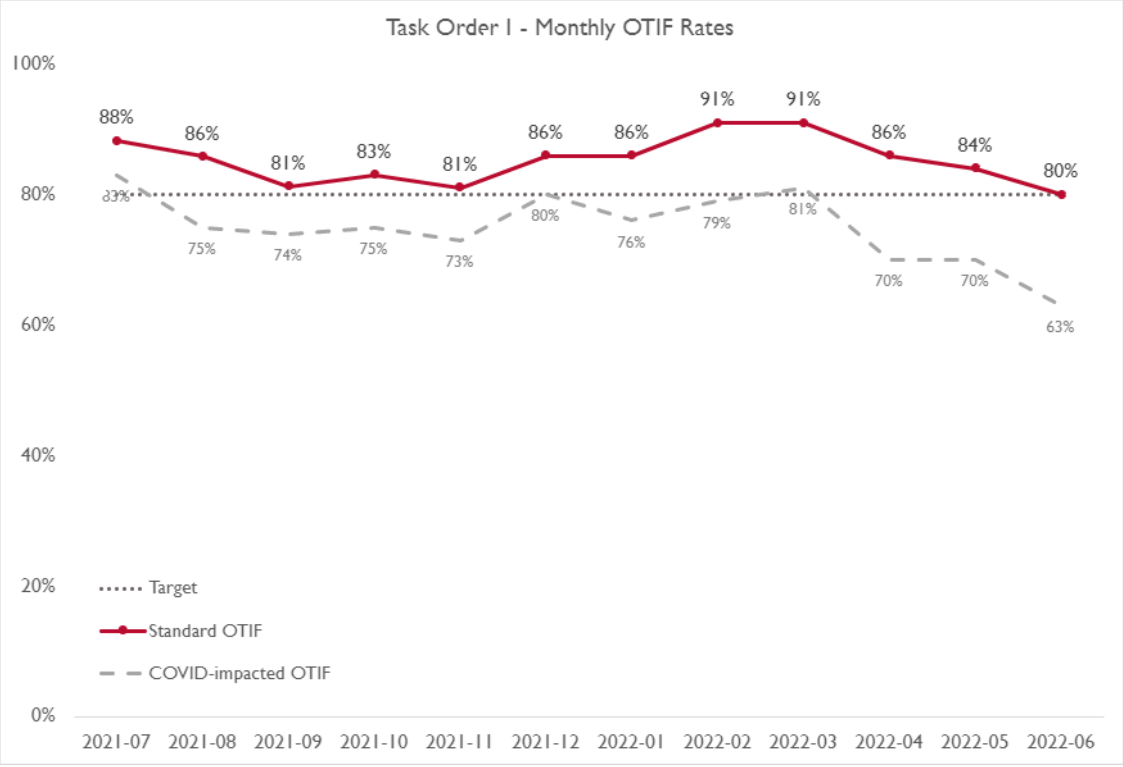


Exhibit 5. HIV Commodities, OTIF



Supporting PEPFAR's HIV Prevention Agenda

Pre-exposure prophylaxis (PrEP)

Daily oral PrEP using the antiretroviral medicines tenofovir/emtricitabine (TE) or tenofovir/lamivudine (TL) dramatically reduces the risk of HIV infection in people who use it as directed. In Q3, GHSC-PSM delivered $3.5 million worth—almost one million PrEP bottles—to 13 countries: Benin, Cameroon, El Salvador, Haiti, Kenya, Lesotho, Mali, Namibia, Nepal, Nigeria, Ukraine, Zambia, and Zimbabwe. This is the sixth consecutive quarter with deliveries of more than 900,000 packs, indicating progress in the PrEP adoption campaign in PEPFAR-supported countries. By regularly sharing demand forecasts with manufacturers, GHSC-PSM helps align manufacturing capacity to meet the demand.

GHSC-PSM analyzes PrEP commodity deliveries and the impact of in-country scale-up on the PrEP program quarterly. The analysis is derived from qualitative and quantitative data from 24 countries to monitor stock levels and scale up progress. GHSC-PSM's communication with countries assists them in adapting to the dynamics of their PrEP scale-up programs by advancing or delaying shipments when necessary.

In Q3, the project resolved a number of potential stockout risks and calls to expedite PrEP program scale-up. GHSC-PSM fast tracked an order of 100,000 bottles of TL to Kenya in May 2022 to avoid a stockout risk. An additional 300,000 bottles of TL for Kenya will be delivered in July 2022. Namibia and Nepal requested that their orders of TE be advanced from November and July, respectively. GHSC-PSM delivered Namibia's order in June and Nepal's order of 18,000 bottles in April. Lastly, in response to the MOH of Zimbabwe increasing its 2022 PrEP targets, GHSC-PSM advanced deliveries of TE by two months to ensure central stock levels stayed within min-max levels.

Condoms

Correct and consistent use of condoms and lubricants significantly reduces the risk of transmission of HIV. In Q3, GHSC-PSM delivered condoms (male and female) and lubricants to 16 countries. The project saw an increase in new orders during Q3, many with short delivery lead times. To mitigate the heightened demand, the project closely coordinated with the male condom manufacturing base to identify and secure excess supply capacity.

The project helped a number of countries and social marketing organizations to develop or rebrand male condom and lubricant products. In Ghana, artwork was finalized for the new Ebony Plus brand and GHSC-PSM ensured samples were manufactured and shipped for registration purposes. In Tanzania, GHSC-PSM has collaborated with T-MARC to revise branding for the Dume brand. Lastly, in Uganda the project helped develop new artwork to allow Joint Medical Stores to transition from the Hot-Pink brand to Hot-Orange.

GHSC-PSM also renewed its long-term Basic Ordering Agreement with The Female Health Company in Q3. The project was able to sustain prices at the previous year's level, despite growing pressures on the cost of raw materials due to COVID-19 and inflation. New orders of female condoms were placed in Q3 for Cameroon, Democratic Republic of the Congo, Nigeria, and red- colored/strawberry-scented products for Uganda.

GHSC-PSM delivered an emergency order of 68 cases of blue/gold-packaged male condoms to Ukraine. An additional 2,304 cases of blue/gold male condoms were shipped by sea to Ukraine, plus 1,594 cases of lubricant. Both products are expected to be delivered in Q4.

In Q3, GHSC-PSM published the Annual Comprehensive Agency Report on Condoms and Lubricants for FY 2021. The report shows consistent funding support through USAID for the condoms program over the last three years. USAID's support for the condoms program targets regions with high demand and supply gaps. In FY 2021, USAID approved procurement for 553 million male condoms, 7.5 million female condoms, and 22.4 million lubricants for 23 countries in Africa (20), Asia (2), and LAC (1). More than 95 percent of the total volume of procured condoms and lubricants were for African countries.

Voluntary medical male circumcision (VMMC) kits

Male circumcision is cost-effective and reduces female-to-male sexual transmission of HIV by 60 percent.[9] GHSC-PSM provides VMMC kits and other supplies to PEPFAR-supported countries. GHSC-PSM provided technical support for VMMC during the Country Operational Plan (COP)22 quantification in Q3, in collaboration with USAID/Tanzania and Tanzania-based USAID, DOD, and CDC VMMC implementing partners.

In Q3, the project began implementing under the updated fixed-price VMMC awards that were signed in Q2. GHSC-PSM coordinated with the USAID Global Health Supply Chain-Quality Assurance (GHSC-QA) project and USAID to manage a VMMC kit supplier in Africa with recurring quality issues, and resulting corrective and preventive actions (CAPAs) were put in place. GHSC-PSM, GHSC-QA, and USAID will continue to monitor and evaluate products during Q4 to ensure progress is made. GHSC-PSM started to engage strategically with a Chinese-based VMMC device manufacturer and local distributors of the Shang Ring device (used to carry out VMMC procedures) to determine if efficiencies can be found with the increased use and procurement of Shang Ring in PEPFAR countries. This work will continue into Q4 and FY 2023.

Essential medicines

Among people living with advanced HIV, the cryptococcal disease is one of the most important opportunistic infections and is a major contributor to illness, disability, and mortality. Recent guidelines from the World Health Organization (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 Q3, GHSC-PSM began an essential medicines sourcing strategy review process, with an emphasis on medications to treat cryptococcal disease. This included a landed cost analysis that supports planned initiatives to increase the use of local wholesalers. Throughout Q3, GHSC-PSM met regularly with GHSC-QA to discuss collaboration initiatives including the progress of ongoing audits for local wholesalers in DRC, Malawi, and Mozambique. As part of the planned strategy review, the project reviewed the Essential Medicines Product List with USAID/Washington and GHSC-QA after receiving feedback from country offices and USAID Missions that procure essential medicines. The intention is to finalize the revised product list by Q4, which will become the formulary used for the planned essential medicines request for quotation to be released in Q1 of FY 2023. Finally, the project continued negotiations with a manufacturer to procure amphotericin B liposomal.

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

[9] USAID 2022 Voluntary Medical Male Circumcision Fact Sheet

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.

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

GHSC-PSM delivered orders of rifapentine/isoniazid 300 mg/300 mg fixed-dose combination tablets to five countries in Q3: DRC, Nigeria, Uganda, Zambia, and Zimbabwe.

In Q3, donors and buyers of 3HP commodities that are part of the ARV/3HP Procurement Working Group (APWG) met to discuss the role of the APWG moving forward. These stakeholders agreed that instead of using this mechanism to coordinate the allocation of requested quantities of rifapentine/isoniazid 300 mg/300 mg fixed-dose combination tablets and rifapentine 150 mg tablets, the APWG would continue in more of an information-gathering and sharing role. GHSC-PSM continued to analyze TPT shipments and country stock projections in Q3 to improve visibility into the transition to, and scale-up of, 3HP for TPT-supported countries.

Isoniazid preventive therapy (IPT)
Although most GHSC-PSM countries are transitioning to 3HP in FY 2022, the project continues to support any countries that need assistance in implementing IPT with the procurement of isoniazid, and in particular the isoniazid 100mg pediatric tablets. GHSC-PSM delivered orders of isoniazid tablets to DRC, Haiti, Nigeria, and Zambia in Q3.

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. GHSC-PSM 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. Using this methodology, the project identified six stock-out risks this quarter and was able to resolve them through emergency orders, expedited shipment requests, and stock transfers.

Supporting the Second 95: Treatment

Increased private sector involvement in ARV delivery
In Q3, GHSC-PSM continued to increase private sector engagement in the ARV supply chain by further expanding its D-Term program. A total of 14 orders valued at $27.7 million were delivered to Colombia, Kenya, Zambia, and Zimbabwe in Q3. An additional 33 orders valued at $12.2 million were placed. GHSC-PSM has now processed 37 percent of the FY 2022 ARV budget under DAP and delivery-duty paid IncoTerms.

GHSC-PSM continues to explore ways to further involve the private sector in more aspects of the supply chain. The ARV team held a two-day strategic retreat in Q3 to develop a minimum two-year strategy that evolves the project's ARV allocation strategy, establishes a framework for ARV

manufacturers to pre-position high-volume ARVs in regional warehouses on the African continent, and expands the scope of the ARV D-term program. The project released a request for information (RFI) in June 2022 to sensitize the supply market to programmatic objectives and allow interested parties to provide feedback and recommendations. GHSC-PSM will release its sourcing strategy in Q4.

Also in Q3, for the first time since early 2020, GHSC-PSM held in-person quarterly business reviews (QBRs) with strategic ARV partners. QBR meetings allow GHSC-PSM and suppliers to share corporate updates, review delivery performance, discuss supplier product portfolios and new ARVs in the pipeline, and next steps for global standards. Participation from the USAID/Washington supply chain division also helped suppliers hear firsthand how strategic priorities are evolving.

Supplying TLD

To date, the project has delivered **75.8 million bottles of TLD**[10] to **30 countries**.

This is enough to provide almost **14.8 million patient-years of TLD treatment**.

As of Q3, GHSC-PSM has delivered over **45.2 million bottles of TLD 90** to 30 countries.

TLD and multi-month dispensing

To achieve HIV treatment goals, GHSC-PSM supports PEPFAR countries' transition to TLD, the preferred first-line ARV. To date, GHSC-PSM has delivered over 75.8 million bottles of TLD to 30 countries, including more than 45 million bottles of TLD 90, 28 million bottles of TLD 30, 2.3 million bottles of TLD 180, and 200,000 bottles of TLD 28. In Q3, GHSC-PSM delivered nearly 6.8 million bottles of TLD 90 and 180 to nine countries (Côte d' Ivoire, DRC, Ethiopia, Guatemala, Haiti, Mozambique, Nigeria, Tanzania, Togo, Ukraine, Zambia, and Zimbabwe). Additional information on the Ukraine orders is captured in the country section below. These deliveries were valued at $95 million, with $20 million being delivered to Zambia and Zimbabwe under DAP IncoTerms.

The project shares data and facilitates technical meetings to coordinate with key stakeholders on TLD uptake. GHSC-PSM aligned its product catalog ARVs with the PEPFAR formulary to promote optimal ARV regimen ordering. The project submits weekly reports to USAID outlining second-line or suboptimal products ordered by partner countries so that both parties can engage country counterparts to determine if a better product is available.

GHSC-PSM reviews and compiles monthly ARV inventory data from 31 central and 80 regional warehouses in 22 countries through the First-Line ARV Reporting and Evaluation (FLARE) reports. These monthly reports monitor national (not PEPFAR-only) inventories of HIV commodities. The FLARE enables GHSC-PSM and USAID to minimize the remnants of the less-effective, older first-line ARV regimens (legacy ARVs). According to the FLARE data, global issues of lamivudine/zidovudine/nevirapine, TLE600, and TLE400 decreased by 100 percent, 98 percent, and 74

[10] This total figure includes more than 45 million bottles of TLD 90, 28 million bottles of TLD 30, and 2.3 million bottles of TLD 180. For more information, see Section B1. HIV/AIDS, TLD and multi-month dispensing.

percent, respectively. The project accesses warehouse-level stock on all HIV commodities in 22 countries and at the service delivery point level in 14 countries using the Data Visibility Dashboard.

Pediatric ARVs

In Q3, GHSC-PSM delivered more than 493,000 bottles ($2 million) of DTG 10 mg—the preferred INSTI pediatric ARV—to Benin, Botswana, Burkina Faso, Cameroon, Eswatini, Ethiopia, Kenya, Mozambique, Nigeria, Uganda, Ukraine, Zambia, and Zimbabwe. These deliveries will help each country to initiate or expand DTG 10 mg transition in line with the approved transition plans. GHSC-PSM analyzes orders and supply plan data monthly to increase USAID and stakeholder visibility into the pace and progress of country transitions.

GHSC-PSM tracks overall demand for pediatric ARVs. A key activity in Q3 was an urgent request for Ukraine. The project was able to source and deliver five unique pediatric ARVs to Kiev within the quarter: abacavir/lamivudine 120/60, (DTG 10 mg, lamivudine/zidovudine 30/60 mg, nevirapine 10 mg/mL suspension w/ syringe, 100 mL, zidovudine 10 mg/mL solution w/ syringe, 240 mL. An emergency order of abacavir/lamivudine 120/60 was also delivered to Côte d' Ivoire, and darunavir 75mg to DRC.

Supporting the Third 95: Viral Load Testing

Implementing viral load awards

Preliminary data analysis shows that in Q3, GHSC-PSM and designated non-project buyers (e.g., Global Fund, Ministries of Health, and national procurement agencies) have procured more than 3.78 million viral load/early infant diagnosis (VL/EID) tests for delivery, with 90 percent coming from the project. The project saved more than $11.9 million on these orders, compared to 2019 pre-global request for proposal (RFP) prices under the terms of global service-level agreements with the three VL/EID manufacturers. The total spent on these orders was over $32.96 million.

The project continued to expand the functionality of the Global VL Dashboard in Q3. GHSC-PSM defined user groups and provided them with access based on their roles and responsibilities. The project developed a prototype Order Management module, allowing for deeper analysis for comparisons of testing and order numbers. To ease the process of rolling out the dashboard to country offices, GHSC-PSM created an in-depth user guide with descriptions of each report within the dashboard, while highlighting useful features and addressing common questions related to everyday use of the platform.

Also, GHSC-PSM finalized a data-sharing agreement with the MOH in Zambia, allowing for greater access to data within the country and improving existing prediction and anomaly detection models developed by the team. At the same time, the project worked with suppliers to define a standard procedure for onboarding and assigning roles to new users for supplier data and connectivity solutions, thereby simplifying the necessary processes ahead of the Wave 2 implementation.

GHSC-PSM enables the diagnostic instrument daily data feeds and the project began exploring additional uses for this data, for example, how this information can help the development of vendor-managed inventory (VMI) solutions in Mozambique and Nigeria. Planning for a VMI pilot in Mozambique was in an advanced stage in Q3. A series of workshops were conducted to finalize details and prepare for implementation in Q4. Further VMI pilot activities are in planning stages in additional countries.

GHSC-PSM launched the Wave-2 RFP process for VL/EID scale-up in May. Proposals will be received, evaluated, and negotiated during Q4. The Wave- 2 RFP is a global effort to build on the considerable

successes of the first global RFP of 2019 that established competitive global prices for reagents and controls for all countries and covered services for the six largest PEPFAR VL/EID countries. The new RFP focuses on services for more than 25 additional PEPFAR-supported (Wave-2) countries to establish all-inclusive pricing, create formal service-level agreements, and enable expanded instrument connectivity. For Wave-2, GHSC-PSM and the global suppliers will focus on high-throughput instruments for VL/EID testing.

Procurement of viral load and laboratory supplies

New **standardized dried blood spot (DBS) kits** are replacing previous country-customized DBS kits from Q3. In the past, stakeholders collaborated to develop DBS kits. However, over the years, each country customized these kits by adding or removing components. This resulted in a variety of kit options, which proved challenging for quality control. This was particularly concerning for critical components of the kit, such as the DBS cards.

In FY 2020, USAID, CDC, GHSC-QA, and GHSC-PSM revisited the DBS kit composition to create standardization and reduce the number of kit options. Now, only the new standardized DBS kits can be procured with PEPFAR COP funds. Also, they have customized kits suitable for pediatric patients.

Lab consumables such as pipettes and pipette tips, and consumables used for VL and COVID-19 tests, are in short supply globally due to the pandemic. Deliveries of VL/EID reagents and consumables remain impacted by COVID-19 as vendors and third-party logistics (3PL) providers struggle to identify appropriate flight availability.

In Q3, GHSC-PSM found that meeting country requirements for remaining shelf-life, especially for some **VL/EID reagents and consumables**, was a challenge for manufacturers. As the reagents and consumables are used together, they are shipped together, and therefore all bundled products must wait for the last product of the requisition order to be available before shipment. This is especially challenging for countries requiring long waiver times, which negatively impacts shelf-life upon delivery. GHSC-PSM is pursuing initiatives to address these problems. For example, the requisition order now contains language to highlight the challenge of meeting the shelf-life requirements of countries, requesting Missions to discuss the risk of products not being accepted for importation with the in-country supply chain partners. While GHSC-PSM will endeavor to meet country requirements, the USAID Mission accepts the risk and by approving the Requisition Order authorizes GHSC-PSM to make a financial commitment to the supplier.

GHSC-PSM reviews **VL and EID tracer commodity** shipments and stock projections monthly to monitor for stockout risks and program impact. The output of this analysis improves visibility for GHSC-PSM and USAID to validate stock risks and support mitigation efforts. In Q3, the project's analysis identified zero stock-out risks caused by GHSC-PSM to laboratories using these commodities.

Data-driven lab optimization using Opti-Dx

Through historical procurement data, forecast data, instrument coverage, utilization rates, and global positioning system data, the Opti-Dx web-based tool calculates and demonstrates potential changes to the lab network, which can inform instrument selection and placement based on data gathered during a diagnostic network optimization (DNO) activity. The lab optimization pilot using Opti-Dx started in Burundi and Uganda in Q1, and continued with the data collection and verification in Q2 and Q3. Ghana

kicked off a DNO activity in Q3 for which they will use Opti-Dx. For more information, see section C.2 Systems Strengthening Technical Assistance.

HIV/AIDS Supply Chain Data Visibility and Commodity Security

GHSC-PSM improves data visibility and analysis of HIV commodity inventories at all levels of the supply chain. The project reviews national inventory data each month for more than 108 HIV medicines and commodities at the central and regional warehouse levels in 22 PEPFAR countries to identify stock imbalances across the globe. Data generated include monitoring commodity stock risks and the progress made toward specific initiatives, such as the success of the first-line ARV drawdown and transition to DTG-based regimens. These reports help mitigate imbalances and avoid rationing and waste by raising awareness, identifying opportunities to shift GHSC-PSM shipments, and supporting redistribution within a country.

In Q3, GHSC-PSM identified and reported 50 unique HIV commodity stockout risks across 13 countries. The most common causes of stockout risks were supply constraints due to reduced manufacturing capacity, donor funding gaps (including unfunded shipments and delays in the release of funding), and the late delivery of non-GHSC-PSM shipments.

Other causes included product expiries, higher than anticipated consumption due to commodity transitions and program rollouts, and in-country distribution issues. Most stock-out risks were mitigated through active donor and supplier coordination and bilateral data sharing. At times, stock risks were mitigated by borrowing stock (redistributing facility stock and inter-warehouse transfers) and using alternative products where necessary. GHSC-PSM reported on 18 commodity stockout risks resolved during the same period; the most common resolution for stockout risks during the period was deliveries by USAID and other donors.

GHSC-PSM continues to host 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. Also, potential future HIV commodity stock risks are presented in this forum, which has allowed 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, and VL/EID products.

Country Support

The HIV/AIDS task order funds supply chain systems strengthening in 28 countries in FY 2022.

A key activity sustained from Q2 was the procurement and delivery of critical ARVs to ensure the continued treatment for PLHIV **in Ukraine**. Sixteen additional ARV orders valued at $4.7 million were processed in early Q3. Ten of those orders valued at $4 million were delivered in Q3. The project coordinated closely with the USAID/Ukraine Mission, 100% Life, the Ukrainian Center for Public Health, and multiple logistics partners to make this happen. A notable achievement was that the project was able to extend delivery of ARVs past Lviv, all the way to the central warehouse in Kiev.

In Burma, GHSC-PSM is successfully managing TB medicine inventory using QuanTB, an electronic tool created by the USAID-funded Systems for Improved Access to Pharmaceutical and Services (SIAPS) program. Thirty participants from 10 international and local partner organizations attended a three-day

training run by the project on stock monitoring and forecasting and supply planning using QuanTB. This was most partners' first encounter with this powerful tool in the fight against TB.

Ethiopia's conflict presents unique challenges that extend from looting and damage of medicines, infrastructure, and warehouse and transport systems to the loss of workforce and interruption of health service delivery. The conflict affected more than 740 health facilities. GHSC-PSM provided technical support to Afar, Amhara, and Tigray regional health bureaus, Ethiopian Pharmaceutical Supply Services hubs, and health facilities to initiate the Emergency Supply Chain system, restoring conventional supply chain activities and responding to the needs of the public. As a result of these concerted efforts, all 461 accessible health facilities were supplied with stock, receiving either soft or hard copies of logistics management information system (LMIS) tools.

GHSC-PSM also conducted training on TB Pharmaceuticals Supply Management for health care workers in Sidama, Southern Nations Nationalities and Peoples, and Southwest Ethiopia regions. The training will equip pharmacy and supply management personnel with the skills to address gaps in the drug safety monitoring systems and specific issues related to the supply management of TB medicines.

The national ART program in **Botswana** is transitioning adult and pediatric clients living with HIV to optimized ARV regimens, as well as implementing various differentiated service delivery models such as MMD in pursuit of attaining HIV epidemic control by 2030. During Q3, GHSC-PSM delivered 3,665 bottles of dolutegravir (DTG) 10mg dispersible tablets of 90 tablets pack to the Ministry of Health and Central Medical Stores, preventing a stockout that would have caused treatment interruption to those who needed it.

In Mali, the scientific committee for the fight against HIV approved the integration of DTG 10 mg dispersible tablet in the therapeutic regimen in children under 20 kg. Supported by GHSC-PSM, the DTG 10 mg introduction in Mali will increase chances of survival for new patients and children currently on ART.

GHSC-PSM is also supporting the transition to optimized ART for children living with HIV in **Uganda**. To enable uptake of DTG 10 mg, GHSC-PSM will continue to work with the MOH, USAID, and other partners to manage a smooth transition and reduce risks of expiries, understocks, and overstocks, while ensuring availability of DGT 10 mg to patients that need it.

In **Guatemala**, GHSC-PSM coordinated the last in-country delivery with USAID and the MOH's National AIDS Program to complete a total donation of 87,492 TLD-90 bottles. As a result, approximately 15,890 HIV patients, 81 percent of the total adult cohort who attend MOH clinics, use TLD. In addition, this cohort will be able to maintain their ARV treatment for approximately 10 more months due to this successfully executed donation process.

In **El Salvador**, GHSC-PSM developed quality controls in the SUMEVE information system (Single System for Monitoring and Evaluation of HIV Epidemiological Surveillance) and implemented national quantification workshops for rapid HIV tests for the period 2022 to 2024. The quantification workshops trained 117 attendees on morbidity quantifications through a new functionality in SUMEVE. This gives the national AIDS program and laboratory chiefs ownership of their annual forecasting exercises.

In Lesotho, GHSC-PSM provided technical support to the Supply Chain Management Department within the MOH to develop the country's first comprehensive National Stock Status tool. This tool provides the MOH with access to data from the Central Medical Store and service delivery points for all HIV and COVID-19 commodities nationwide, improving supply chain data, decision making and planning.

In Zimbabwe, GHSC-PSM together with the MOH and Childcare's Directorate of Laboratory Services conducted supportive supervision visits for the VL and EID testing laboratories outside the Greater Harare Province. The activity assessed the capacity of facilities to institute an electronic logistics management information system (eLMIS). Earlier in the quarter, GHSC-PSM supported field visits to facilities in Manicaland and Matabeleland North provinces to mentor pharmacy staff on inventory management and storage, and on their current use of eLMIS.

GHSC-PSM collaborated with **USAID/Zambia's** electronics Supply Chain Management Information Systems (eSCMIS) project to develop analytics for supply chain decision making. This collaboration will increase reporting rates, data quality, and champion data use for supply chain decision making at all levels of the supply chain. GHSC-PSM has a broader supply chain technical assistance mandate, which includes supervisor capacity building to improve logistics system implementation and commodity availability across the country, whereas the eSCMIS project is focused on, among other things, eLMIS software development and countrywide implementation and support. In the recent past, the two projects have worked together to migrate some of the GHSC-PSM internally designed analytics dashboards in Power BI to eLMIS, which is a widely accessed system by a larger audience of different implementing partners. Dashboards indicating facility reporting rates, stock status of various commodities, product changes, and consumption statistics have been migrated by GHSC-PSM in collaboration with eSCMIS. The dashboards were tested on the eLMIS user acceptance testing (UAT) environment before being transferred to the eLMIS central edition. With this transition, users will have access to user-friendly dashboards that will encourage data use and allow them to make informed supply chain decisions, ensuring the availability of health commodities and improving patient outcomes.

Also in **Zambia**, GHSC-PSM collaborated with the Ministry of Health at the recently held HIV Forecasting and Quantification for Antiretroviral Drugs training. More than 60 participants attended a Q3 training on the Quantification Analytics Tool (QAT). This country-led supply planning and forecasting tool will improve forecasting and quantification.

B2. Malaria

Delivered enough artemisinin-based combination therapies (ACTs) to treat more than **455.3 million infections over the life of the project**, including **28.6 million** in Q3.

23 countries are receiving health supply chain systems strengthening support with malaria funding in FY 2022.

A total of **26 countries procured** malaria medicines and commodities in Q3; 31 over the life of the project**.**

Delivered enough long-lasting insecticide-treated nets (LLINs) to provide **protection from malaria for more than 36.8 million people in Q3 and 490.6 million people over the life of the project**.

The U.S. President's Malaria Initiative works with its global partners to scale up proven interventions and increase the capacity of health systems to move countries closer to their goals of eliminating malaria. Under the PMI-funded malaria task order, GHSC-PSM supplies lifesaving prevention and treatment medicines for malaria, malaria rapid diagnostic tests (mRDTs), LLINs, and lab supplies. The project offers partner countries new approaches to strategic planning, logistics, data visibility, analytics, and capacity building in line with PMI strategies. GHSC-PSM provides technical guidance to strengthen the global supply, demand, financing, and introduction of new malaria medicines and commodities. The project provides continuous support to USAID Missions to ensure they have the necessary malaria commodity data, analysis, and forecasting models to directly inform decision making for PMI's malaria operational plans. Since early 2020, GHSC-PSM has monitored sourcing, procurement, and delivery challenges related to COVID-19, informing mitigation efforts and providing technical support to in-country supply chains.

Commodity Sourcing, Procurement, and Delivery

GHSC-PSM assesses the market conditions of existing sources of critical commodities, including key starting materials (KSMs) and active pharmaceutical ingredients (APIs). The project uses these assessments to develop strategies that ensure that products are available and accessible, despite constrained supply and limited transit options due to COVID-19.

Commodity risk profiles

GHSC-PSM conducted a country-by-country fulfillment replenishment plan for injectable artesunate in Q3, due to a temporary supply disruption resulting from an out-of-specification (OOS) investigation in Q2 with one of the two prequalified manufacturers. By the end of Q3, the project placed orders for

each of the 14 impacted countries, and finalized the OOS investigation in cooperation with the supplier. GHSC-PSM completed a laboratory test method transfer for the most recently WHO-prequalified (PQ) entrant to the injectable market, expanding the base to three eligible suppliers for FY 2023 allocation consideration. The enhanced supply base, coupled with a legacy supplier's increased batch size, improves the market health of this lifesaving severe malaria commodity. In spite of the short period of having a sole-source market in Q3, while the OOS investigation was being concluded, the project was able to meet demand.

Along with ministries of health, one of the two prequalified rectal artesunate (RAS) suppliers also cited the WHO's interpretation of the Community Access to Rectal Artesunate for Malaria (CARAMAL) study, which questions the product's appropriateness in all clinical settings, and low global demand, as justification to pause production. All suppository orders received by the project during April, May, and June were therefore placed as fresh production with the remaining RAS manufacturer, in their July production campaign.

While preparing for the FY 2023 artemisinin-based finished pharmaceutical product tender, a critical mass of pharma suppliers communicated their inability to honor the pricing quoted in their FY 2022 tenders, necessitating price re-solicitation for all artemisinin-based products. The team re-tendered, executed contracts, finalized remaining FY 2022 allocations, incorporated the new price points, and presented the FY 2023 artemisinin-based products strategy to the Sourcing Governance Board.

The project placed its first order of pyronaridine-artesunate known under the brand name Pyramax in Q3. This once-daily, three-day treatment course drug is the only ACT with the ability to combat the two main strains of malaria, *P. falciparum and P. vivax*. Available in adult and child formulations, the project expects the drug to facilitate improved adherence over the course of treatment given the fixed dosing.

Having completed all FY 2022 seasonal malaria chemoprevention (SMC) orders, GHSC-P
SM met with the Global Fund, United Nations Children's Fund (UNICEF), and Malaria Consortium in Q3 to discuss FY 2023 campaigns to ensure coverage and order placement timing. The project held separate conversations with the two prequalified manufacturers of SMC drugs regarding their 2023 production and capacity plans, and is relaying this information to countries for planning and for managing timing expectations. Multiple countries have already placed orders for the coming FY 2023 malaria ordering season.

As countries rounded out their remaining sulfadoxine/pyrimethamine (SP) demand in Q3, the project awarded a newly onboarded supplier based in Europe its first order. The expanded supply base contributes to the SP strategy goals of sustaining market health through predictable lead times and geographic diversity of suppliers.

In Q3, numerous LLIN suppliers had acceptable order delays due to ongoing COVID-19 challenges, particularly due to delays in the shipment of active ingredients. The mRDT market largely stabilized in Q3 from disruptions experienced in the first two quarters of the year, while sourcing challenges for raw materials coming from China impacted one India-based mRDT supplier in Q3.

Manufacturing challenges attributed to COVID-19 delayed goods availability dates from all malaria laboratory equipment suppliers, but eased somewhat by the end of Q3. GHSC-PSM worked with

manufacturers to ship partial orders to ensure equipment availability and to avoid freight increases for countries where possible.

Strategic sourcing
In Q3, GHSC-PSM strategic sourcing of malaria commodities focused on:

- Issuing **strategic tenders for the provision of artemisinin-based pharmaceuticals, sulphadoxine-pyrimethamine (SP) and sulphadoxine-pyrimethamine + amodiaquine (SPAQ), and mRDTs** in preparation for FY 2023. The project re-solicits offers annually to ensure that prices and other aspects of supplier offers remain current, allowing for an evaluation of best value in line with current market conditions. GHSC-PSM's strategic goals differ by product category, but a consistent point of emphasis is to minimize the gap between the needs of end-users and the funding available to fulfill those needs. These tenders will close in Q4.

- **Issuing and closing a request for information (RFI) regarding African manufacturing and logistics for malaria commodities.** The RFI solicited information from existing GHSC-PSM suppliers to explore the prospect of increasing localization of production and availability of goods closer to the point of use. In particular, the RFI sought supplier input regarding experienced or perceived obstacles to increasing local production and warehousing malaria commodities in Africa. The project will use information gleaned from the RFI submissions to inform future strategic objectives and approaches aimed at better serving the project's recipient countries.

Procurement and deliveries
In Q3, GHSC-PSM procured malaria commodities[11] for 26 countries with a total value of $27.45 million.

OTD and OTIF. Timeliness of GHSC-PSM deliveries remained consistent and strong for standard OTD and OTIF in Q3 for malaria commodities, with an OTD rate of 87 percent (71 percent for COVID-impacted) (see Exhibit 6). The OTIF rate in Q3 was 92 percent (79 percent for COVID-impacted). This is despite the high degree of uncertainty and the extreme volatility in global supply chains caused by the pandemic and other shocks.

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

Exhibit 6. Malaria Commodities, OTD

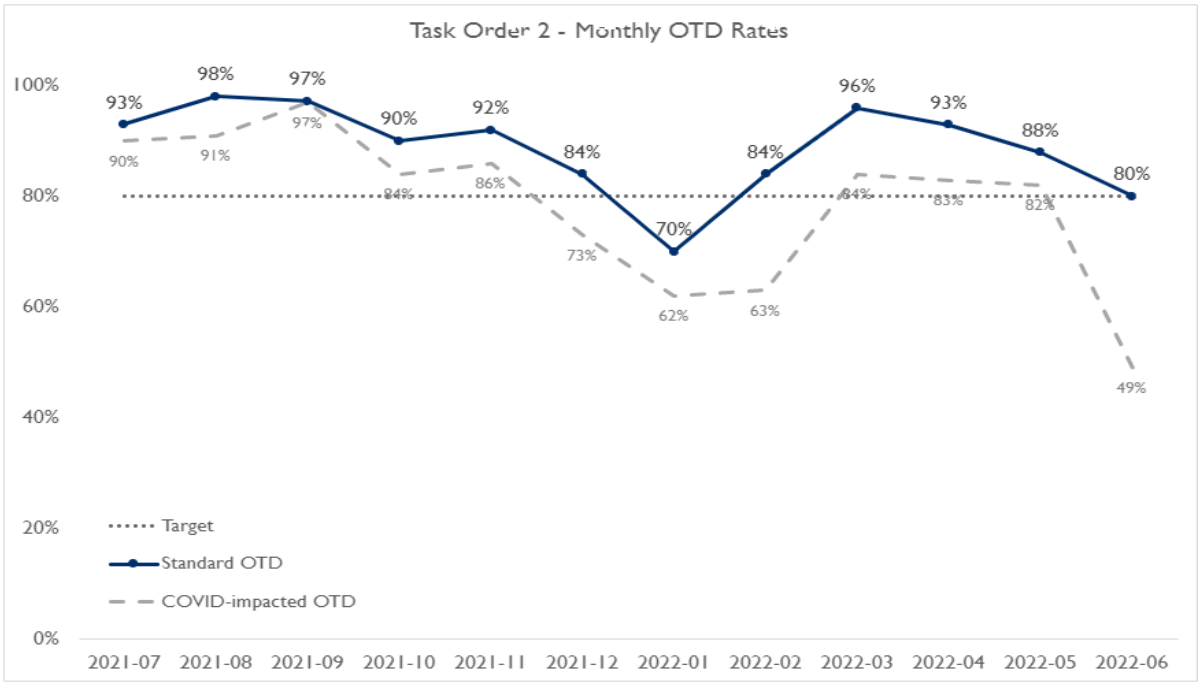
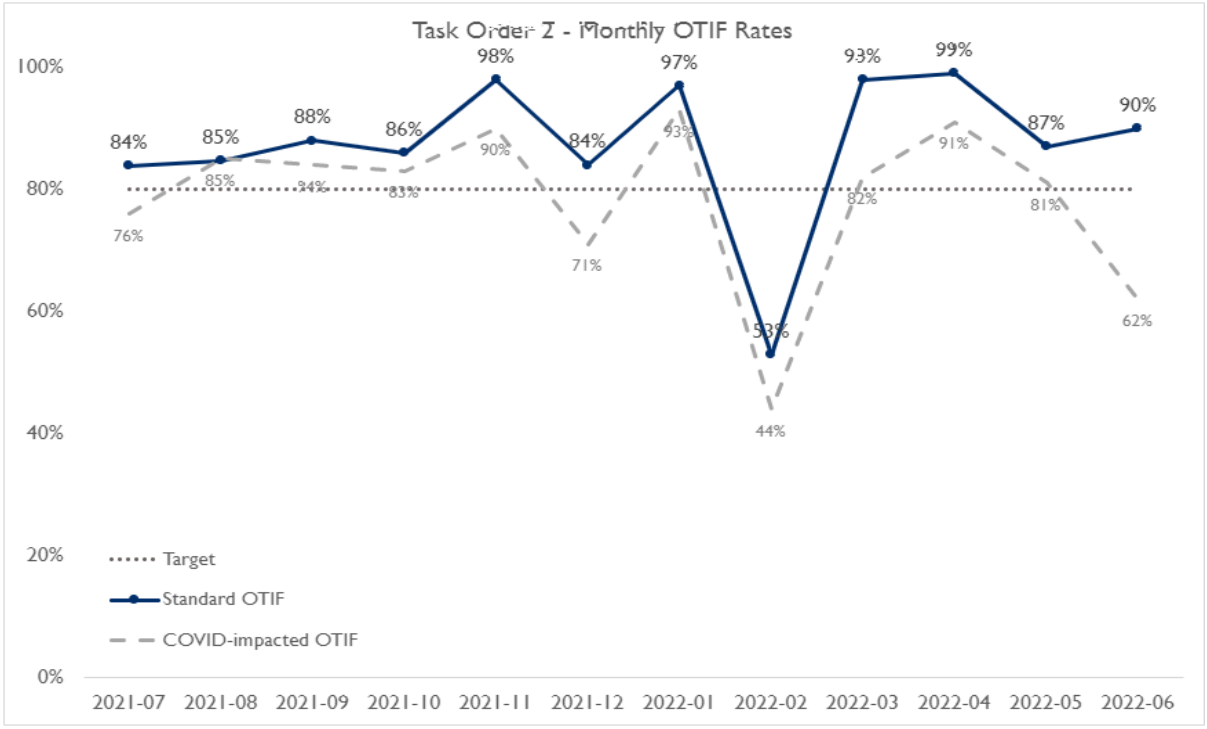


Exhibit 7. Malaria Commodities, OTIF



Global sourcing collaboration

GHSC-PSM participates in the Malaria Pharma Task Force,[12] mRDT Task Force,[13] and Indoor Residual Spraying/Insecticide Treated Nets (IRS/ITN) Task Force.[14] These task forces provide a valuable forum for exchanging information on market risks and promoting better 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 continuing 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 Q3, the working group discussed artemisinin market activity and explored ways to incentivize the use of semi-synthetic artemisinin (SSA) to combat the rising price of vegetal artemisinin. With suppliers communicating higher costs and challenges in sourcing vegetal artemisinin, the working group analyzed the cost implications of potential increased use of SSA.

In Q3 the mRDT market faced little to any challenges. GHSC-PSM encouraged suppliers to include inverted cups in their offerings to meet the growing request from countries as the preferred blood collection device. In the quarterly RDT Task Force meeting, participants discussed the status of histidine-rich protein (HRP)2/3 deletions, developing a roadmap for introduction of a non-HRP2/3 test, and the current state of the lactate dehydrogenase mRDT market.

Proactive Procurement Strategy

GHSC-PSM invests in and adapts a proactive procurement strategy for key malaria commodities, such as artesunate injectables and SPAQ. 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 supply is particularly constrained. The project places orders based on data-driven demand signals, which enables securing production capacity earlier in the ordering process—often in advance of receiving orders.

Proactive procurement strategies ensure access to a supply of critical commodities when countries need them, to 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 country supply plans and the Procurement Planning and Monitoring Report for malaria (PPMRm)—which the project translates into country stock risk dashboards that illustrate the timing and scope of upcoming stock risks. These strategies are designed to mitigate future stockout risks, ensure timely delivery in constrained markets, and avail favorable market conditions that may not continue into the future (favorable pricing, etc.).

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

[13] 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.

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

In Q3, the project prepared for the procurement of ALu 6x2 pack of dispersible tabs and 6x4 packs to replenish the emergency stockpile in the regional distribution center (RDC).

Negotiations came to a close for the terms and conditions of a vendor stored inventory (VSI) contract with a supplier. VSI contract negotiations with another supplier are ongoing and are expected to be completed in Q4. Soon after executing both contracts, the project will begin planning to formally implement VSI as a key proactive procurement strategy for artemether-lumefantrine (ALu).

GHSC-PSM did not consider any other proactive procurements in Q3 due to the stabilization of markets from an on-time delivery perspective.

Quality Assurance

Strategies and innovationsIn Q3, GHSC-PSM participated in the 2nd Convening of Raising the Floor on Nets in Liverpool, England, a continuation of a virtual meeting in Q1. Participants included industry stakeholders, procurers, suppliers, regulators, and discussions focused on post-shipment LLIN quality issues. GHSC-PSM participated in a panel discussion on this topic and proposed possible solutions. Participants identified the need for a glossary, data on net performance, specifications and requirements that link to net performance, and appropriate measuring tools and testing methodology.

GHSC-PSM met with suppliers to discuss potential local manufacturing (partial or complete) in Africa. Generally, the suppliers present indicated that they had already explored some aspects and cited challenges due to factors such as logistics of shipping raw materials, taxes and additional costs, political stability in some countries, regulatory requirements (e.g., WHO PQ certification) and scarcity of workforce resources with the required experience. GHSC-PSM is using the insights gained from these meetings to develop a strategy to increase the African share of LLIN procurements.

Fostering quality in LLINs
In Q3, GHSC-PSM initiated an investigation into a batch of LLINs found to be OOS for Piperonyl Butoxide (PBO) active ingredient (AI) at GHSC-PSM's third-party laboratory. The specification for PBO content is 10 g/kg ± 25 percent, and the results for the batch in question were below the specification. GHSC-PSM requested a Phase II investigation that reviewed the lab's procedures and conducted additional testing, resulting in two OOS results and one passing result. GHSC-PSM notified the supplier of the OOS and requested that they perform an internal investigation. The supplier submitted a report with additional testing performed by its laboratory for review by GHSC-PSM, who will provide PMI with a recommendation on whether to accept or reject the batch in Q4.

Fostering quality in mRDTs
In Q3, GHSC-PSM initiated an investigation into two batches of Pf mRDTs reported as OOS for high false positive rates by a third-party testing lab. The maximum threshold for false positives is less than10 percent, and the lab reported that two out of 10 tests were false positives in one batch and three out of 10 tests were false positives in another batch. The lab performed an additional test to confirm that the samples used were not contaminated and confirmed that the samples conform. GHSC-PSM notified the supplier of the OOS and requested an internal investigation. To understand the OOS and the potential of a systemic issue, the project is conducting additional tests of the skipped batches based on GHSC-PSM's risk-based randomized testing. Upon receipt of the results from the skipped batch, the review of

supplier's response, and any subsequent data, GHSC-PSM will determine the need for potential disposal of the batches in question and product as a whole.

Promotion of Supply Chain Market Health

In Q3, GHSC-PSM supported access to other quality-assured products by completing a review of five pharmaceutical products; see table below. These quality reviews facilitate the addition of product to the Restricted Commodity Waiver list governed by USAID Automated Directives System 312, making the product eligible for procurement.

Product Reviewed for Eligibility

Product category	Product subcategory	Product detail
Pharmaceuticals	ACTs	artemether-lumefantrine 20 mg/120 mg hard tablets
Pharmaceuticals	ACTs	artemether-lumefantrine 20/120 mg dispersible tablets
Pharmaceuticals	ACTs	artemether-lumefantrine 80/480 mg tablets
Pharmaceuticals	SMC	sulfadoxine-pyrimethamine 500/25mg + amodiaquine 150 mg dispersible tablets (SPAQ high dose)
Pharmaceuticals	SMC	sulfadoxine-pyrimethamine 250/21.5 mg + amodiaquine 75 mg dispersible tablets (SPAQ low dose)

GHSC-PSM ensures quality control (QC) testing efficiency and testing capacity for key products by expanding the number of testing labs. In Q3, the project completed a method transfer for an ALu product following the supplier's method update.

Collaboration
As the chair of the LLINs Quality Assurance Group (LQAG), GHSC-PSM works with global procurers focused on LLIN QA and QC to foster discussions and activities related to LLIN quality and quality management systems. In Q3, following the 2nd Convening of Raising the floor on ITNs Quality, the LQAG discussed its willingness to collaborate with WHO PQ vector control in generating a glossary, which was one of the critical recommendations from the meeting.

Key performance indicators
GHSC-PSM reports on two key performance indicators for quality assurance:

- The project exceeded the 80 percent QA lead time target with an on-time completion rate of 97 percent for QA activities in Q3.

- Four percent of tested batches showed nonconformity in Q3. This exceeded the target of 1 percent or less, but was limited to a single product from a single manufacturer.

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

In Q3, GHSC-PSM saw a positive trend in compliance of in-scope malaria suppliers with identification, barcoding, and data-sharing requirements of products procured. These requirements involve a phased implementation grounded in GS1 Healthcare Standards, to create an enabling environment for data exchange and visibility. Highlights and milestones associated with these standards in Q3 are included in Section C.

Priority Setting and Redirection of Orders

To address country needs and market constraints, GHSC-PSM works with USAID to prioritize orders based on need and conducts commodity order transfers to improve stock status. Below are Q3 examples of how these strategies ensure that countries avoid stockouts.

Due to risk of stockout in Tanzania, the country's order for 210,000 units of artesunate injectable was prioritized and the goods availability date (GAD) was moved up by two weeks, to August 31 from September 15. This order is flagged for expedited shipment to ensure delivery to the country as early as possible.

The transfer of 3,000 packs of rectal artesunate from Burundi to Benin was completed in Q3. Goods were made available for immediate distribution due to urgent need in the country.

GHSC-PSM prioritized the procurement of quality assurance and delivery services for the Against Malaria Fund (AMF)procured 3,306,800 PBO LLINs for a distribution campaign in Bauchi, Nigeria for production and loading of export containers with the supplier to meet the campaign distribution dates.

GHSC-PSM prioritized production dates for procurement of 172,304 dual AI LLINs for a distribution campaign in Côte d'Ivoire, which resulted in deprioritized production for the second lot of 150,000 dual AI LLINs for routine distribution in Liberia. Liberia agreed to this to minimize warehouse capacity constraints.

The project deployed the emergency loan fund to procure DRC's Malaria Operational Plan 2022 demand for ALu, artesunate injectable, and SP to mitigate the risk of stockout projected to occur in Q1 FY 2023.

In Q3, 29 countries submitted data to the PPMRm. The PPMRm collects and reports information on stock status and on host governments' and other donors' shipments. Visibility into stock status and shipment information enables PMI, the project, and countries to make decisions on prioritizing, expediting, or delaying procurements or shipments, and facilitates the review of forecasts and supply plans to optimize procurements. Based on PPMRm data, the project took the following actions at the global or national level in Q3:

- Identified stockout risks and recommended or took actions to expedite PMI and Global Fund shipments to mitigate the risk, such as:
    - In Cameroon, artesunate injectable 60 mg was understocked at the end of Q3. To mitigate stockout, the project expedited the next six shipments.
    - In Ethiopia, ALu 6x3 and artesunate injectable 60 mg were understocked at the end of Q3. To mitigate stockout, the project recommended that the Global Fund expedite its upcoming shipments.
- Postponed shipments to prevent overstocking, such as:
    - In Madagascar, artesunate suppository 100 mg was overstocked at the end of Q3. To prevent expiries, the next PMI shipment was postponed and will now arrive in February 2023.
- In Guinea, SP was overstocked at the end of Q3. To prevent expiries, the project recommended postponing the date of receipt of the next order.
- Redistributed stocks within the country, for example:
    - In Angola, there was an excess of SP at the end of Q3. The project redistributed the excess stock from PMI-focused provinces to non-PMI provinces.
    - In Kenya, mRDTs nearing expiry were redistributed to lake endemic counties, where the malaria burden is high.

Stockout Reduction Initiative

The project implemented a stockout reduction initiative in 20 countries[15] starting in FY 2021 following a playbook through four stages:

1. Reviewing baseline and targets based on available data
2. Reviewing root causes using supporting evidence
3. Validating proposed solutions
4. Developing investment plans and incorporating prioritized investments into FY 2022 work plans

In Q2, GHSC-PSM developed an Excel-based budget template for investment planning (stage 4).

The budget template guides the budgeting process through four steps:

1. Review existing investment plan outputs
2. Define current state of each investment and expected impact
3. Provide costing details for each investment activity
4. Assess outputs to make decisions

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

In Q3, this template was introduced to the 20 country offices to develop the budget for the investment plan along with the FY 2023 work plan.

LLIN Distribution Support

In Q3, GHSC-PSM delivered 18.4 million LLINs to countries for onward distribution as a malaria prevention measure (Exhibit 8). In Q3, eight[16] countries initiated, prepared for, or launched large-scale LLIN mass distribution campaigns as a key malaria prevention strategy. The preparation included planning, procurement of LLINs, delivery of LLINs to designated locations, training, and execution. These massive initiatives provide communities, particularly areas with high concentrations of malaria cases, with the nets they need before the rainy season. Distributions can last a few weeks, while logistics, supply planning, procurement, and pre-positioning of the nets can take months. In some countries, the project provided transportation support through local 3PL service providers to deliver LLINs from the central level to the district or health facility levels for continuous distribution.

Exhibit 8. Quantity of LLINs Delivered to Countries in Q3 FY 2022

Country	Number of LLINs Delivered
Angola	1,490,760
Burkina Faso	797,906
Burundi	632,985
Ethiopia	2,224,200
Ghana	1,240,820
Guinea	3,345,550
Kenya	647,751
Liberia	139,500
Madagascar	650,000
Malawi	330,000
Mali	455,000
Nigeria	2,083,587
Rwanda	2,231,937
Senegal	1,046,323
Tanzania	1,104,980
Total	18,421,299

In Q3, GHSC-PSM supported LLIN distribution activities, including:

[16] Angola, Burkina Faso, Cambodia, Ethiopia, Guinea, Liberia, Sierra Leone, Thailand

- In **Burundi**, GHSC-PSM supports the MOH through the National Malaria Control Program (NMCP) in the routine distribution of malaria commodities, including LLINs. LLINs are distributed through antenatal care programs for pregnant women and expanded program on immunization services channels for children under five.

  GHSC-PSM, through its partner Population Services International (PSI), supported the NMCP in distributing 220,900 LLINs to 37 health districts. During the reporting period, PSI warehouses received 632,985 standard LLINs. Based on data collected from the district level, 168,040 LLINs were distributed from districts to health centers in Q3. This distribution effort is contributing to saving lives with the potential to prevent malaria cases in 85,315 pregnant women and 60,951 children under the age of five.

- In Q3, GHSC-PSM handed over 183,200 mRDTs to the National Malaria Program in **Cambodia**. As part of the preparation for **Ethiopia's** LLIN mass distribution campaign, GHSC-PSM worked with NMEP and regional health bureaus (RHBs) to provide regional and woreda-level orientations for LLIN distribution. All targeted RHBs (Amhara, Oromia, South West Ethiopian People Region (SWEPR), and Southern Nations, Nationalities, and Peoples' Region (SNNPR) completed the training. All woredas in Amhara and SWEPR received LLINs and will complete delivery to health posts for distribution to communities in early Q4. Some of the health posts that received LLINs have started distribution to households. The woredas in SWEPR finalized LLIN delivery to distribution health posts, and around 70 percent of the LLINs for this region have reached households as part of the MOH's emergency response to the recent malaria outbreak in the region.

- The NMCP organized three national LLIN campaigns in **Guinea** to achieve universal coverage. These campaigns were supported by various stakeholders and resulted in the distribution of 5,765,811 LLINs in 2013, 7,891,266 in 2016 and 8,330,470 in 2019. The NMCP is working with various stakeholders to organize their 2022 LLIN mass distribution campaign. This is a large-scale activity that requires a real commitment from all actors and a dynamic partnership at all levels of the health pyramid. As part of the technical and financial contributions of GHSC-PSM, the project trained seven national trainers in logistics for the 2022 LLIN campaign in Q3 for staff from the NMCP, GHSC-PSM, and Cabinet Diagnosis and Child Fund.

Country Support

GHSC-PSM is providing supply chain systems strengthening support for malaria medicines and commodities in 22 countries in FY 2022.[17] Activities in Q3 included the following:

- GHSC-PSM facilitated the adaptation of the QAT to reflect **Niger's** unique approach to tracking stock status for malaria commodity supply planning at the central level before routine allocation to the various regions. Niger now uses QAT to track central-level stock on hand (SOH) as the country lacks SOH visibility up to the last mile and no consumption data are available other

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

than in the two PMI and GHSC-PSM-supported regions. Adapting QAT to track only central-level SOH data quarterly is ensuring adequate stock availability. This adaptation is promoting the National Malaria Control Program's (PNLP) ownership of the quantification process and facilitated the adoption of QAT by other implementing partners, such as Catholic Relief Services, who adopted it for use in the Global Fund malaria commodity quantification.

- GHSC-PSM and ABREMA (**Burundi's** Food and Drug Regulatory Authority within the MOH) organized a workshop on the harmonization of LMIS and supervision tools for 37 participants from ABREMA, Central Medical Store in Burundi (CAMEBU), MOH programs, UNDP, i+solutions, and GHSC-PSM. This harmonization is a crucial step in implementing a unified logistics information system (e-LMIS) that shares and transfers data and information at different levels of the supply chain.

  Workshop participants reviewed standard operating procedures (SOPs) for logistics management of health commodities at all levels of the supply chain, updated standardized tools for managing and reporting health products, and standardized the district and facility-level supervision tool.

- In **Uganda,** GHSC-PSM subcontracted Radley to support Joint Medical Store (JMS) in implementing a barcoding system that uses the international GSI standards to increase the efficiency of JMS operations and improve the inventory handling process at JMS by providing an automated, systematic, and accurate warehouse management cycle that reduces errors, increases efficiency, and is frequently updated. In Q3, the project completed user acceptance testing and discussed and rectified issues affecting the proper use of the system. JMS scheduled a launch for Q4.

B3. Family Planning and Reproductive Health

To date, GHSC-PSM has delivered enough contraceptives to provide **105.77 million couple-years of protection**, including **6.26 million in Q3.**

Procured FP/RH commodities[18] for 14 countries[19] in Q3, and continues to provide **health supply chain systems-strengthening support** to **20[20] countries in FY 2022** with FP/RH funding.

Continued to successfully fulfill USAID-supported countries' orders in a timely manner, **achieving 95 percent (88 percent COVID-impacted) OTD** in Q3.

Participated in the **FP2030 Performance Monitoring and Evidence (PME) Working Group** summer meeting in June. Members discussed the working group's role moving forward and provided input into future areas of investigation and advocacy.

Received **six acceptances out of 11 abstracts submitted** to the International Conference on Family Planning (ICFP2022) taking place in Q1 FY 2023. Three abstracts focused on work conducted in Rwanda and Angola, and the remaining three covered TO3 Core activities.

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.

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

[19] GHSC-PSM procured FP/RH commodities for the following countries: Angola, Burkina Faso,Côte d'Ivoire, DRC, Ghana, Malawi, Mali, Mozambique, Niger, Rwanda, Senegal, Tanzania, Togo and Uganda

[20] GHSC-PSM is providing technical assistance with FP/RH funding to the following countries in FY 2022: AFRICA: Angola, Burkina Faso, Burundi, Ethiopia, Ghana, Guinea, Liberia, Malawi, Mali, Mozambique, Nigeria, Rwanda, South Sudan, Uganda, Zambia; LAC: El Salvador, Republic of Guatemala, Haiti, Republic of Honduras, Nicaragua, Panama; ASIA/NEAR EAST: Nepal, Pakistan.

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.

Securing reliable supply and maintaining high on-time performance

Despite persistent and severe global supply shortages of injectable and implantable contraceptives, in Q3, GHSC-PSM continued to maximize its strategic sourcing strategy to reduce supply risk and ensure countries had access to a continuous and reliable supply of FP/RH commodities. To mitigate the impact of COVID-19, the project continued to leverage stock at the RDCs and regularly analyze allocation of available stock to ensure countries receive adequate supply to avoid any stockouts. The pandemic continues to impact logistics, including reduced global shipping capacity, difficulty in confirming bookings and moving cargo, a global container shortage, and decreased availability of air freight capacity.

OTD and OTIF

Timeliness of GHSC-PSM deliveries remained strong for standard OTD in Q3 for FP/RH commodities at 95 percent (88 percent COVID-impacted). OTIF numbers remained consistent, at 90 percent for standard and 82 percent for COVID-impacted measures. During FY 2020, the number of COVID-impacted orders started to increase significantly and, as predicted in previous reports, has since continued to challenge OTD performance. Freight costs in global supply chains remain highly volatile and the degree of unpredictability caused by the ongoing pandemic continued to impact orders in Q3. This impact is expected to continue throughout FY 2022.

Exhibit 9. FP/RH commodities, OTD

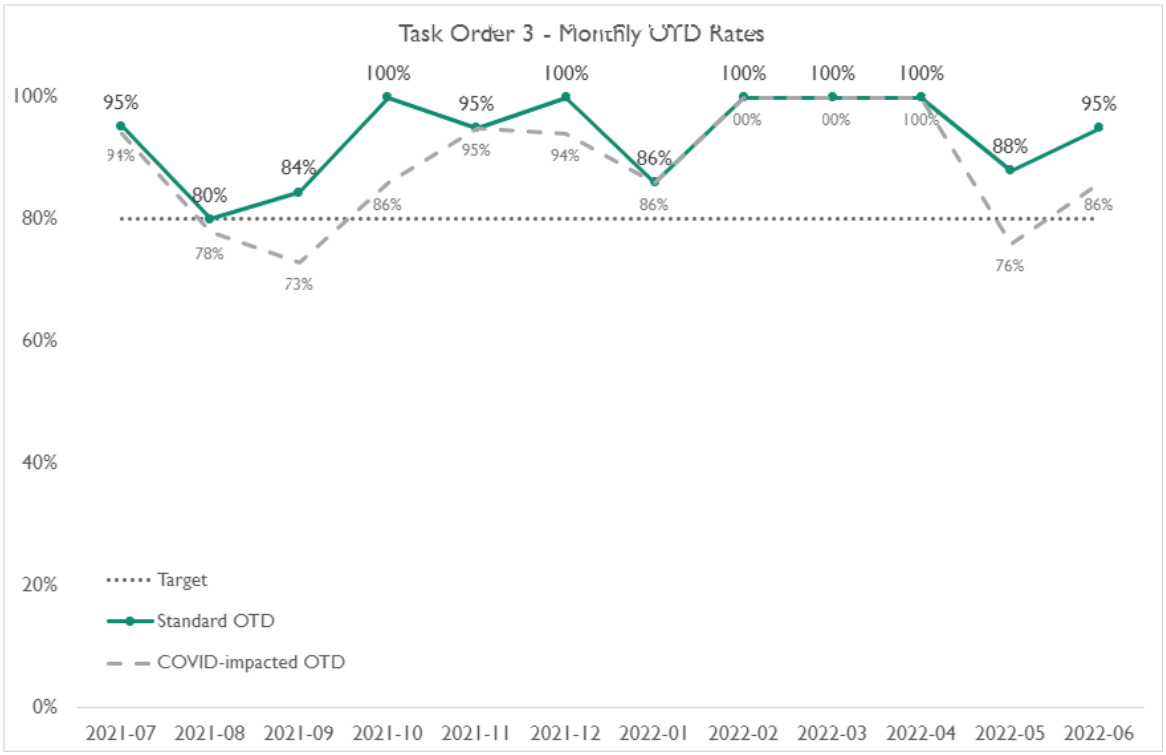
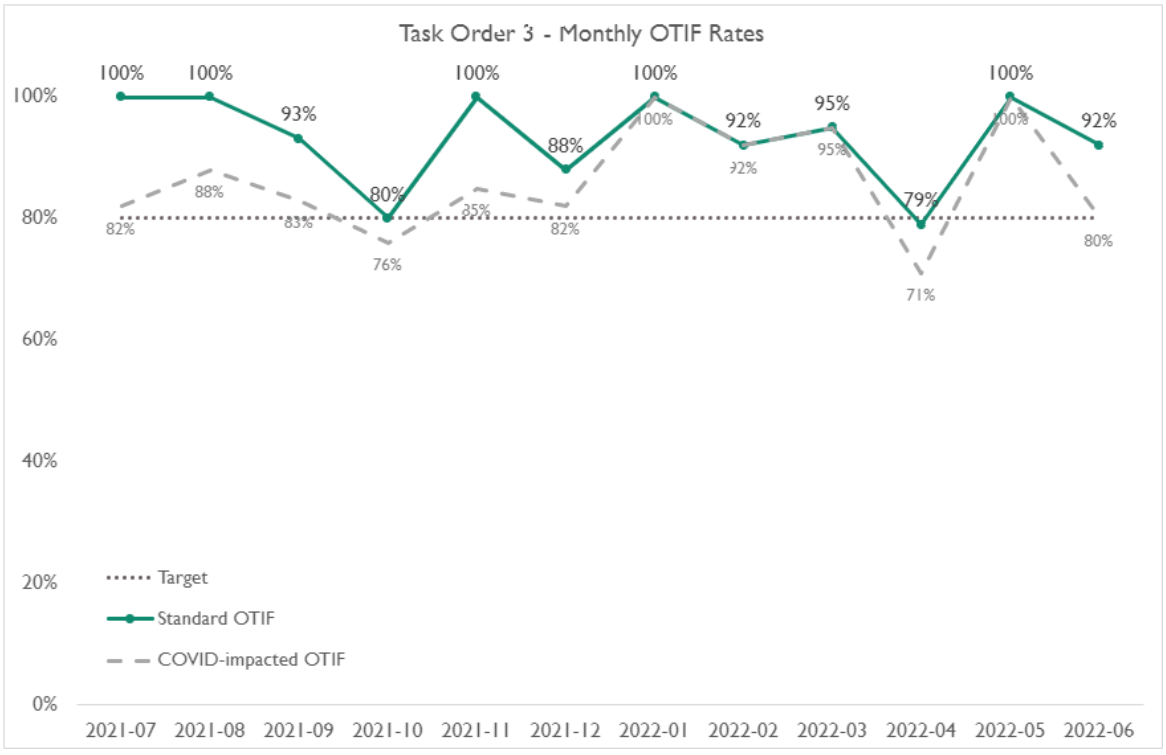


Exhibit 10. FP/RH Commodities, OTIF



Increasing accessibility of the hormonal intrauterine device (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 Q3, GHSC-PSM placed its first hormonal IUD order to be delivered to Rwanda in 2022.

Supporting social marketing engagement activities
In Q3, GHSC-PSM continued to monitor all aspects of social marketing activities related to demand, supply, product transitions, local and supplier regulatory requirements, and branding. GHSC-PSM finalized the process to obtain an overbranding marketing authorization for Nepal–Contraceptive Retail Sales to facilitate the transition from a supply-constrained injectable contraceptive to leverage another supplier within GHSC-PSM's contracted sources. This transition mitigated program disruption and stockouts. As the transition from iron-based combined oral contraceptives to non-iron placebo products continues, GHSC-PSM provided support to social marketing organizations (SMOs) in Benin, Ghana, and Tanzania to obtain a supplier marketing authorization that would facilitate overbranding and local distribution.

In Q3, discussions with suppliers remained a critical part of fostering social marketing activities and ensuring in-country overbranding remained acceptable. A supplier granted Senegal's SMO, ADEMAS, permission to continue distributing medroxyprogesterone acetate-subcutaneous injection (MPA-SC), averting a disruption to their programming and local supply chain. Social marketing branding remained a key activity in Q3 for both contraceptives and specialty male condoms. The project supported a number of SMOs in developing or rebranding male condom and lubricant products. GHSC-PSM facilitated finalization of the artwork for the new Ghana Ebony Plus brand by coordinating iterations between the SMO, Total Family Health Organization, and the supplier, while in Tanzania, GHSC-PSM collaborated with T-MARC to revise branding for the Dume condom brand. The project continues to support brand artwork revisions for SMOs transitioning to non-iron placebo products.

Coordinating with USAID implementing partners to better understand oral contraceptive market trends

In Q3, GHSC-PSM began deep-dive analyses of oral contraceptive (OC) market trends in Ghana, Madagascar, and Mali. These analyses build on the previous OC demand analysis that GHSC-PSM conducted in 2020 to understand declining USAID demand in OCs in select countries. ***Leveraging global market intelligence to inform supply planning***

In Q3, the project conducted outreach to forecasting and supply planning (FASP) countries to understand if/how existing market intelligence communications are incorporated into supply planning processes and what additional market intelligence data might be helpful to better inform supply planning processes. Leveraging learnings from the outreach conducted, GHSC-PSM updated the State of Supply messaging shared with countries on a bi-monthly cadence and coordinated with the Global Family Planning Visibility and Analytics Network (VAN) to share State of Supply messaging with select VAN users.

Progressive packaging

In FY 2022, GHSC-PSM is working to implement recommendations from the FY 2021 medroxyprogesterone acetate-intramuscular (MPA-IM) injection-focused activity to explore

opportunities for optimum packaging of MPA-IM that can benefit in-country supply chains, reduce environmental impact, and provide potential cost savings. In Q3, ICFP2022 notified GHSC-PSM that it had accepted its panel titled "Innovations in Contraceptive Packaging to Drive Supply Chain Efficiencies and Commodity Security." The GHSC-PSM proposed panel seeks to define secondary and tertiary packaging of FP commodities and highlight the important role packaging can play in driving supply chain efficiencies, enhancing commodity security, and reducing environmental waste. In Q4, GHSC-PSM will coordinate with panelists to prepare presentations that will be presented at ICFP in November 2022.

Overview of contraceptive and condom shipments

In Q3, USAID approved the FY 2021 Overview of Contraceptive and Condom Shipments report, and GHSC-PSM published it on the project website. The report summarizes the FY 2021 delivered quantities and value of contraceptives and FP-funded condoms, providing comparisons with FY 2020 and 2019. It also presents the 10-year trends from FY 2012 to 2021. Among the notable trends:

- Total delivered value for contraceptives and condoms decreased by 20 percent from FY 2020 to FY 2021 ($48.5 million to $39 million).
- Africa's delivered value was the highest among all regions for all methods in FY 2021, accounting for 83 percent of the delivered value.
- Asia's delivered value was the second highest among the three regions, and much lower than the delivered value for Africa.
- Injectable contraceptives and contraceptive implants continue to make up the highest delivered value combined, accounting for 71 percent of the total delivered value, and are the most delivered commodities.

Continuing engagement with FP suppliers

GHSC-PSM routinely engages with strategic suppliers. In Q3, the project conducted strategic business reviews with Missionpharma A/S and Mylan Laboratories Ltd. Stakeholders —including representatives from GHSC-PSM, GHSC-QA, and USAID—reviewed supplier scorecards and discussed key operational and strategic topics.

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.

Participation in USAID's Office of Population and Reproductive Health (PRH) Implementing Partners Meeting

In May, GHSC-PSM attended the PRH Implementing Partners (IP) Meeting. The objectives were to communicate the effect of new global health leadership policies on the work of PRH, gather feedback from IPs on the impact of COVID-19, and develop a shared outlook for PRH and partners to maximize future opportunities. GHSC-PSM staff participated in sessions on strengthening multilateral engagement, localization, strategic communications around FP/RH, FP2030 global architecture and implications for collaboration, and strategic budgeting, among others. The meeting provided an opportunity for GHSC-PSM to hear directly from USAID and other IPs on lessons learned during COVID-19 and opportunities for future engagement on USAID PRH priorities.

Preparing for ICFP2022

ICFP2022 accepted six of 11 GHSC-PSM abstracts that were submitted for the November conference. Of these, three focused on country office-based activities in Angola and Rwanda, and three centered on TO3 core activities. Accepted abstract topics included the Contraceptive Security Indicators survey, innovations in contraceptive packaging, digital health, the innovative stock-alert tool Drugs Out of Range, and local manufacturing in sub-Saharan Africa.

Coordination with FP2030 and United Nations Population Fund (UNFPA)

In Q3, GHSC-PSM welcomed representatives of FP2030 and UNFPA to the GHSC-PSM Country Director Forum. In May, FP2030 shared an overview of the updates implemented with the change from FP2020 to FP2030, including the new regional hubs and commitments made by country governments and non-government actors to date. In June, UNFPA presented to the forum on the new domestic financing initiatives under the UNFPA Supplies Partnership and the compact agreements signed between UNFPA and partner governments in 2022.

Engaging with the FP2030 PME Working Group

In June, GHSC-PSM participated in the FP2030 PME Working Group summer meeting. The group provides technical advice and support for monitoring progress toward the FP2030 goal, promoting the use of data to share knowledge and to inform decision making; and contributing to the understanding of quantitative and qualitative evidence in key dimensions of FP, such as quality of care and human rights. During the June meeting, the PME working group received an update on the status of the FP2020/2030 transition, discussed the working group's role moving forward, and provided input into future areas of investigation and advocacy. GHSC-PSM presented the results of ongoing research to leading experts in the field about determinants of contraceptive prevalence and contraceptive choice. GHSC-PSM immediately incorporated feedback from these global leaders to enhance the analytical models used for the investigation, thus strengthening the work.

Tracking contraceptive security

In Q3, GHSC-PSM prepared a technical report on the 2021 round of the Contraceptive Security (CS) Indicators survey and updated the interactive online dashboard. The survey will be released and the dashboard will go live in Q4. This year's survey includes several updates, including questions to assess the quantity of contraceptives purchased versus forecasted (measured in couple years of protection) to further gauge the visibility of contraceptive commodities within a country's LMIS, and to understand countries' plans to make an FP2030 commitment. The survey also includes a new section about COVID-19's impact on several aspects of contraceptive security and the mitigation measures countries are undertaking. Some initial key findings:

- Forty-nine percent of the countries had a funding gap between forecasted demand for contraceptives and actual spending, the same rate as reported in the previous survey period in 2019.
- Thirty-four percent of reporting countries (14) reported that the COVID-19 pandemic had a medium or high impact on the amount of government spending for contraceptives, while 7 percent (3) said there was a low impact, and 59 percent (24) said there was no impact.
- In 51 percent of reporting countries (23), FP commodities are subject to import duties, down slightly from 55 percent (27) in the last survey period.

Enhancing visibility of FP supply data

GHSC-PSM serves as a key contributor in supporting strategic development and scale-up of the GFPVAN platform and processes. The GFPVAN or VAN is the RH community's pioneering undertaking to increase supply chain visibility and improve collaboration across stakeholders. In Q3, GHSC-PSM continued to focus on enabling the project to realize the benefits of the tool by supporting and onboarding users; validating new features, processes, and data integrated with the VAN; and planning to incorporate VAN engagement and VAN-specific tasks and work streams in work plans by country offices in FY 2023.

Specifically, GHSC-PSM staff:

- Managed the ARTMIS-VAN data integration, focusing on maintaining data quality and adding new product stock-keeping units and hierarchies. Conducted regular integration reviews and data quality process checks to ensure timely updates to the VAN while GHSC-PSM performs root-cause analysis and implements change requests.

- Worked with five countries to understand their value propositions to upgrade their VAN membership from a basic to premium subscription to realize greater visibility into inbound shipment data, supply planning and forecasting features, data quality and action ticketing, and country-specific support from Control Tower analysts. GHSC-PSM hosted technology demonstrations of the VAN premium modules for country offices, USAID Missions, and Ministries of Health to move this activity forward and seek buy-in from country stakeholders.

- Participated in the VAN Steering Committee (GHSC-PSM is a non-voting member) and provided input on GHSC-PSM use cases for large VAN features planned, including shipment notice visibility through INTTRA, and a demand sensing module.

- 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

Public Health Supply Chain Course Launched in Pakistan

Workforce strengthening is crucial to better governance and development of accountable and sustainable public health supply chains, which helps create new opportunities for Pakistani youth. To that end, GHSC-PSM supported the introduction of three credit supply chain management and certification courses in collaboration with the public sector academia in Pakistan: the University of Health Sciences Lahore, University of Peshawar, and Khyber Medical University. The support aims to help fill knowledge and skill gaps for underserved and underperforming districts of Pakistan to establish strong supply chains to improve delivery of health commodities to reduce the morbidity, mortality, and disease burden.

In Q3, at the request of the vice chancellor of the University of Balochistan (UoB), GHSC-PSM trained university-nominated faculty as master trainers during a five-day public health supply chain certification course. GHSC-PSM trained 11 master trainers (9 men, 2 women) in June at the UoB Institute of

Management Sciences Department, Quetta. Participants took great interest in the sessions and were very interactive. The UoB aims to launch a three-credit course in the future.

The initiative will go a long way toward expanding supply chain management capacity within Balochistan's public sector, including opportunities for youth to adopt a new academic discipline and eventually enter the public sector and commercial industry.

Ethiopia

Supportive Supervision Analysis Conducted

GHSC-PSM provided supportive supervision at 765 health facilities in Q3 on stock management, rational use, and LMIS, including order management of FP/RH health commodities. The supervision helped to ensure access to quality FP/RH commodities, capacity-building, and resolution of commodity management bottlenecks that lead to stockouts and expiries. Supportive supervision analysis found:

- 99 percent of facilities had at least three contraceptive methods of choice in stock and all facilities had at least two methods in stock.
- FP units in 91 percent of visited facilities had a proper system to manage and register FP commodities.
- Percentage availability of contraceptives included: Depo Provera (94), emergency contraceptive pills (93), Microgynon (90), Jadelle (88), IUDs (94), Implanon (84), and condoms (94).
- Availability for all method choices was good and stable, except for Jadelle, which mostly is related to low demand.
- Main reasons reported for stockouts included under-supplying from Ethiopian Pharmaceuticals Supply Agency (EPSS) and reporting and requisition form (RRF) data quality problems, which mislead resupplying decisions.
- Interventions taken to address stockouts at the time of the supervision include stock redistribution, RRF data quality analysis feedback, onsite orientation, communication to EPSS for resupply, and distribution of new versions of RRFs.

B4. Maternal, Newborn, and Child Health

14 countries received MNCH health supply chain strengthening support in Q3 FY 2022.

Four countries procured MNCH medicines and commodities in Q3. Since its beginning, the project has procured a total of **$24.77 million in MNCH commodities, including $98.5 thousand in Q3.**

Refactored data tools in three countries in Q3 to increase their potential for use in other countries, and ability to plan for and track MNCH supply chain issues, leading to greater availability of MNCH commodities, efficient use of MNCH supplies, and fewer MNCH risks within these countries and globally.

In Q3, held a series of **technical working sessions with global partners,** including UNICEF, Bill & Melinda Gates Foundation (BMGF), PATH, Promoting the Quality of Medicines Plus (PQM+), and Medicines, Technologies and Pharmaceutical Services (MTaPS) aimed to **avail key child health commodities** for treating pneumonia and possible serious bacterial infection (PSBI), the leading causes of childhood mortality.

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 quarterly report summarizes achievements under the MCH task order objectives in Q3, 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 to use MNCH data collection and 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.

GHSC-PSM's Q3 activities and accomplishments under these MNCH objectives are detailed below.

International MNCH Supply Chain Leadership and Guidance

Developing new commodity chapters for MNCH procurement and supply manual
In 2019, GHSC-PSM published the Manual for Procurement and Supply of Quality Assured Maternal, Newborn and Child Health Commodities for procurement agencies and specialists as they establish quality assurance systems for procuring MNCH products. The manual includes useful technical information on a subset of priority MNCH products, such as key considerations for procurement and product specifications. In Q3, GHSC-PSM conducted a review and update of existing commodity chapters and started developing new commodity chapters for additional priority products, including select antihypertensives and tranexamic acid. The manual will be completed in Q4 and disseminated widely.

Developing the MNCH Commodity Integration Playbook for the systems used by countries to manage priority MNCH risks
In Q3, GHSC-PSM began developing the MNCH Commodity Integration Playbook, a resource that will assist countries to establish systems and processes for improving the uptake of new or underutilized MNCH commodities and commodity formulations. The playbook will capture the expertise GHSC-PSM's MCH task order acquired while working with governments to update and tailor their national MNCH management strategies and corresponding supply chain operations. The playbook will assist national stakeholders with decision making and process improvements for MNCH commodity management to increase availability of affordable, quality- assured MNCH commodities at service delivery points. In Q3, GHSC-PSM began a literature review to identify and incorporate existing, evidence-based guidance on commodity transition and integration of new commodities into national pharmaceutical supply systems.

GHSC-PSM also began consultative meetings with experts in the MNCH community and GHSC-PSM technical teams in Q3. Discussions and input from these experts will inform approaches and tools included in the playbook. The project will complete a draft playbook in Q4 and pilot the resource in two project-supported countries in Q1 FY 2023.

Developing the postpartum hemorrhage (PPH) compendium resource

In Q3, GHSC-PSM completed a draft white paper documenting its collective resources and lessons learned from its work as a technical leader in availing and addressing barriers to availing quality PPH commodities. The paper shares global learnings from years of work across technical bodies and many country contexts and updates on recommended commodities for managing PPH. It also dives into case studies that demonstrate how specific countries have managed enabling environments and different supply chain structures to improve availability of PPH commodities and save mothers' lives. Once published, the white paper will serve as a one-stop shop for these lessons and provide easy access to all of the resources GHSC-PSM has developed in its years working to improve PPH commodity quality, availability, and management. The paper will be validated and published in Q4, and GHSC-PSM will disseminate it broadly thereafter.

Supporting domestic wholesalers in Zambia

In Q3, GHSC-PSM completed its work with the Zambian Pharmaceutical Business Forum (ZPBF), a non-profit association of pharmaceutical wholesalers, manufacturers, and retailers that aims to help members address barriers that limit their ability to provide affordable, quality health commodities. Following the conclusion of project-supported workshops and development of short- and long-term work plans that took place in Q2, in Q3, GHSC-PSM met with ZPBF to understand achievements and progress to date.

By the end of GHSC-PSM's support in Q3, ZPBF had strengthened its capacity to be a leader in the pharmaceutical industry and improved collaboration with national entities to ensure product quality and enable a supportive environment for commercial pharmaceutical suppliers in Zambia. For additional information on the work and ZPBF's successes and challenges, check out the GHSC-PSM brief, Zambia's private sector boosted by newly revitalized national trade association.

Co-hosting global technical discussions with MTaPS and PQM+ to improve the availability of commodities to treat childhood pneumonia and PSBI

Of the infectious diseases that contribute to child mortality, pneumonia is the highest. An alarming 40 percent of children with symptoms of pneumonia are not taken to an appropriate health care provider in the 40 countries in which 90 percent of child pneumonia deaths occur. Approximately 10 percent of newborn infants develop signs of PSBI and require antibiotics. Amoxicillin became the recommended treatment for pneumonia in children under 5 years in 2014 and in 2015, gentamicin injection, together with amoxicillin, was recommended by WHO for treatment of newborns with PSBI at lower-level facilities where referral is not feasible. In the past decade, there has been progress and increased awareness of these lifesaving commodities; however, access to and appropriate use of pediatric amoxicillin (dispersible tablets and suspension) and gentamicin injection remain a challenge.

In Q3, GHSC-PSM, MTaPS, PQM+, and other collaborators conducted research on select barriers and interventions for availing these commodities, specifically in the areas of quantification, finance, use, and quality. GHSC-PSM presented the information during three sessions hosted by the Child Health Task Force (CHTF). Each session was attended by 60–80 individuals from a range of countries, all with high rates of pneumonia. Participants were engaged in breakout sessions to validate and prioritize proposed interventions. Following the sessions, GHSC-PSM and other USAID supply chain projects began developing a call to action paper to summarize the recommendations to overcome barriers, and to communicate solutions tailored to certain audiences—especially governments, multilateral organizations, and donors—to encourage specific actions for availing these commodities. The paper will be completed and disseminated in Q4. In FY 2023, GHSC-PSM will partner with MTaPS and PQM+ to implement select recommendations in priority countries.

Supporting the Newborn Technical Working Group

In Q3, GHSC-PSM conducted a review of the Every Newborn Action Plan Results Framework developed by stakeholders of the Newborn Technical Working Group. The project then led the working group in an effort to redesign the framework and achieve the following: 1) Develop global guidance around selection, classification, and prioritization of newborn priority medicines; 2) Develop a list of essential versus desirable medicines for newborn care; 3) Assess availability and quality of, and identify gaps in, global guidance (i.e., technical briefs, best practices, country lessons learned) to improve newborn care. The redesigned framework aims to provide global experts and working groups with guidance and expectations related to the adequate procurement, use, and maintenance of medicines, devices, and consumables for newborn care by the end of FY 2022. GHSC-PSM is coordinating the technical working groups composed of global experts with involvement of USAID, WHO, UNICEF, international NGOs, private sector actors, and MOH representatives to develop guidance for newborn medicines, medical devices, and consumables. The coordination involves managing communications, ensuring timelines are followed, engaging stakeholders, and developing tools and materials to help move the work forward. The main outcome of the activity consists of providing countries and other stakeholders with guidance to improve care for newborns through improved access to medicines, medical devices, and consumables.

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

Supporting forecasting and supply planning

The project led and supported MNCH commodity quantification and forecasting workshops in three countries (Mali, Nepal, and Pakistan) in Q3. These workshops are designed to build the capacity of MOH staff to conduct these exercises, and appropriately order and plan supplies for the country's health needs, without project (or other donor/implementing partner) support.

Rolling out the forecasting module of the QAT

GHSC-PSM's QAT leverages new technologies—building on and replacing the previous FASP tools PipeLine and Quantimed—to support countries as they forecast and supply plan for their health programs. In FY 2020, GHSC-PSM developed the QAT supply planning module and rolled it out to 28 countries. In FY 2022 Q3, GHSC-PSM completed and launched the QAT forecasting module. This module uses commonly collected health supply chain data such as morbidity, demographics, services, and historical consumption. Critically, the QAT now employs the recently updated Reproductive, Maternal, Newborn, and Child Health (RMNCH) Quantification Supplement (which GHSC-PSM consulted on and validated in several countries). Many GHSC-PSM teams presented in global fora—such as the Child Health Task Force and Maternal Health Supplies Caucus—on the tool and supplement in Q3, including the project's Nigeria and Pakistan teams who spoke to their positive experiences using these resources.

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 (SDP) 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/W and in-country stakeholders in Q3.

Countries that collected EUV data	Benin, Burkina Faso, Liberia, Mali, and Zambia
Countries that submitted EUV reports*	Benin, Burkina Faso, Liberia, Mali, and Zambia

**Reports have not been formally approved by USAID/W*

Results from recent EUV in Burkina Faso. As noted above, GHSC-PSM worked with the Ministry of Health in Burkina Faso to conduct EUV data collection in Q3. The survey results found that storage conditions for all commodities, including MNCH commodities, had improved since the previous EUV survey due to GHSC-PSM technical assistance. The percentage of health facilities with commodities stored on pallets increased by 41 percent (20 percent to 61 percent). Finally, compliance with the recommended distance between the storage of commodities and the wall increased by 29 percent (from 18 percent to 47 percent).

Global EUV leadership. GHSC-PSM is working to support countries as they implement recent changes to EUV reporting. These changes expand the scope of certain indicators to capture additional areas of supply chain performance and aim to improve useability of the data. GHSC-PSM also began analyzing EUV reports in Q3 to identify common trends across countries (such as rate of MNCH commodity stockouts), which the new EUV reports allow for; collection of additional indicator data has enabled a more thorough assessment of commodity availability and trends in supply chain performance.

Improving data analytics and information systems for MNCH commodity decision making
eLMIS platforms aggregate and help stakeholders analyze an array of national supply chain information. In FY 2020, GHSC-PSM conducted a data use survey in 15 countries, which indicated that countries often face the time-consuming challenge of manually entering, consolidating, and analyzing logistics data. In response to these countries' needs and desire to scale up use of data for MNCH commodity management, GHSC-PSM developed a catalog of robust analytics tools in FY 2021 that project-supported countries use to inform MNCH commodity management decisions. The catalog describes each tool, the platform it uses, the data it requires to function, and a point of contact for the tool. The catalog will 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. In Q3, GHSC-PSM began to identify countries that could benefit from a refactored version of the **Zambian Consumption Data Anomalies tool,** one of the tools from the catalog. Zimbabwe was one of the chosen countries; GHSC-PSM began to roll out the refactored tool there in Q3. This followed the project's work in Q2 to refactor and improve the Zambian tool's ability to identify inaccurate and incomplete logistics data. The refactoring process aims to generalize a tool's software code, making it more robust and allowing it to function beyond the original scope. Refactoring facilitates information sharing across countries because it allows analytics tools to be shared, reused, and integrated with different data systems.

Also in Q3, GHSC-PSM expanded the data refactoring activity to **Burkina Faso** where the team is facing challenges collecting and analyzing supply chain data from facility, district, and regional levels. The country's Logistics Reports tool has now been refactored to address these challenges, and GHSC-PSM in Burkina Faso began planning demonstrations in Q3 for in-country stakeholders who could benefit from the tool. Refactoring the Logistics Reports tool in Burkina Faso has the potential to significantly reduce the level of effort required for manual data input when collecting stock data and supports data-driven decision making for improved supply chain performance and stockout reduction.

In **Liberia**, GHSC-PSM began assessing data tools used to capture stock status and consumption data. GHSC-PSM is refactoring the Liberian tools to improve stock imbalances for MNCH commodities, especially oxytocin, magnesium sulfate, and misoprostol, and achieve a more efficient approach to addressing stockouts and overstocks. The refactored tools will be finalized in Q4 and presented to country stakeholders for feedback and potential improvements.

Furthermore, the MCH task order continues to monitor, improve, and disseminate the data catalog through feedback from project teams across the globe.

eLMIS advances in MNCH-supported countries

Burkina Faso pilots eLMIS application in two districts. GHSC-PSM provided technical and financial support to Burkina Faso's MOH to develop an eLMIS application, NetSIGL 2.0, to strengthen the health commodity LMIS. NetSIGL is a web-based application that automatically generates an LMIS report and instantly delivers it to the district level. GHSC-PSM and the MOH have piloted the application in 68 health facilities in Dande and Nanoro districts. During Q3, GHSC-PSM, MOH and the application developers conducted supervision visits to all pilot sites to ensure the application is implemented and used. During these visits, they found:

- All pilot sites are using NetSIGL2.0 at health facilities and district depots.
- Internet issues were noted in some health facilities, but this issue was resolved as the application can be used offline. Then, the synchronization can be done once the Internet is available or once the user moves to a place where the Internet is available.

The following technical issues were identified, brought to the project-supported Technical Monitoring Committee, and relayed to the developers to be addressed:

- A bug was uncovered in some health facilities that showed a negative value of stock quantity.
- Missing data (batch number, expiration date, etc) were noted on most of the tools.

All the technical issues identified during the supervision visits were fixed by the developers by the end of Q3, in advance of the next scheduled supervision visit in July 2022. This troubleshooting and capacity building during the pilot phase will better prepare all stakeholders as the application is scaled up beyond the pilot sites.

Enhanced In-country MNCH Supply Chain Coordination and Collaboration

Supporting the management of antihypertensives in Ghana

GHSC-PSM works closely with the Ghana Health Service (GHS) and the MOH to ensure continuous availability of quality-assured MNCH commodities and has recently increased support around managing

commodities that address hypertension in pregnancy (antihypertensives). Hypertensive disorders of pregnancy (HDP) include pre-eclampsia, eclampsia, gestational hypertension, and chronic hypertension and increase the risk of adverse fetal, neonatal, and maternal health outcomes. Through their work, GHSC-PSM, GHS and other partners such as the MOMENTUM Country and Global Leadership (MCGL) project have identified barriers to availing and procuring antihypertensives. They set out in 2022 to conduct an in-depth assessment of barriers faced by health providers and clients in accessing and making antihypertensives available. This assessment, supported by data collection at SDPs across the country, will conclude in Q4 FY 2022 and result in an improved understanding of how HDP commodities are prescribed in Ghana's public sector and identification of bottlenecks affecting availability of these commodities.

In Q3, the partners agreed on a scope of work, data requirements, and collaboration protocols for the assessment. Once the data collection and analysis are complete, the partners will develop a report, share findings with stakeholders, and make recommendations based on those findings to improve availability and management of antihypertensives, and ensure 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.

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 14 countries[21] in FY 2022. Specific country achievements are described below.

Warehousing improvements in Nepal. Good warehousing practices are required at all tiers of the supply chain to ensure the good condition of health commodities by storing products on pallets, racks, and shelves. However, many sites in Nepal lack this equipment, which can result in damage and loss of product. In Q3, GHSC-PSM provided materials handling equipment to seven provincial medical stores to help them adhere to good storage practices, ultimately helping to preserve the integrity of FP and MNCH commodities through the last mile.

Zambia introduces the maternal health technical working group to alleviate stockouts. In FY 2022, GHSC-PSM and the Zambian MOH introduced the Family Planning and Safe Motherhood sub-national technical working group (TWG). The TWG's primary objective is to strengthen coordination and collaboration among commodity managers and RMNCH service providers through an established, well-functioning, and government-endorsed body. The TWG will spotlight the supply chain, so that these activities can be given the attention they require, and improve commodity availability at SDPs. Stakeholders held a one-day meeting in Mansa, Luapula, province to discuss objectives of the TWG and create a plan to gain buy-in. By the end of Q3, partners and stakeholders pledged support and the Clinton Health Access Initiative (CHAI) agreed to fund the activity. GHSC-PSM provided technical support in the Northern Province to establish the TWG, and is in the process of engaging other

[21] GHSC-PSM is providing MNCH technical assistance to 14 countries in FY 2022 to: AFRICA: Burkina Faso, Ethiopia, Ghana, Guinea, Liberia, Malawi, Mali, Mozambique, Nepal, Nigeria, Pakistan, Rwanda, and Zambia; CARIBBEAN: Haiti

provinces in the group. Stakeholders are also considering the possibility of community-level participation.

Quality Management Improvement Approach aims to ensure patient satisfaction in Rwanda. The Rwandan MOH and GHSC-PSM build the capacity of Rwanda Medical Supply (RMS) branches to supervise and mentor health facility staff and improve their performance at all levels. RMS branches and health facilities play a key role in supply chain management, especially in storage and inventory management, transportation of commodities from RMS branches to facilities, resupply of health commodities, eLMIS, and support to lower SDPs. RMS branches ensure the availability of all health commodities within the district, including MNCH commodities, and provide support and supervision to SDPs within their respective districts. In Q3, the MOH and GHSC-PSM conducted supportive supervision visits using a Quality Management Improvement Approach (QMIA) at RMS branches, SDPs, and district hospitals in 30 districts. QMIA covers performance monitoring and measurement for health facility staff, on-the-job mentorship, and planning for supply chain improvements, including warehousing and inventory control, resupply, storage, waste management, data management, and recordkeeping (eLMIS).

Results from the supervisory visits indicated some improvements, such as for inventory accuracy, which increased from 70 percent to 75 percent by June 2021 for all districts; 20 districts out of 30 scored more than 75 percent with a rating of 3 (excellent). The product expiration rate declined from 5 percent to 2 percent for the products accessed. Invoice generation from the system increased by 44 percent (from 30 percent in 2021 to 74 percent in June 2022). As a follow-up to this activity, QMIA capacity-building sessions are planned in every district, focusing on areas that did not perform well in the supervisory visits. Monthly QMIA supervisory site visits will also be conducted by RMS to monitor SDP performance in all districts.

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

Over the course of Q3, GHSC-PSM supported four countries[22] in procuring priority newborn and child health products and essential medicines.

Zika. Over the course of Q2 and Q3, GHSC-PSM delivered 41,256 canisters of VectoBac WG Biological Larvicide-Water Dispersible Granules to four countries: Dominican Republic, Haiti, Honduras, and Jamaica. Before delivery to the respective countries, GHSC-PSM coordinated supplier-led training, held in English and Spanish, for staff at these countries' Ministries of Health and their USAID counterparts.

[22] GHSC-PSM procured MNCH commodities for four countries in Q3 FY 2022: DRC, Nigeria, Rwanda, and Zambia.

SECTION C

PROGRESS BY OBJECTIVE

C1. Global Commodity Procurement and Logistics

Procured $115.1 million in health commodities in Q3. Total values for the life of the project are over **$4.55 billion**.

Delivered 1,548 line-item orders in Q3, with a value of **$296 million**.

Delivered 87 percent (74 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 84 percent (70 percent COVID-impacted) on-time and in-full.**

GHSC-PSM transitioned responsibility for lab procurements for Kenya and Tanzania to the decentralized procurement (DCP) Kenya local procurement team.

GHSC-PSM contracted a third party to perform the annual stock count at the Belgium RDC that showed accuracy of stock-keeping at 99.88 percent. This reflects the good warehouse management practices of the contracted company and GHSC-PSM.

C1a. Global Supply Chain: Focused on Safe, Reliable, Continuous Supply

GHSC-PSM's procurement strategy focused on three primary objectives in Q3 to appropriately manage the impact of COVID-19 on global supply chains:

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 Q3, the project achieved strong OTD and OTIF while operating the global supply chain within the context of the continuing impact of the COVID-19 pandemic and in the face of unforeseen challenges, including a COVID-19 lockdown in Shanghai. This lockdown affected not only ocean freight but also air freight. Since the pandemic began, the air freight industry has relied on freighter aircraft to compensate for the reduction in passenger flights. During the Shanghai lockdown, mass cancellations resulted in 20

fewer air freighters departing per week. The reduction in the number of freighters has reduced overall exporting capacity by 2,500 metric tons per week. This capacity constraint made it difficult to book air freight and increased the time required for shipments to depart China. GHSC-PSM focused on performance and managed overall commodity and supply chain costs through the following initiatives:

Preventing country- and site-level shortages

The project mitigates potential shipping delays and shortage risks by prioritizing commodities based on stockout risk and the depth of the programmatic impact in the event of shortages. GHSC-PSM's methodology to prevent shortages includes:

- Placing replenishment orders earlier than usual.
- Revising monthly forecasts while taking into account production capacity.
- Requesting GADs of existing orders sooner.
- Coordinating supply with other global partners to prioritize critical countries.
- Releasing orders from the RDCs for commodities with longer lead times.
- Working with countries to move stock closer to the facility level to liberate space higher in the supply chain.
- Reprioritizing order allocations.

See section B1 HIV/AIDs for information on emergency ARV procurements

More Health Commodities through Market Dynamics, Strategic Sourcing, and Supplier Management

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

Supplier relationship management

GHSC-PSM proactively manages operations affected by the market, supply chain, and logistics factors, including the continuing impacts of COVID-19 and more recently the war in Ukraine. Supplier meetings update the project on products, production capacities, delivery schedules, logistical challenges, and quality matters. Commodity and supplier risk profiles inform performance assessments and order allocation strategies.

Operational excellence

Cycle time and operational cost: The ARV allocation tool developed to reduce RO to purchase order (PO) cycle time and operational costs has auto generated 104 notifications of intent to suppliers, allocated 211 order lines to suppliers for 134 ROs valued at $40 million all while improving data accuracy, decision compliance, and quality. Other RO automation tools have produced a 61 percent reduction in the order clarification to initial PSM sourcing approval cycle time while automatically processing 531 and 341 order lines for DCP and lab, respectively, from order clarification to fulfillment plan creation. These initiatives and other efforts have contributed to a PO release average cycle time reduction of 35 percent from Q2 to Q3 for ARV orders.

Regional Distribution Center Operations

In Q3, GHSC-PSM leveraged the three RDCs to deliver more than $44 million worth of commodities to 21 destination countries with a 66 percent OTD. As the COVID-19 pandemic disrupted the global supply chain, the project's strategy to use RDCs and pre-position key commodities across task orders ensured access to commodities with minimal or no disruption. The project used RDCs in Q3 to deliver more than 38 percent of TLD while enabling HIV MMD rollout.

GHSC-PSM contracted a third-party to perform the annual stock count at the Belgium RDC that showed accuracy of stock-keeping at 99.88 percent. This reflects the good warehouse management practices of both the contracted company and GHSC-PSM.

Decentralized Procurement (DCP)

In Q3, GHSC-PSM managed a large volume of orders through DCP. The project achieved 87 percent OTD (74 percent COVID-impacted) for the quarter. GHSC-PSM monitors constraints on global supply of VL/EID reagents and consumables, including COVID-related logistics constraints. In particular, these logistics constraints affected South African Development Community countries due to significant reductions in commercial air freight lanes, especially for cold and frozen orders. As in Q2, some manufacturers of reagents experienced supply shortages in Q3 as well. To mitigate impact on affected countries, the project has bi-weekly order management meetings with manufacturers and is distributing VL/EID demand across all available platforms until this constraint is relieved.

In line with our strategy to expand our decentralized procurement capability in Africa, in Q3, GHSC-PSM transitioned responsibility for laboratory procurements for Kenya and Tanzania from the U.S. to the DCP Kenya local procurement team. This enables more orders to be managed in a similar time zone as the destination countries and also reduces transactional costs. The DCP team in Kenya now comprises five permanent positions.

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:

- Assigning Global Trade Item Numbers (GTINs) that identify trade items and Global Location Numbers that identify business entities and locations.

- Labeling specified packaging levels with barcodes encoded with the GTIN, batch/lot, and expiration date.
- Exchanging master data through the Global Data Synchronization Network (GDSN).

In Q3, the project saw progress in supplier implementation of these requirements, laying the groundwork to use this data in global and national supply chain processes and systems. Advancing compliance requires regular engagement with suppliers for existing and new items. In Q3, the project:

- Collected, validated, and added GTINs for 73 items to the GHSC-PSM catalog.
- Collected master data for 84 new items through the GDSN and maintained data on existing items. In Q3, the project sent and received more than 1,000 messages in the GDSN.

Quality assurance

GHSC-PSM streamlines and optimizes quality assurance (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. Highlights in Q3 include:

- Received 16 new incidents across TO1, TO3, and TO4 and completed 10 incidents (including two recalls). The project facilitated collaboration across internal and external teams by holding meetings with suppliers, country teams, and QA teams to expedite activities, including product quarantines for patient safety and product replacement to avoid stockouts. The number of incidents does not reflect product rejection. The project collaborates with GHSC-QA to ensure all relevant information and supporting documentation is provided for GHSC-QA to conduct quality assessments based on the situation and then make recommendations to USAID for concurrence to release or reject impacted products for distribution.
- Initiated a revision of GHSC-PSM's cold chain product transport directive to optimize, streamline, and clarify temperature-controlled product transport requirements and reporting of incidents related to temperature excursions.
- Conducted QA awareness training on product quality incident procedures for GHSC-PSM staff (Cameroon, DRC, Niger, among others) to promote incident reporting and ensure processes are followed.
- Worked with GHSC-QA to optimize the product recall and market withdrawal SOP to expedite recall activities.
- Proposed a process to USAID (Contracting Officer Representatives) to expedite closures for managing incidents with commodity damage valued at less than $1,000.
- Worked with GHSC-QA to provide input on QA-related inquiries, such as handling quality incidents and recall management related to COVID-19 commodity procurement.

QA for malaria commodities

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

Impacts of COVID-19 on Freight and Logistics

Origin challenges

COVID-19 impacts to the supply chain industry started to wane in Q3 with easing origin-country restrictions. However, the impacts to shipping capacity remain in effect, specifically around port infrastructure and processes at high-volume origin point.

Airfreight
The war in Ukraine continued to impact flight capacity. The conflict has increased fuel costs, which in turn drove up shipping costs and exacerbated unpredictable rate fluctuations, which led to schedule challenges and reduced air freight capacity. Airlines are responding by focusing their routes on popular destinations and using various aircraft types to adjust to demand. While overall airline scheduling showed a rebound, an ongoing area of concern is limited capacity for already underserved locations, which could worsen as fuel rates soar and fewer freighter aircraft serve these routes.

Ocean freight
In Q3, space on ocean vessels and equipment remained tight due to frequent canceled sailings and last-minute omissions of some ports from the schedule. Carriers were overcommitted and limited booking acceptance and rolling shipments. A significant impact in Q3 was vessel delays, which created unreliable schedules. Oil prices and fuel surcharges increased as carriers responded to the global market. This came at a time when container rates had subsided.

Container availability improved but port congestion and erratic carrier schedules continued. These port challenges compounded scheduling unreliability and increased transit times.

Destination challenges
Port congestion is most severe in Tanzania, where port infrastructure is being renovated. Adverse weather negatively impacted delivery activities in Southern Africa. Residual coup impacts affected deliveries to Mali.

C1b. Project Performance

In this section, we summarize 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 Q3, GHSC-PSM OTD was 87 percent (74 percent COVID-impacted) and OTIF 84 percent (70 percent COVID-impacted), the 13th successive quarter that OTD has been above 85 percent (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 following 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 2021 through June 2022 monthly IDIQ OTD

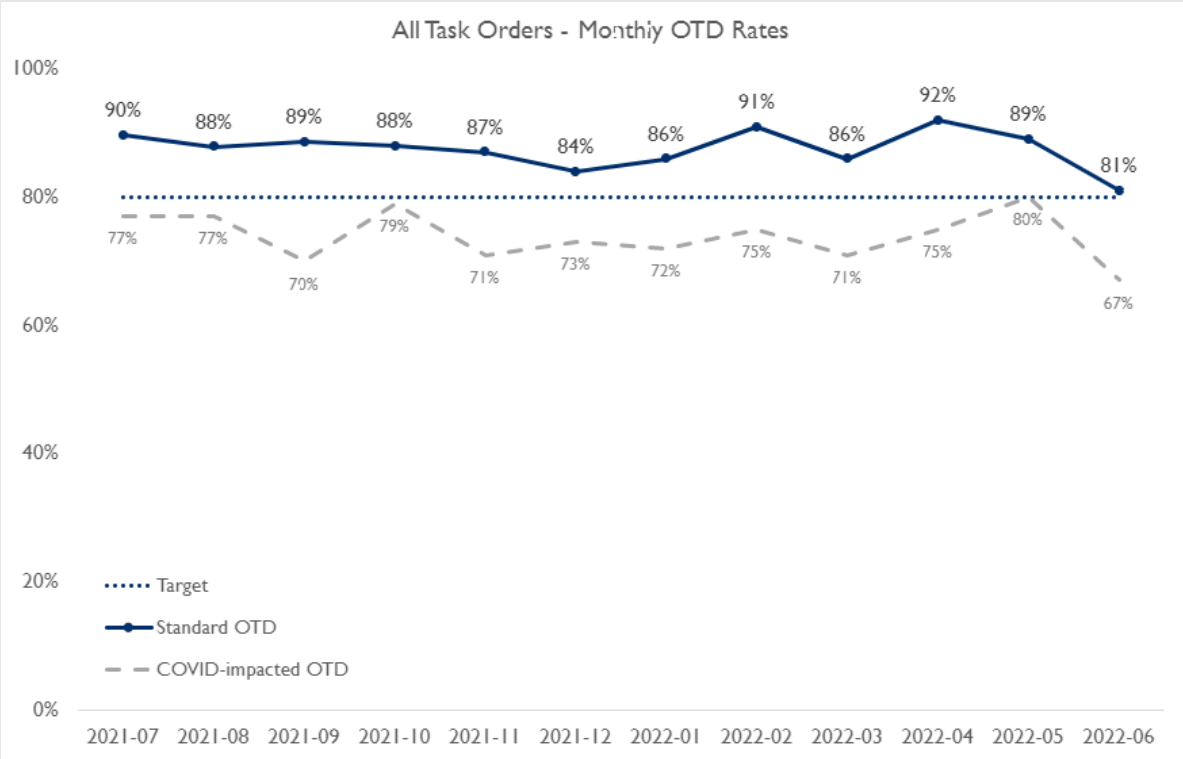
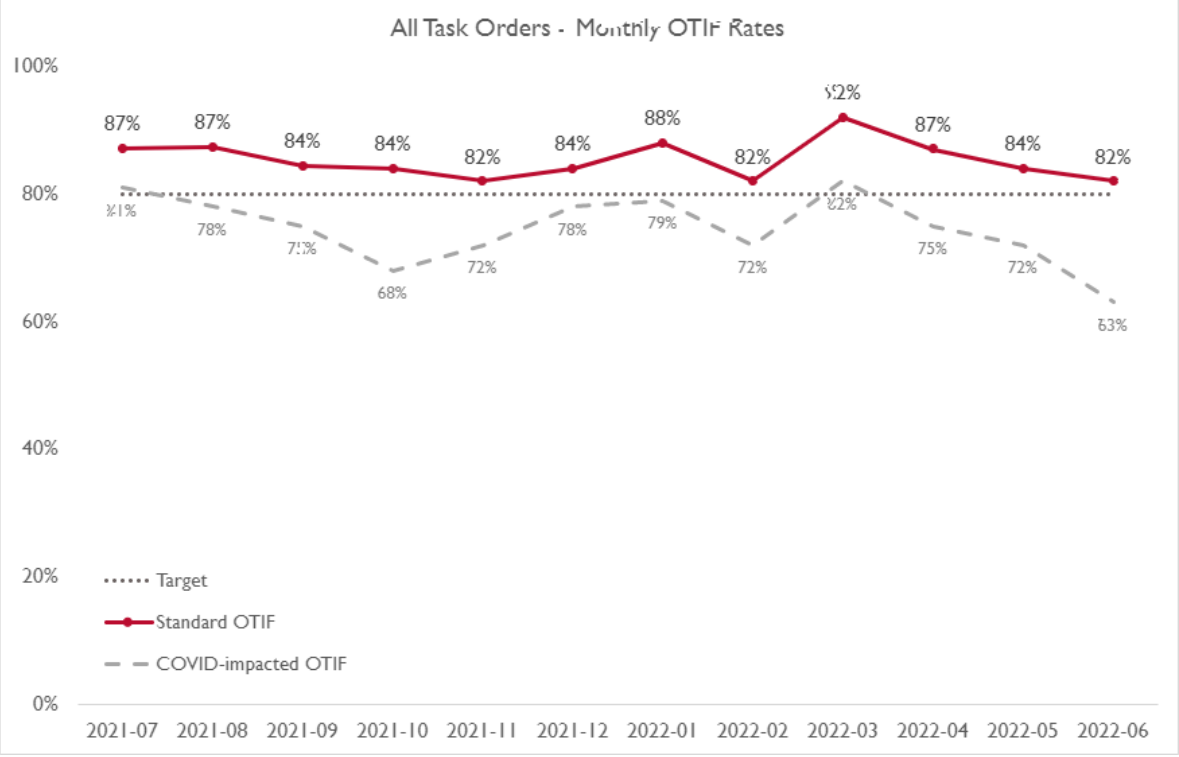


Exhibit 12. January 2021 through June 2022 monthly IDIQ OTIF



C2. Systems Strengthening Technical Assistance

Since Q1 FY 2021, **assisted 28 countries** to transition from PipeLine to QAT, a modernized solution for country-led forecasting and supply planning.

Provided **technical feedback on 165 supply plans this quarter** to strengthen national supply planning capabilities.

Launched an **online, self-directed training for QAT supply plan viewers**. This tool enables program managers to optimize commodity procurement and delivery schedules, monitor the stock status of products, and share data with external platforms and key stakeholders.

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 can sustainably supply quality products to all citizens. To support this goal, headquarters and field-based technical specialists work with in-country teams to define systems strengthening strategies appropriate to the local context that can be realistically achieved. Emphasis is placed 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, 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

GHSC-PSM is beginning to see the effects of adapting advanced analytics tools to strengthen supply management in multiple countries. Advanced analytics enables countries to expand the use of existing data to facilitate decision making across the supply chain, from day-to-day operations to high-level strategy. The project facilitates this process by designing analytic tools that leverage previous investments in management information systems, meet individual country needs, and can be configured and adapted to new countries.

The project continues to leverage open-source platforms, such as Python, or readily available software, such as Microsoft Excel, allowing local institutions to easily adopt, use, and maintain such tools with limited ongoing technical support.

By designing analytic tools that are repeatable, reusable, and adaptable in various contexts, GHSC-PSM's advanced analytics program is not only improving timely decision making in day-to-day operations across

several countries but also enabling countries to reuse these tools in a way that encourages and enhances self-reliance. In Q3, two analytic tools were adapted and reused to strengthen warehousing and distribution in six countries.

In Q3, the project initiated a pilot to implement and use the Dynamic Routing Tool (Dispatch Optimizer) in two regional hubs in Luanshya and Mansa, **Zambia**. GHSC-PSM had developed a prototype of the tool in FY 2020 in Haiti, which was then enhanced for reuse at the central warehouse in Zambia. The Dispatch Optimizer is an open-source, web-based application that enables the hub team to answer three main questions when planning last-mile distribution: 1) How to group orders from facilities into routes?; 2) In what sequence to visit facilities?, and 3) What type of vehicle to use for each route? Without the tool, hubs had difficulty determining and operationalizing efficient routing or being able to respond to unplanned deliveries. Instead, they relied on highly manual processes that were less transparent.

The Dispatch Optimizer takes in data on current orders and available transport resources, then, using master data on the location of each facility, the cubic volume of each item in each order (collected using the Cubiscan, an automated and interfaced volumetric capturing device at central medical store (CMS), and the digital road network data from Open Route Service (OpenStreetMap data), generates routing options that include the size of the vehicle needed to deliver all orders, the travel distance, and the estimated cost of the route. In Mansa, where the tool was first implemented, the tool's volume estimate was nearly identical to the actual shipment volume for the delivery of antimalarials to three district health offices in Luapula province.

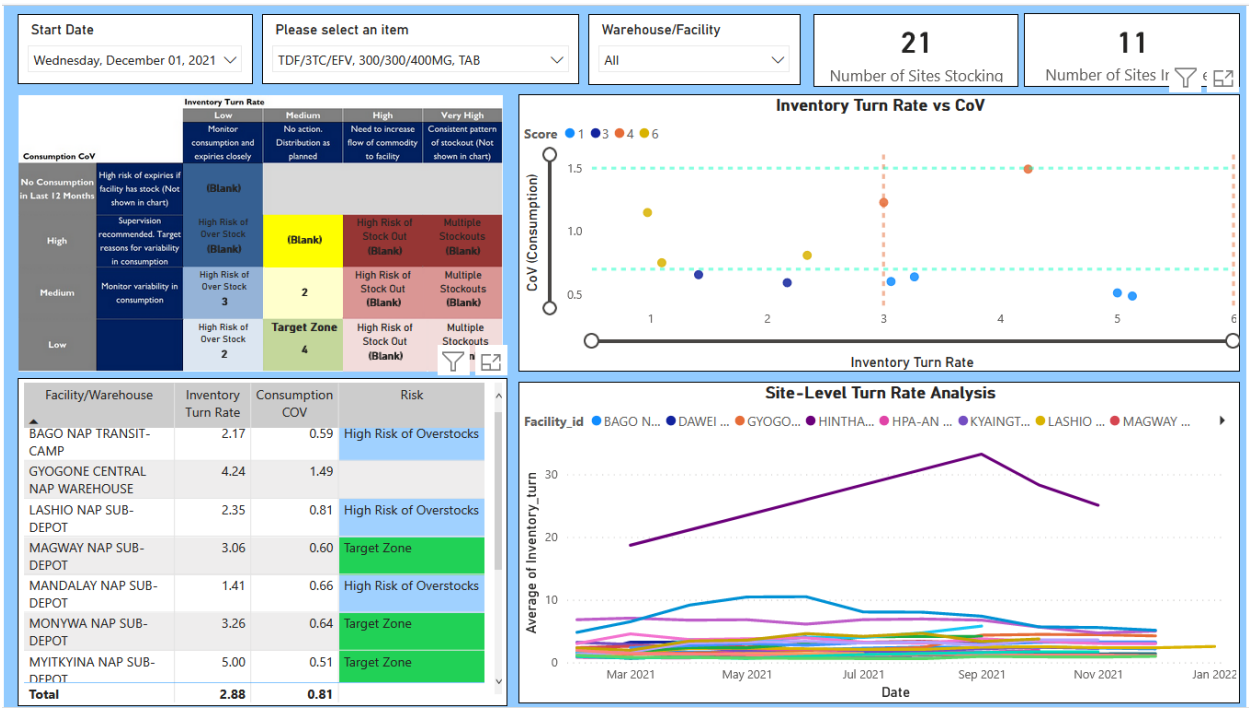
1 Right-sized truck estimated for orders to be delivered through an optimized route in Mansa hub.

The Dispatch Optimizer is also being used in **Kenya** to assess the feasibility of optimizing deliveries of health commodities to last-mile health facilities across the country. This will improve transportation planning for the different health areas and enable appropriate pricing when soliciting 3PL services. In **Mali**, the Dispatch Optimizer was used to explore the possibility of using it to optimize deliveries to health facilities. An initial test was conducted with 49 health facilities in Kayes and demonstrated the possibility of using available data (e.g., digital road network, locations of sites) to support more sophisticated transportation planning than previously possible.

Burma, Indonesia, and Namibia: In all three countries, the project supported the re-factoring of the Inventory Analysis Tool, which was previously developed for use in Ghana, Nepal, and Guinea in FYs 2019, 2020, and 2021, respectively. The tool, which analyzes inventory turnover and variability in consumption, was configured to use logistics data, independent of the LMIS system used in the country, as long as it contained stock on hand and consumption data. The project provided minimal technical assistance to **Namibia** and **Indonesia** to prepare their logistics data, while **Burma** could independently input its logistics data and use the outputs to generate a Microsoft PowerBI dashboard.

One strength of the advanced analytics program is designing tools that can be configured to meet each county's needs. The Inventory Analysis Tool has features that generate output files in a manner that allows country teams to continue to use the existing Microsoft Excel dashboard or expand to additional dashboards and systems. In all three countries, the tool was built on open-source platforms that allow easy transfer to other stakeholders and modification for use in other countries,

Exhibit 13. Dashboard for the Inventory Analysis Generated in Burma



Global Standards and Traceability

GHSC-PSM's support for implementing GS1 standards aims to enable trading partners—including manufacturers and suppliers, logistics providers, regulatory agencies, medical stores, and health facilities—to operate from the same high-quality master data.

GHSC-PSM provided technical support to 10 countries in Q3—Botswana, Burundi, Ghana, Malawi, Namibia, Nigeria, Rwanda, Uganda, Zambia, and Zimbabwe— to support their adoption of GS1 standards for product identification, location identification, and data exchange. More information on standards implementation within the project can be found in Section C1. Global Supply Chain and in the Management Information Systems section below.

In Q3, GHSC-PSM contributed to activating the Traceability and Verification System for Health Products (TRvST) initiative. TRvST is a multi-donor collaboration, including UNICEF, Global Fund, and USAID, to establish a global repository of trusted health product information that enables verification and traceability for these products. This global repository is designed to verify the authenticity of health product information, thus enabling countries to manage the risk of falsified health products and diversion in their national supply chains. GHSC-PSM provided technical support to the TRvST initiative in the

areas of data modeling, supplier engagement, and country onboarding (including Ghana, Malawi, Nigeria, and Rwanda).

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

- In **Burundi,** GHSC-PSM worked with the Burundian Regulatory Authority for Medicines for Human Use and Food (ABREMA) to begin planning for development of the national pharmaceutical traceability strategy. As part of this process, the project facilitated the development of protocols for traceability landscape review in the areas of industry adoption of GS1 standards, supply chain operations, governance, and regulation.
- In **Malawi**, the project worked with UNICEF to support the MOH in drafting a concept note that defines the modality for Malawi's participation in the TRvST initiative.
- In **Rwanda,** GHSC-PSM developed a draft compliance monitoring framework that would allow the Rwanda FDA to monitor supplier compliance with the Rwanda Regulations Governing the Implementation of Identification, Data Capture, and Data Sharing for Traceability of Pharmaceutical Products. The framework for monitoring compliance with the regulations will allow the authority to ensure a common approach to the verification of labels and barcodes of pharmaceutical products distributed on the Rwandan market. The compliance framework will be finalized in Q4.
- **In Nigeria,** GHSC-PSM is implementing a pilot to capture LLIN campaign data at specific distribution points. This will enable verification of net authenticity using manufacturer-applied identifiers and data carriers, at a minimum, on bags and individual nets. In Q3, GHSC-PSM developed data models for the pilot, key performance indicators (KPIs), and business process requirements.
- **In Uganda,** GHSC-PSM is implementing an automatic information and data capture solution to support barcode scanning for warehouse operations of all pharmaceutical products at JMS. This includes using GTIN as a secondary product identifier, and, for non-GTIN products, supporting barcode label printing upon receipt to enable barcode data collection for subsequent operations. The initial deployment is scheduled for July 4, 2022, and will include transactions covering PO receiving, warehouse transfer receipt, change inventory part location, inventory inquiries, and barcode label print. Data compliance to GS1 standards is facilitated through a "bolt-on" Master Data Management solution.
- In **Zambia**, GHSC-PSM is working with the MOH to bolster national traceability objectives by implementing a National Product Catalog (NPC) tool. In Q3, the project initiated the operation and maintenance phase of the NPC tool, which includes continuous monitoring and maintenance of the technology. Furthermore, GHSC-PSM worked with the Zambia Medicines Regulatory Agency to incorporate industry feedback on draft identification and labeling guidelines, thus making progress on policy and regulations to support traceability efforts.

Forecasting and Supply Planning

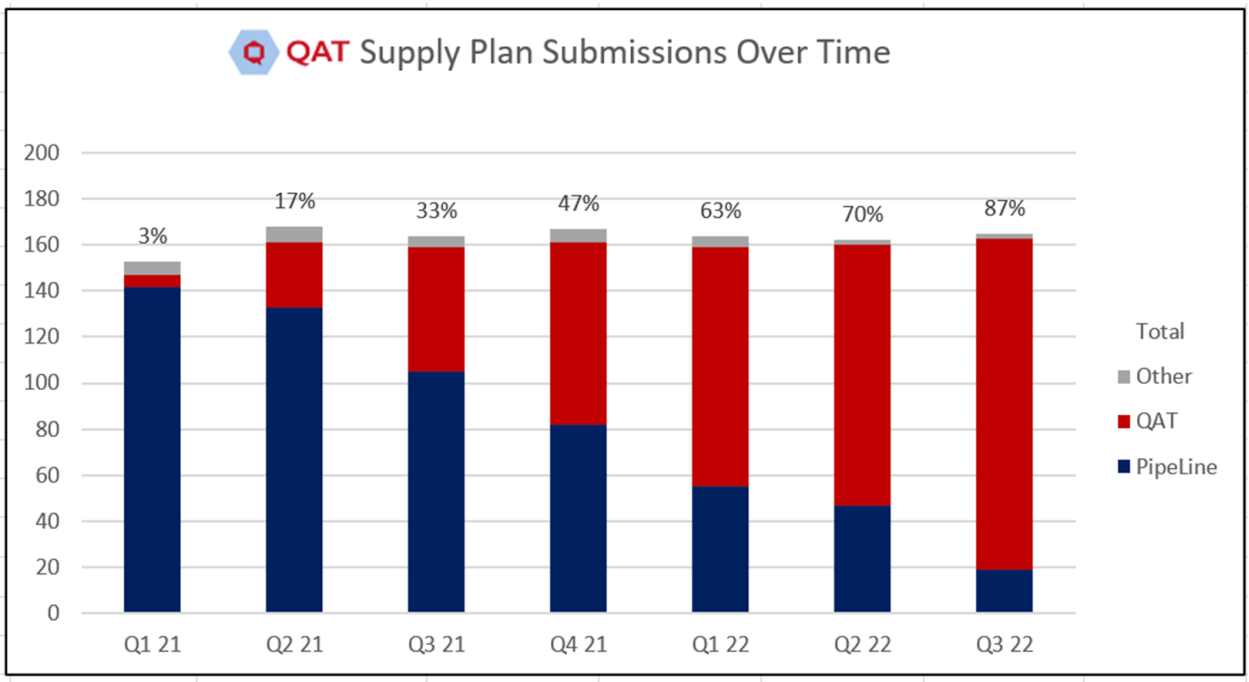
GHSC-PSM provides FASP assistance to help institutionalize processes so countries can move from relying on external technical support to developing their own fully integrated FASP capabilities. This includes in-person quantification assistance, training, and supply plan monitoring support.

In Q3, the project supported **Burundi** in completing a quantification of anti-malarial pharmaceuticals, mRDTs, and LLINs for the period 2022–2024; and led a quantification workshop in **South Sudan** for family planning and maternal and child health commodities, to inform procurement for the period 2022–2024.

GHSC-PSM continued rolling out the QAT. QAT's supply planning module is a modernized solution for country-led quantification that leverages new technologies and has enhanced features over the existing supply planning tool, PipeLine, and will eventually replace it. So far, QAT has replaced PipeLine in 28 countries. In Q3, the project facilitated workshops in Liberia, South Sudan, and Tanzania.

As GHSC-PSM's QAT users became more skilled, they began rollout to local stakeholders. In Q3, project country offices provided QAT training to government stakeholders in Burundi, Ghana, Guinea, and Nigeria. GHSC-PSM also provided targeted, program-specific technical support to help countries transition country PipeLine supply plans to QAT. By the end of Q3, 27 countries submitted 147 supply plans through QAT, with 18 additional supply plans in the process of being onboarded, and additional countries and supply plans to be added later in FY 2022. See more about supply planning submissions in C2a. Project Performance.

Exhibit 14. QAT Supply Chain Submissions Over Time

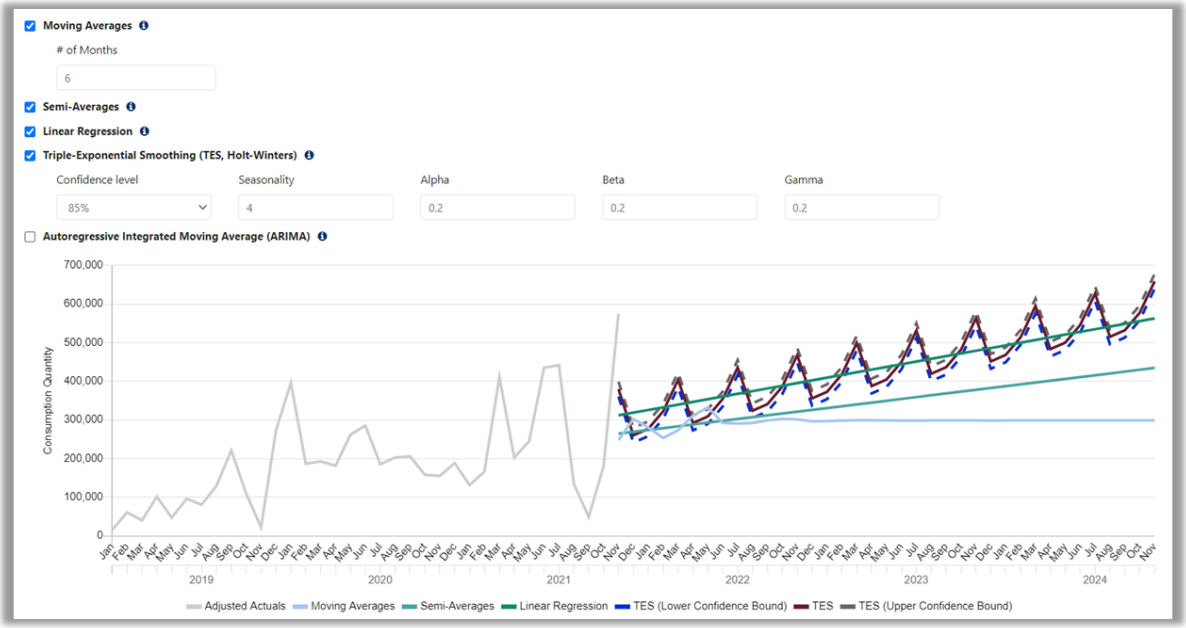


A key component of ensuring the sustainability of QAT is wide user adoption of the tool. To this end, GHSC-PSM aims to engage multiple health supply chain partners and stakeholders to build a broader user base for QAT. In Q3, the project continued discussions with UNICEF and USAID's Bureau of Humanitarian Assistance (BHA), both of which are interested in using QAT for supply planning of nutrition products. The project secured additional funding from BHA to co-design and execute a pilot in three to five countries. At the end of Q3, QAT users numbered 657 worldwide.

Furthermore, GHSC-PSM:

- Completed and launched the QAT forecasting module (module 2) in June 2022. This module uses commonly collected health supply chain data, such as morbidity, demographics, services, and historical consumption; avails advanced extrapolation methodologies, such as triple exponential smoothing and autoregressive integrated moving average; and forecasts error measures, including root-mean-square error, weighted average percentage error, among others.
- Completed the first remote pilot cohort training for participants from Botswana, Eswatini, Malawi, and Rwanda. Participants from an additional 11 countries will be trained in person in Q4 in two regional training workshops scheduled for late July and early August.
- Launched an online, self-directed training for QAT supply plan viewers. The training was rolled out by sharing the link with targeted users. The module is also available on the GHSC-PSM website.

Exhibit 15. Sample consumption-based forecast extrapolation from QAT's forecasting module



Eswatini successfully migrated its supply planning for ARVs, FP commodities, and VMMC into QAT. GHSC-PSM trained staff from central medical stores and other supply chain stakeholders in using QAT for quantification, with lab commodities as a trial run program. Following the successful training, the next quantification for lab commodities will use QAT. Lessons learned from this exercise will inform improvements in quantification for the other programs.

In **Burma**, the project organized a training session for partner organizations on TB stock monitoring, forecasting, and supply planning using QuanTB, an electronic tool created by the USAID-funded SIAPS program. This training equips TB store managers with the ability to make sophisticated projections and calculations accounting for changes in diagnostic devices and treatment regimens that may alter demand and cause stockouts or expiry/loss.

By leveraging the QuanTB tool, LMIS data can be transformed into accurate projections of supply needs and stock risks.

Management Information Systems (MIS)

GHSC-PSM has implemented various MIS solutions in supported countries to improve the efficiency and effectiveness of operations. The project supports requests for proposals, proposal development, proposal evaluation, project planning, and monitoring throughout the project life cycle. Also, GHSC-PSM supports contract negotiation and vendor management to outline standard contract clauses for deliverable acceptance.

GHSC-PSM continues to focus on improving data accuracy and quality for MIS implementation, including implementing GS1-compliant standardized product data to build master data sets toward achieving end-to-end data visibility. The project works with countries to evaluate the data captured in information systems (e.g., eLMIS and warehouse management systems) for standardization, and establish methods and plans for managing master data sets across information systems to avoid redundant data entry and ensure data accuracy and quality.

GHSC-PSM also promotes operational uniformity through NPCs, the Supply Chain Information System Maturity Model, and other approaches. Examples of project activities that took place in Q3 are provided below.

GHSC-PSM provided recommendations for USAID to determine the approach and plan for publishing IT solutions (including systems, applications, and tools) developed under the GHSC-PSM contract as open-source software for public use in the future. The proposed mechanism will make use of GITHUB as an open-source tool that is simple to operate and provides an easy method for managing software for public and private use. The recommendation includes using an MIT license, which is one of the least restrictive open-source licenses that does not require the release of modifications to the original code under the same license. Furthermore, there is no reciprocity or "pay it forward" requirement, even if there is a substantial reworking of the code.

In **Guinea**, GHSC-PSM organized a training workshop for six new government staff to show them how to access eLMIS logistics data shared through the DHIS2 interoperability layer, and how to perform analysis related to stock data in DHIS2. At the end of the activity, participants provided feedback and recommendations to further improve their use of information and workflow.

In **Kenya**, GHSC-PSM rolled out the pilot of a Stock Visibility System (SVS) developed under the Afya Ugavi project to monitor commodities procured by USAID. This activity became necessary, as no mechanism was in place to monitor the stock status of pharmaceutical commodities across the supply chain, or at the point of dispensing to patients. The SVS is a mobile device-enabled, web-based application designed for stock reporting, data analysis for decision making, action planning, and execution. Working with the USAID Mission in Kenya, the project supported the pilot kickoff by conducting user sensitization workshops in one of the five counties identified for the pilot phase. The SVS is currently a "minimum viable product" that needs further development, as expected from the implementation plan.

In **Botswana,** with support from GHSC-PSM, the MOH and CMS have launched and begun using the web-based Supply Chain Dashboard on DHIS2. In March 2021, the project began providing support for

developing this tool, which pulls data from different sources to provide an online tool that strengthens supply chain decision making. The launch of the dashboard was marked by the upload of LMIS backlog (historical) data into the newly developed DHIS2 application by data officers from the CMS, the District Health Management Team, and a referral hospital. Following this exercise, the CMS management team and inventory managers used the tool to make decisions that prevented facilities from running out of stock by re-distributing stock from overstocked to stocked-out facilities.

In **Malawi**, the project continued its collaboration with the MOH to scale up the OpenLMIS rollout to an additional 115 health facilities, making the total number of facilities that will directly report through OpenLMIS 400. This scale-up operation aims to enhance migration from paper-based manual reporting to electronic reporting and includes the provision of computers, wireless routers, data bundles, and trainings for pharmacists at the health facilities on OpenLMIS functionality and use. The transition to OpenLMIS has improved timely reporting and data quality and helped to reduce workload at satellite sites as more facilities are now directly reporting into OpenLMIS.

In **Zambia**, GHSC-PSM collaborated with the Electronic Supply Chain Management Information Systems (eSCMIS) project to increase reporting rates, data quality, and use of data for supply chain decision making at all levels of the supply chain. The USAID eSCMIS project is focused on, among other things, eLMIS software development, implementation, and support across Zambia. GHSC-PSM and eSCMIS have worked together to migrate GHSC-PSM–designed analytics dashboards to the national eLMIS, which is widely accessed by government stakeholders and different implementing partners. These dashboards include facility reporting rates, commodity stock status, product changes, and consumption statistics. The dashboards were tested on the eLMIS UAT environment before being transferred to the eLMIS central edition. With this transition, users will have access to easy-to-use dashboards that will encourage data use and allow them to make informed supply chain decisions, ensuring the availability of health commodities and improving patient outcomes.

In an example of cross-country collaboration, GHSC-PSM and the USAID Mission in **Malawi** also orchestrated a demonstration of the lab commodity tracking system using OpenLMIS v2 with the GHSC-PSM team in **Zambia**.

Laboratory Networks

GHSC-PSM continues to promote the development of efficient and well-planned laboratory networks and support high-quality service delivery through data-driven optimization and geographic information system–based visualization applications as well as quantification to ensure appropriate and timely commodity planning.

In the past, GHSC-PSM worked with PEPFAR-supported countries to use ForLab and ForLab+ desktop and web-based tools for laboratory forecasting. However, as these tools became less efficient for laboratory forecasting and countries reverted to Microsoft Excel-based forecasting tools, GHSC-PSM improved the forecasting module of QAT for laboratory use. The forecasting module was launched in Q3 with a pilot training held for four countries in June. The Anglophone and Francophone trainings are scheduled for Q4 for the remaining countries already using the supply planning module. While the QAT tool was in development, GHSC-PSM offered analytic expertise to PEPFAR-supported countries that do not have a strong Excel forecasting file available. The project provided this support to **Angola** in Q3.

The use of modern software applications like OptiDx—developed by GHSC-PSM, Coupa, and FIND[23] in collaboration with USAID—can increase coverage and reduce costs by providing models and potential scenarios that improve visibility into network performance and costs and create opportunities to optimize laboratory equipment placement.

GHSC-PSM supported **Burundi** and **Uganda** to improve their understanding of diagnostic networks through detailed analysis, as introduced in the Advanced Analytics section of this report. This detailed diagnostic network review will prepare the countries for a DNO activity. DNO is an activity in which multiple stakeholders—including MOH, GHSC-PSM, USAID, other implementing partners, and donors—review models and propose scenarios for the laboratory network to determine potential changes that would improve a key objective, such as optimizing cost or the distance between facilities and labs. Stakeholders review the scenarios that may inform an optimal mix (type and number) of laboratory equipment, an appropriate location for each instrument, and/or an efficient specimen referral system to connect testing demand with point of care (POC), near-POC, or conventional laboratory-based testing sites. At the conclusion of a DNO workshop, partners develop an operational plan, taking into account how implementing the proposed changes to the lab network affects the program's budget, operations, human resources, and logistics. GHSC-PSM supports cost-efficient and sustainable procurement and placement of laboratory instruments.

In preparing for the **Uganda** DNO, GHSC-PSM paused the analysis to realign stakeholders in early Q2. After reconnection, the project decided further review and understanding of the diagnostic network were needed before completing an optimization exercise. In Q2, the project divided the network into individual components for review, analysis, and correction and began filling gaps in data and identifying potential opportunities for improvement. In Q3, this review continued with discussions on the potential scenarios to be analyzed during the optimization workshop in Q4. **In Burundi,** GHSC-PSM prepared for DNO implementation with data collation and data wrangling and clarified the scope with appropriate stakeholders. In Q3, Burundi reviewed the diagnostic network data, identified gaps, and worked with country partners to transfer paper-based records to a digital database to obtain all of the data needed for the DNO. The team presented the data to stakeholders and began discussions about DNO objectives in preparation for the workshop in Q4.

GHSC-PSM revised the Instrument Procurement Questionnaire, which includes 12 questions that country teams answer to demonstrate sufficient need and preparation for purchasing laboratory equipment. The revised questionnaire provides country teams with greater clarity on expectations for completion and reduces the need for follow-up questions. **Burundi, Mozambique,** and **Uganda** were the first to complete the questionnaires using the updated format in Q1, and more countries began using the new questionnaire in Q2 (including **Kenya**, **Namibia, Zambia,** and **Zimbabwe)** and Q3 (including **Mozambique, Nigeria,** and **Uganda**). Early engagement with countries on this questionnaire is especially important this year as one of the instrument suppliers is retiring its Cobas Ampliprep/Cobas TaqMan instruments, and countries must replace them in the next year.

Warehousing and Distribution

GHSC-PSM continues to improve warehousing and distribution systems in more than 25 countries. As part of this work, the project aims to move countries from a warehousing mid-/long-term storage facility to a distribution center model that promotes more frequent stock turnover (inventory turns). This

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

requires changes in infrastructure and processes to keep abreast of improved warehouse speed and shorter order cycle times. Interventions 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 engages in support of warehouse operations with other implementing partners or their counterparts within various Ministries of Health (e.g., through a central medical store or a parastatal).

GHSC-PSM is also implementing private sector approaches, such as activity-based costing (ABC), that recognize that warehousing and distribution are part of a larger strategy. Effective supply chain management requires integrating procurement, transportation, storage, picking and packing, delivery, and other activities; doing so results in increased velocity, improved orchestration, high performance, low risk of expiry, and lower costs.

The project continued to support **Kenya** with ABC implementation at the Mission for Essential Drugs and Supplies (MEDS). Working closely with MEDS and USAID, GHSC-PSM developed a new profit and loss statement. This new format will provide USAID with the actual cost MEDS is incurring for the project and will provide MEDS with significant and detailed visibility into its own expenses and improve planning. Implementation and adoption of this profit and loss statement are the final stage of ABC. GHSC-PSM will continue to support MEDS with monthly and quarterly reviews to ensure a smooth transition to this new financial tool.

In Q3, GHSC-PSM collaborated with **Rwanda** to develop training materials and conduct an interactive workshop with RMS on the fundamentals of ABC. Implementation will begin in Q4.

GHSC-PSM is also collaborating with **Ghana** on ABC implementation. The country team has shared financial information and is gathering additional information in preparation for implementation at the beginning of Q4. The project also worked with the MOH and CMS in **Eswatini** to gather data for an ABC costing exercise that will inform the service percentage charged by the CMS. This exercise will continue into Q4.

In Q3, GHSC-PSM finalized the distribution template's contractual language to ensure the project is measuring appropriate activities to minimize risk when contracting with 3PL providers. Countries that included KPIs in their request for proposals for upcoming contract modifications or renewals are Botswana, Ghana, Kenya, Mali, Niger, and Uganda. GHSC-PSM is also developing a KPI tool and dashboard for each country, aiming to establish a robust mechanism and record of 3PL performance that will allow for comparison of KPI results across countries. Angola and DRC began a pilot of the KPI dashboard and are completing UAT and feedback sessions. The project continues to review and update storage and distribution contracts for country teams. In Q3, GHSC-PSM reviewed RFPs for Botswana, Cameroon, Ethiopia, and Nigeria.

Workforce Development

GHSC-PSM strengthens public health supply chain workforces through the project's country offices. These interventions build sustainable workforces through professionalization and systematic approaches to workforce development. GHSC-PSM provided remote support in Q3 to Angola, Botswana, Burkina Faso, Ethiopia, Liberia, Rwanda, Sierra Leone, Zambia, and Zimbabwe.

In **Zambia**, GHSC-PSM collaborated with the Nursing and Midwifery Council to enroll 312 nursing students from Chipata and St Francis College of Nursing and Midwifery in the Health Supply Chain Management in Zambia e-learning and self-paced course for six weeks and in batches. WhatsApp and Google Meet served as communication platforms between facilitators and students during the course. Of the first batch of 106 students who enrolled in the course, 56 completed the course while 50 are in different stages of completion. The project plans to engage the other students with an opportunity to start and complete the course as planned. The objective of the course is to complement the school's curriculum in logistics management and to expose students to processes, forms, and tools they would use in health facilities. GHSC-PSM will implement the course for students at two additional nursing schools.

In **Sierra Leone**, GHSC-PSM collaborated with the Directorate of Pharmaceutical Services and the NMSA to update the standard operating procedures (SOPs) of the integrated health commodities logistics system in a participatory engagement of representatives of multiple levels in the country. The SOPs comprise operations, processes flowcharts and job aids with clear roles and responsibilities. For the first time, the entirety of community health worker (CHW) supply chain activities in far-to-reach villages (last mile) were mapped and completely accounted for in the SOP. The updated SOP also covers incident reporting and investigation of products and injury as well as the process for documenting the redistribution of commodities among health facilities. The SOP will guide operators of the system to ensure an uninterrupted flow of commodities through multiple levels of the supply chain, ranging from the central and district levels to the peripheral health units (PHUs) and CHWs.

In Sierra Leone, participants review the SOP for the integrated health commodities logistics system.

Leadership and Governance

GHSC-PSM continues to support strategy, planning, and standards-setting activities:

In **Malawi**, GHSC-PSM continued to support the development of the Health Sector Strategic Plan (HSSP) III by providing remote technical assistance to extend the concepts in the plan and create a list of activities to be undertaken. The HSSP III is a follow-on to HSSP II that is expected to run from 2022 to 2030.

The project is currently conducting a cost-benefit analysis to develop a general operation model for countries moving toward malaria pre-elimination or elimination stages such as Ethiopia, Zambia, Zimbabwe, and Mekong countries. The purpose is to ensure appropriate stock levels and optimized supply chain operations are maintained while minimizing expiration.

Environmental Compliance

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

In Q3, GHSC-PSM worked with USAID to address the comments received on the FY 2021 Environmental Mitigation and Monitoring Report (EMMR) and make final edits. The final document will be submitted to the USAID Global Health Bureau Environmental Officer in early Q4.

GHSC-PSM issued the second sub-Task Order to one of four health care waste management indefinite quantity subcontract (IQS) holders. The work to be performed will support Angola's MOH by developing new SOPs on waste management, reverse logistics, and environmental compliance. The SOPs will support the country's processing of health care waste generated by COVID-19 vaccine campaigns. In Q3, the period of performance was extended to the end of the reporting period to account for the further time needed to finalize additional deliverables that will be integrated into the sub-Task Order in a pending modification. The final scope details of the additional deliverables are being clarified between GHSC-PSM and the Angola MOH.

GHSC-PSM finalized three additional sub-Task Orders for the disposal of expired and damaged products located at the Belgium, Dubai, and South Africa RDCs. Implementation is expected to begin in Q4 of FY 2022.

End-use Verification (EUV)

GHSC-PSM uses the EUV survey to assess the availability of malaria, FP/RH, and MNCH commodities. The activity also collects data on attributes that contribute to commodity availability, including storage conditions, staff capacity and data management at SDPs. Findings are presented to Missions and MOHs and help facilitate conversations and tasks that may improve commodity availability. The survey also gathers qualitative data; feedback reported from SDP staff contributes to our understanding of the reasons for stockouts. This source of data can be used to triangulate results and serve as an LMIS data accuracy on stock availability trends. EUV data collection also serves as an important opportunity for GHSC-PSM country teams to provide on-site capacity building for SDP staff and MOHs without increasing the burden on staff.

The survey recently underwent significant changes to ensure that the EUV tools, processes, and indicators are aligned with other data that is used for decision making and to strengthen the tool's precision and reliability. GHSC-PSM convened an EUV Change Board in FY 2021 with members from USAID and GHSC-PSM; their task was to identify and prioritize improvements to the tool. The revision process is now complete and in Q3 FY 2022, and, with technical support from headquarters, the revised toolkit was successfully implemented in nine countries (Benin, Burkina Faso, Cameroon, Ghana, Liberia,

Mali, Niger, Zambia, and Zimbabwe), while 10 countries submitted the COVID-19 continuity of care module (Angola, Benin, Burkina Faso, Cameroon, Ethiopia, Ghana, Liberia, Niger, Nigeria, and Zambia).

National Supply Chain Assessment (NSCA)

The NSCA is a comprehensive review that assesses the capability and performance at all levels of a health supply chain. The results of the assessment help supply chain stakeholders develop their strategic, operational, and/or investment plans and monitor whether activities are achieving their desired outcomes.

GHSC-PSM is supporting implementation of the NSCA in five countries (Burundi, Madagascar, Dominican Republic, Rwanda, and Uzbekistan). In addition to FY 2022 NSCA implementation activities, the project is actively engaged in discussions with countries to scope potential FY 2023 NSCAs.

- GHSC-PSM provided technical assistance and strategic guidance to the Management and Innovation in Health (Grupo GIS) organization as they implement a USAID-funded NSCA as part of their technical assistance work in the **Dominican Republic**.
- In the **Democratic Republic of Congo**, following the successful conclusion of country field work, GHSC-PSM is supporting GHSC-TA Francophone Task Order in report writing and data analysis and conducting stakeholder check-ins to relay analysis progress and initial results. A draft report is scheduled to be submitted in Q4.
- In **Burundi**, the project developed implementation timelines and a country stakeholder engagement strategy. The NSCA is planned for FY 2023.
- In **Madagascar**, GHSC-PSM continued to fine-tune the implementation plan with the IMPACT Malaria Project to prepare local staff for implementation in early Q4.
- In **Rwanda**, GHSC-PSM finalized analyses and submitted a draft report to the MOH for review and input. A dissemination report is scheduled for Q4.
- In **Uzbekistan**, the project worked with the Mission to refine the scope of work (SOW) for a scoping STTA to take place in early Q4 and refine the in-country stakeholder interview list.

C2a. Project Performance

GHSC-PSM collects and analyzes data on a variety of indicators of national supply chain system health to understand the environments in which the project operates and to help calibrate our work. These indicators also 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 made available for GHSC-PSM country offices to explore with in-country stakeholders.

Supply Plans

GHSC-PSM drives the adoption of the quarterly supply planning paradigm. In Q3 (as of July 19th), the project received 165 supply plans from 36 countries. Of those, 153 were Priority 1 (required by USAID) supply plans, with the submission rate for this category being 95 percent (153 submitted out of 161 expected). In Q3, 144 of the 165 supply plans were submitted through QAT, which accounts for 87 percent of all supply plans submitted to the GHSC-PSM home office.

Capacity building

The number of people trained is an indicator that the project focuses its capacity-building resources on and identifies areas to improve related supply chain outcomes. GHSC-PSM trained 8,337 individuals in Q3 (3,067 women and 5,270 men).

Most training was cross-cutting and addressed topics relevant to multiple health areas. By funding source, 29 percent were trained with HIV/AIDS funding; 26 percent with malaria funding; 10 percent with FP/RH funding; and 35 percent with MCH funding. Trainings focused on warehousing and inventory management, LMIS, governance and finance, transportation and distribution, and human resources capacity development.

C3. Global Collaboration

Received six abstract acceptances to **ICFP 2022** on FP/RH work in Angola, Rwanda, and global project activities; and two abstract acceptances to the AIDS 2022 conference on work in Ethiopia and Ghana.

Submitted **15 abstracts** to the **People that Deliver Global Indaba.**

Prepared 11 **abstracts** for submission to the **Global Health Supply Chain Summit and** one abstract for late-breaking submission to the ASTMH 2022 conference.

Collaborated with USAID's BHA **to expand global use of the QAT to up to five countries**. QAT users worldwide currently number 657.

The scale, scope, and complexity of managing a global supply chain requires 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 actively with other global players to promote the availability of medicines and commodities. The project does this by providing supply chain expertise and working with global partners to allocate scarce supply, promoting harmonization of standards and practices, and managing 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 and discussing gaps in HIV commodity access and implementing action plans to address them. (For more details, see section B1.)

- Following the completion of all FY 2022 SMC orders, GHSC-PSM met with the Global Fund, UNICEF, and Malaria Consortium in Q3 to discuss FY 2023 campaigns and ensure coverage and order placement timing. Multiple countries have already placed orders for the coming FY 2023 malaria ordering season. (For more details, see section B2.)

- Chair the **LQAG**, a global working group of procurers focused on LLIN QA and QC. In Q3, following the 2nd Convening of Raising the floor on ITNs Quality, the LQAG discussed its willingness to collaborate with WHO PQ vector control in generating a glossary. The LQAG also discussed feedback from the Raising the Floor Nets: ITN Quality Convening in a webinar hosted by BMGF, CHAI, and Innovation to Impact. (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.

- Participated in the Global Family Planning Visibility and Analytics Network **(VAN) Steering Committee** (GHSC-PSM is a non-voting member) and provided input on the VAN capabilities matrix. Also participated in regular VAN working groups, including the Data Management, Technical Management, Data Sharing, and Super User and Analytics task forces. (For more details, see section B3.)

- Participate in the **Newborn Technical Working Group**. In Q3, the project led a redesign of the working group's **ENAP** results framework. (For more details, see section B4.)

- Participate in the **Maternal Health Supplies Caucus (MHSC)**. In Q3, several GHSC-PSM teams presented to MHSC, and to a separate global audience during an MTaPS-hosted webinar, on their efforts to validate and implement new RMNCH forecasting guidance. (For more details, see section B4.)

- Participate in USAID and BMGF-funded **Child Health Taskforce (CHTF)** meetings and contribute to ad hoc CHTF activities. In Q3, the project and CHTF partners hosted a series of technical meetings to discuss barriers to availing key commodities for **treating childhood pneumonia and PSBI** and to validate and prioritize actions for national governments to take to ensure these commodities are accessible to families. (For more details, see section B4.)

Knowledge Sharing

To ensure that the critical lessons learned, adaptations, and best practices can be repurposed by Ministries of Health, supply chain managers, donors, and other supply chain stakeholders, GHSC-PSM documented and shared project activities, technical research, and success stories. Details can be found in sections throughout the report, but below are some highlights from Q3:

- Developed and submitted **15 abstracts** to the **People that Deliver Global Indaba** and developed 11 **abstracts** for submission to the **Global Health Supply Chain Summit**.

- Received six abstract acceptances to **ICFP2022** taking place in Q1 FY 2023. Three abstracts focused on work conducted in Rwanda and Angola and the remaining three covered TO3 core activities.

- Submitted three abstracts to the **International AIDS Society conference (AIDS 2022)** from project offices in Ethiopia and Ghana. Two of these were accepted for poster presentation at the conference, taking place July–August 2022.

- Prepared one late breaker abstract for the **American Society of Tropical Medicine and Hygiene 2022 conference** from Ethiopia and Malawi, to be submitted in early Q4.

- GHSC-PSM in Ghana presented its work to operationalize the Supply Chain Master Plan at the 2022 **Center for Applied Research and Innovation in Supply Chain – Africa Supply Chain Research Conference**, June 28–30, 2022.

- Published the quick guide, "**Key Considerations for Centralized National Pharmaceutical Traceability Approaches**," which provides a summary of information in existing resources to highlight key considerations for countries contemplating the implementation of centralized traceability approaches.

- Published a new technical report titled, "**Using a Data Science Approach to Build Timely, Sustainable, Repeatable and User-centered Analysis to Drive Actions**."This technical brief explores how to strengthen monitoring and evaluation processes through a data science approach to analytics that enables supply chain decision makers to act based on timely, transparent, and repeatable analysis.

- Published the **Annual Comprehensive Agency Report on Condoms and Lubricants for FY 2021**. The report shows consistent funding support through USAID for the condoms program over the last three years.

- Hosted a digital webinar on drug revolving funds in Nigeria and the role of sustainable financing in building resilient supply chains. The Drug Revolving Fund Playbook, containing lessons learned from implementing drug revolving funds across Nigeria, was launched at this webinar. The webinar was broadcast on LinkedIn Live and has been viewed over 1,000 times, generating 190 engagements and 1,855 impressions.

Other Global Collaboration

Building on the extensive adoption of the QAT within USAID, PEPFAR, and PMI programs, GHSC-PSM continues to engage multiple other health supply chain partners and stakeholders to build an even broader user base for QAT. In Q3, the project continued discussions with UNICEF and USAID's BHA and secured additional funding from BHA to co-design and execute a pilot in three to five countries. (For more details, see section C2.)

GHSC-PSM contributed to activating the TRvST initiative, a multi-donor collaboration including UNICEF, Global Fund, and USAID, in Ghana, Malawi, Nigeria and Rwanda. (For more details, see section C2.)

Country collaboration

In Q3, GHSC-PSM prioritized the procurement of quality assurance and delivery services for the AMF procured 3,306,800 PBO LLINs for a distribution campaign in Bauchi, Nigeria, for production to meet the campaign distribution dates. GHSC-PSM prioritized production dates for procurement of 172,304 dual AI LLINs for a distribution campaign in Côte d'Ivoire, which resulted in deprioritized production for

the 2nd lot of 150,000 dual AI LLINs for routine distribution in Liberia. Liberia agreed to this to minimize warehouse capacity constraints.

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 between 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.
- Worked with GHSC-QA to provide input and support toward COVID-19–related commodity procurement.
- Worked with GHSC-QA in FY 2020 to create standardized dried blood spot (DBS) kits. As of Q3, only the new standardized DBS kits can be procured with USAID funds.
- Coordinated with GHSC-QA and USAID to manage a VMMC kit supplier in Africa with recurring quality issues, and implemented CAPAs.
- Met regularly with GHSC-QA to discuss collaboration initiatives including the progress of ongoing audits for local wholesalers in DRC, Malawi, and Mozambique.
- Reviewed the Essential Medicines Product List with USAID/Washington and GHSC-QA after receiving feedback from country offices and USAID Missions that procure essential medicines.

Annex A. COVID-19 Response

Delivered nearly **seven million** COVID-19 commodities to **four countries** approved for American Rescue Plan Act (ARPA) funding, including COVID-19 **rapid-test kits, hypodermic syringes, and disposable syringes. Placed** orders for COVID-19 commodities for **three countries**, including more than **31.3 million line items of oxygen equipment, vaccine administration supplies, and personal protective equipment (PPE)**.

Completed all activities under the Italy Workstream with the delivery of one GE Vivid E95 cardiovascular ultrasound system and 10 VScan Dual hand-held ultrasound units **to Policlinico Umberto I Hospital in Rome, Italy.**

Placed orders for four lines of oxygen consumables and durables (including regulators, flowmeter adapters, and cylinder wrenches) for Mozambique and Tajikistan. By the end of Q3, delivered 26 order lines of oxygen consumables and durables to Ghana and delivered two vacuum swing adsorption (VSA) plants to Haiti. GHSC-PSM also purchased service-level agreements (SLAs) for eight pressure swing absorption (PSA) plants in Ghana, Mozambique, and Tajikistan to ensure the equipment was maintained and the oxygen plant continued to perform at the required levels.

Global Procurement and Logistics

COVID-19 and the Global Supply Chain

In Q3, GHSC-PSM developed a new dashboard and improved existing tools to increase efficiency and enhance the visibility of country orders. These tools are assisting the project to closely monitor country commodity budgets, streamline the procurement process, and enable the project to respond rapidly to urgent COVID-19 surges in regions within Africa, Asia, and South America. The dashboard and improved tools are discussed below.

COVID-19 Commodity Quantification and Budget Calculator

GHSC-PSM completed development of the COVID-19 Commodities Quantification Supplement in Q3, which is intended for use by USAID Missions and GHSC-PSM country offices to support documentation of total known commodity demand and quantification against orders for commodities within predefined budgets. This resource will provide countries with estimated pricing and lead times for commodities available through current contract mechanisms. GHSC-PSM will officially launch this resource in Q4.

COVID RFP Price Refresh

In Q2, GHSC-PSM issued an RFP to 11 GHSC/USAID certified and qualified basic ordering agreement holders for procuring 113 unique COVID-19 products. In Q3, GHSC-PSM evaluated seven proposals and awarded fixed-price schedules to four wholesalers valid through November 2023. The price

schedules include an option to refresh product prices after nine months, retain the flexibility to add new products to the price schedule on a case-by-case basis, and cover laboratory and oxygen consumables and durables, oxygen cylinders, PPE, diagnostic sample collections, sanitation, general patient care, and respiratory support. When an order is received, pricing and lead times are confirmed with all awarded wholesalers, and awards to the best-value supplier(s) are determined based on order requirements, business rules, and order allocation criteria.

COVID-19 American Rescue Plan Act of 2021 (ARPA) Dashboard

In Q3, GHSC-PSM developed the COVID-19 ARPA Dashboard. This dashboard provides a high-level overview of order progress lines as they move through the procurement and delivery process: RO drafting, RO issues, RO approved, PO executed, PO ready for pick-up, PO picked up, PO delivered, etc. Each milestone shows the number of lines that are currently at a particular stage or have already passed through that stage. Additional features include funding and country filters, which capture committed amounts of funding workstreams, as well as the dollar value of country orders that have been approved by USAID.

In Q3, GHSC-PSM worked on the following **global supply chain** workstreams to manage and respond to COVID-19, including:

Procurements Under COVID-19 ARPA

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

In Q3, the project placed orders for three countries following a comprehensive analysis and quantification process conducted by the respective GHSC-PSM country teams, to meet in-country needs within country-specific ARPA funding envelopes:

- **Madagascar:** 150,000 examination gloves, 10,000 face shields, 424,000 face masks, 50,000 bouffant caps, 30,000 barrier gowns, and 2,000 protective goggles
- **Mozambique:** 220 oxygen cylinder carts, 1,300 oxygen cylinders, 220 oxygen cylinder wrenches, 400 bag valve masks, 120,000 nasal cannulas, and 2,000 non-rebreather oxygen masks
- **Tajikistan:** 168 oxygen cylinders and 168 oxygen regulators

In Q3, GHSC-PSM continued to support bulk liquid oxygen (LOX) projects in Botswana and Namibia. The project-initiated contract negotiations with one GHSC-QA qualified and eligible South African supplier of LOX to facilitate the supply of bulk LOX to eight 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 will include installing vacuum insulated evaporators with tank telemetry systems for level and pressure monitoring and cylinder manifold systems, to ensure the supply of oxygen is met during normal and peak consumption at each hospital identified.

In Q3, GHSC-PSM delivered 39,875 COVID-19 RTKs, 436 vaccine carriers, and 400 temperature data loggers to Botswana; 99,750 RTKs to Madagascar; 1,180 Nuvo 10 and Max 30 concentrators to Pakistan; and 320,000 examination gloves to Namibia.

COVID-19 stockpile. In Q3, the project met with GHSC-PSM country offices on the stockpile and disseminated materials informing them on how to rapidly access COVID-19 RTKs and PPE.

- ***COVID-19 PPE stockpile.*** 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. By the end of Q3, GHSC-PSM placed one country order from the stockpile for 1,200,000 examination gloves and 100,000 N95 medical-grade face masks for Panama.
- ***COVID-19 RTK stockpile.*** In Q3, the project placed one order from the stockpile for 100,000 RTKs for Haiti.

Procuring COVID-19 equipment for Italy. In Q3, GHSC-PSM completed its activities under the Italy Work Stream with the final delivery of imaging and ultrasound equipment, shipped directly to Policlinico Umberto I Hospital.

Procuring consumables and durables for ventilator support. In Q3, GHSC-PSM continued work on the ventilator program, delivering 26 order lines of ventilator consumables to three countries: Ghana, Rwanda, and Uzbekistan. These orders included bacterial filters, reusable ventilator circuits, and continuous positive airway pressure masks, totaling approximately $460,000.

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 PSA plants, VSA plants, oxygen concentrators and cylinders, oxygen disaster manifolds, as well as consumables, and durable items.

In Q3, GHSC-PSM placed orders for 12 oxygen order lines, including SLAs for eight PSA plants and consumable and durable items that include flowmeter adapters, oxygen regulators, and oxygen cylinder wrenches. The period of performance for the SLAs for the PSA plants is effective through the end of GHSC-PSM's prime contract. These SLAs will ensure the long-term sustainability of equipment installed and commissioned in Ghana, Mozambique, and Tajikistan in line with manufacturer-recommended standards and maintenance requirements.

Moreover, during the reporting period, the project processed orders for five PSA plants for Kenya that are being fabricated. The first unit is scheduled to ship in early Q4. Also, the VSAs for Haiti were delivered to the site by the end of Q3. The installation and commissioning of the VSA plants are underway and will be fully operational in early Q4.

Procurement, transportation, and commissioning of four mobile BSL-2 laboratories and staff training. To strengthen the Pakistan public sector's diagnostic capacity for COVID-19 cases, especially in remote and hard-to-reach areas, GHSC-PSM procured four mobile BSL-2 laboratories that were delivered in Q3. The project worked in coordination with Air Filter Maintenance Service (AFMS), the lab vendor, to ensure successful handover of the mobile laboratories to the Government of Pakistan. In preparation for deployment, GHSC-PSM coordinated with the National Institute of Health, AFMS, and lab experts to draft modalities for handover, operations, safety and security, staff training, a lab manual, guidelines, SOPs, and an Enterprise Lab Solution. The project engaged consultants to develop biosafety and biosecurity guidelines and SOPs. Handover of the labs to the government of Pakistan will take place in Q4.

COVID-19 In-Country Technical Assistance

Vaccine distribution and management. In Q3, GHSC-PSM continued to work across several country offices to plan for and implement **COVID-19 case management and vaccination-related technical assistance in 23 countries** that received COVID-related funding in FY 2021 and FY 2022. Technical support varies from country to country and includes providing cold chain and ultra-cold chain storage and distribution, developing waste management plans to manage vaccine-related waste, and coordinating vaccine rollout activities through participating in various technical working groups. Efforts are underway to ensure supply chains can support large-scale vaccine distribution, and the project has specifically ramped up its work assessing cold chain capacity in the countries it supports and identifying opportunities to strengthen the global supply chain for vaccine distribution.

- In **Botswana**, GHSC-PSM supported the MOH in the development and rollout of a real-time data visibility tool for COVID-19 vaccines. Development began in February 2022. The project tested the system in March 2022 and provided training of trainers and system administration to CMS and MOH staff in the same month. In June 2022, GHSC-PSM conducted a rollout training to a total of 70 trainees (39 female and 31 male) covering 33 health facilities. The project is currently working to transfer the system from a demo server to the live server owned by the MOH. GHSC-PSM also supported the MOH with the procurement and delivery of 36 vaccine cold boxes, 400 vaccine carriers, 3,000 coolant water packs, and 400 programmable temperature data loggers for distribution to vaccination sites. Delivery of this cold chain equipment will ensure vaccine quality is maintained and will improve access to the vaccine at convenient sites for the public.
- In **Malawi**, GHSC-PSM supported the MOH in distributing vaccines to all districts across the country, 94,400 doses of Johnson & Johnson (J&J) and 87,750 doses of Pfizer vaccines in April 2022; 94,400 doses of J&J, 87,750 doses of Pfizer vaccine, and more than 102,000 syringes in June 2022. The project also redistributed AstraZeneca (AZ), J&J, and Pfizer vaccines among various districts. This ensured continued availability of vaccines and minimized potential expiries. Over the life of the project, GHSC-PSM has supported distribution of 2,466,720 doses of AZ, 1,053,950 doses of J&J, and 287,780 doses of Pfizer vaccines.
- In **Ethiopia**, GHSC-PSM supported the Ethiopian Food and Drug Authority (EFDA) to conduct a national performance review meeting on adverse events following immunization (AEFI) monitoring and reporting on the COVID-19 vaccination. During the meeting, participants discussed an update on the national AEFI monitoring and reporting by EFDA; active surveillance reports on AstraZeneca/CoviSheild COVID-19 vaccine; summary of reflections from the MOH's national COVID-19 vaccination campaign review meeting; an update on regional AEFI monitoring progress from nine regions; and partner reflections, including GHSC-PSM. Major action points include integrating AEFI monitoring, planning, and reporting within regional institutions and EFDA branch offices, strengthening regional AEFI investigations, and improving regional supportive supervision of vaccination centers. Also, consensus was reached on strengthening the weekly safety monitoring virtual meeting conducted by EFDA with RHBs, improving the loop of feedback from the investigations to those reporting, and providing coaching for low- AEFI reporter regions and sharing best practices from regions that are doing a good job at reporting.
- In **El Salvador**, GHSC-PSM added over 70 percent of the refrigerated warehouses in the country to the Cold Chain Monitoring Platform. GHSC-PSM also worked with the MOH to establish a cold chain from the commodity arrival at the airport until the patient receives the vaccine. The team has also conducted visits to identify the computer equipment needed to operate in the Central and Regional Warehouses using GS1 barcodes.

COVID-19 Emergency Preparedness and Response

In addition to vaccine support, country teams engage with national government stakeholders in Q3 to assist them in responding to the COVID-19 pandemic.

In **Guatemala**, GHSC-PSM provided technical and financial support in Q3 to the MOH to create the "Logistics Guidelines for the Handling of Vaccines and Related Supplies in Emergencies and Disasters." The guidelines address essential issues, such as planning for the purchase of supplies, emergency decision making, and legal matters relating to procurement, importation, storage, distribution, and cold chain. The final document is under review for a ministerial agreement to become operational. During Q3, the MOH formally accepted GHSC-PSM's technical support to update three main documents for the Ministry of Public Health and Welfare logistics operations. GHSC-PSM held a workshop for area directors to share lessons learned from the 29 health areas, setting an avenue for these lessons to be incorporated in the updating process. The update is expected to be completed in early Q1 FY 2023, with the delivery of the three updated drafts required for the respective ministerial approval agreement and official use of the new version throughout Guatemala.

Current Reporting Period

2022-Q3

GLOBAL HEALTH SUPPLY CHAIN PROGRAM

Procurement and Supply Management

Delivery Impact to Date

Number of ACT treatments delivered

455,326,734

Number of Couple Years Protection delivered

105,777,560

Person-years of ARV treatment delivered

19,762,019

Global Supply Chain M&E Indicator Performance

FY2022 Quarter 3, April - June 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

2022-Q3

TO	Analysis
Cross-cutting	Overall delivery performance has remained strong and generally consistent with the previous quarter. OTIF results decreased slightly to 87 percent, and OTD decreased slightly to 87 percent for the quarter. The backlog decreased to 1.2 percent of line items, well below the 5 percent target. Overall delivery volume has also increased from last quarter, with all four task orders having an increase in delivery volume individually. The OTD and OTIF results shown here include all applicable reason codes and illustrate performance within GHSC-PSM's manageable control. "COVID-impacted" versions of these metrics are available in the main narrative of the report, showing how pandemic factors outside of project influence continue to impact supply chain outcomes. COVID-impacted OTD for the quarter was 74 percent, and COVID-impacted OTIF was 70 percent. The gaps between the standard result for both OTIF and OTD and the COVID-impacted results have widened slightly, suggesting that many items that were originally planned for delivery in Q3 have been adjusted out of this period due to COVID-related delays. For further discussion of global supply chain dynamics during the pandemic, please see the main narrative of this report.
TO1 - HIV	Overall delivery performance for HIV has remained strong. OTIF results decreased slightly from the previous quarter, from 89 percent to 83 percent, but still remains above the target of 80 percent, and OTD decreased slightly from 89 to 87 percent, also remaining above the target. The backlog has decreased to 1.4 percent of line items, well below the goal of 5 percent. Overall delivery volume has increased this quarter. The OTD and OTIF results shown here include all applicable reason codes and illustrate performance within GHSC-PSM's manageable control. "COVID-impacted" versions of these metrics are available in the main narrative of the report, showing how pandemic factors outside of project influence continue to impact supply chain outcomes. COVID-impacted OTD for the quarter was 74 percent, and COVID-impacted OTIF was 68 percent. In the case of OTIF, the gap between the standard result and the COVID-impacted result has increased slightly, indicating that the line items actually delivered this quarter had slightly more COVID-related delays. At the same time, for OTD, the gap between the standard rate and the COVID-impact rate decreased from 17 percent to 13 percent, meaning while COVID impacts continue to be a significant factor for items that were originally planned for delivery in Q3, the impact has lessened For further discussion of global supply chain dynamics during the pandemic, please see the main narrative of this report.
TO2 - Malaria	Overall delivery performance for malaria commodities has remained strong and increased from the previous quarter. OTIF and OTD results were at 92 and 87 percent this quarter, respectively, above the goal of 80 percent. The backlog decreased to 1 percent, well below the 5 percent target. Overall delivery volume has also increased this quarter, with 261 line items delivered in the period. The OTD and OTIF results shown here include all applicable reason codes and illustrate performance within GHSC-PSM's manageable control. "COVID-impacted" versions of these metrics are available in the main narrative of the report, showing how pandemic factors outside of project influence continue to impact supply chain outcomes. COVID-impacted OTD for the quarter was 71 percent, and COVID-impacted OTIF was 79 percent. In both cases, the gap between the standard result and the COVID-impacted result has widened, indicating more COVID-related impacts for line items promised during this period. For further discussion of global supply chain dynamics during the pandemic, please see the main narrative of this report.
TO3 - FP/RH	Overall delivery performance for family planning commodities was strong for the period, with OTIF decreasing slightly from 95 percent to 90 percent and OTD remaining consistent at 95 percent. The backlog stood at zero percent. Delivery volume overall was slightly higher this period, with 50 line items delivered to countries. The OTD and OTIF results shown here include all applicable reason codes and illustrate performance within GHSC-PSM's manageable control. "COVID-impacted" versions of these metrics are available in the main narrative of the report, showing how pandemic factors outside of project influence continue to impact supply chain outcomes. COVID-impacted OTD was 88 percent this quarter, and OTIF was 82 percent. In both cases, the gap between the standard result and the COVID-impacted result has widened, indicating more COVID-related impacts for line items promised during this period. For further discussion of global supply chain dynamics during the pandemic, please see the main narrative of this report.
TO4 - MNCH	Delivery performance for maternal and child health product remained strong for the period, increasing to 100 percent OTIF and decreasing slightly to 93 percent OTD. Overall delivery volume was low this quarter, with only nine items delivered. Backlogged items remained consistent this quarter at 0 percent. The OTD and OTIF results shown here include all applicable reason codes and illustrate performance within GHSC-PSM's manageable control. "COVID-impacted" versions of these metrics are available in the main narrative of the report, showing how pandemic factors outside of project influence continue to impact supply chain outcomes. COVID-impacted OTD for the quarter was 53 percent, indicating the COVID-related factors impacted slightly less than half of the line items initially promised for this period. COVID-impacted OTIF was 56 percent, suggesting that several lines delivered this period originally had agreed delivery dates in earlier periods, but were delayed due to COVID. Please note, there are very few line items for TO4 this quarter which helps create this variation in results For further discussion of global supply chain dynamics during the pandemic, please see the main narrative of this report.

A1a. On-time, In-Full Delivery

Task Order	Total # of Line Items Delivered	OTIF	OTIF Target
TO1 - COVID19	82	72%	80%
TO1 - HIV	1,143	83%	80%
TO2 - Malaria	261	92%	80%
TO3 - FP/RH	50	90%	80%
TO4 - MNCH	9	100%	80%
Total	**1,545**	**84%**	**80%**

A1b. On-time Delivery

Task Order	Total # of Line Items with ADDs in the quarter	OTD	OTD Target
TO1 - COVID19	74	80%	80%
TO1 - HIV	1,142	87%	80%
TO2 - Malaria	273	87%	80%
TO3 - FP/RH	58	95%	80%
TO4 - MNCH	14	93%	80%
Total	**1,561**	**87%**	**80%**

A16. Backlog Percentage

Task Order	Total # of line items with ADDs in the last 12 months	Backlog	Backlog target
TO1 - COVID19	128	0.0%	5%
TO1 - HIV	1,943	1.4%	5%
TO2 - Malaria	398	1.0%	5%
TO3 - FP/RH	176	0.0%	5%
TO4 - MNCH	13	0.0%	5%
Total	**2,658**	**1.2%**	**5%**

Delivery Performance

Current Reporting Period

2022-Q3

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	**72%**	**82**	**80%**	**74**	**0.0%**	**128**
COVID19	72%	82	80%	74	0.0%	128
TO1 - HIV	**83%**	**1,143**	**87%**	**1,142**	**1.4%**	**1,943**
Adult ARV	81%	101	87%	100	0.9%	115
Condoms	63%	41	72%	39	0.0%	107
Laboratory	84%	836	88%	849	1.6%	1,367
Other Non-Pharma	86%	42	79%	39	1.0%	105
Other Pharma	92%	38	91%	35	1.0%	104
Other RTK	88%	8	100%	8	0.0%	14
Pediatric ARV	72%	46	84%	43	1.5%	66
TB HIV	93%	15	100%	14	0.0%	32
VMMC	88%	16	93%	15	3.0%	33
TO2 - Malaria	**92%**	**261**	**87%**	**273**	**1.0%**	**398**
ACTs	97%	99	97%	95	0.9%	111
Laboratory	98%	49	81%	59	1.1%	91
LLINs	81%	53	90%	50	1.3%	75
mRDTs	95%	21	91%	22	0.0%	22
Other Non-Pharma	83%	6	100%	5	7.7%	13
Other Pharma					0.0%	3
Severe Malaria Meds	91%	11	63%	16	0.0%	54
SMC	100%	13	100%	13	0.0%	6
SP	56%	9	38%	13	0.0%	23

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	**90%**	**50**	**95%**	**58**	**0.0%**	**176**
Combined Oral Contraceptives	91%	11	85%	13	0.0%	27
Copper-Bearing Intrauterine Devices	100%	2	100%	2	0.0%	9
Emergency Oral Contraceptives	100%	1	100%	1	0.0%	9
Implantable Contraceptives	100%	10	100%	9	0.0%	56
Injectable Contraceptives	81%	16	93%	15	0.0%	40
Levonorgestrel-Releasing Intrauterine Devices					0.0%	1
Other Non-Pharma	50%	2	100%	2	0.0%	2
Progestin Only Pills	100%	5	100%	5	0.0%	26
Standard Days Method	100%	3	100%	11	0.0%	6
TO4 - MNCH	**100%**	**9**	**93%**	**14**	**0.0%**	**13**
Other Non-Pharma	100%	6	86%	7	0.0%	12
Other Pharma	100%	3	100%	7	0.0%	1

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

2022-Q3

A3. Average overall cycle time

Task Order	# of line items delivered	Average Cycle Time	Cycle time target	Average dwell-adjusted cycle time
TO1 - COVID19	82	237	250	237
TO1 - HIV	1143	251	250	241
TO2 - Malaria	261	321	340	280
TO3 - FP/RH	50	304		294
TO4 - MNCH	9	326	350	324
Total	**1545**	**264**		**250**

A3. Average overall cycle time (with TO3 Targets)

Task Order	# of line items delivered	Average Cycle Time	Cycle time target	Average dwell-adjusted cycle time
TO3 - FP/RH	**50**	**304**		**294**
Direct drop fulfillment	31	333	300	329
Warehouse fulfillment	19	256	250	238

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

TO	Analysis
TO1 - HIV	End-to-end cycle time for HIV/AIDS commodities increased this quarter, to 251 days. Dwell-adjusted cycle time was 241 days. The dwell-adjusted cycle time falls below the target of 250 days, while the end-to-end standard cycle time is just above the target by one day. Mozambique had almost 250 line items this quarter, with an average of 276 days for cycle time (271 for dwell-adjusted), which has a large impact on overall cycle time, accounting for almost one fourth of line items. 162 line items had holds applied this quarter, with an average dwell duration of 68 days.
TO2 - Malaria	End-to-end cycle time for malaria commodities improved upon last quarter, decreasing from 346 days to 321 days. Dwell-adjusted cycle times also decreased this quarter, for a cycle time of 280 days. Congo DRC, the country with the most malaria line items this quarter, had a decrease in cycle time, from 467 day to 392 days (and from 396 to 298 for dwell-adjust cycle time). This accounts for the majority of the decrease in cycle time days this quarter. Across all malaria countries, ACTs accounted for almost a third of all products ordered, and had a cycle time of 314 days (dwell-adjusted 258), which also had an impact on the decrease in time. 140 line items had holds this quarter, with an average dwell duration of 77 days.
TO3 - FP/RH	End-to-end cycle times for family planning products remained relatively consistent this quarter. For warehouse fulfillments, the cycle time remained consistent at 256 days, with a dwell-adjusted result of 238 days. Only one country, Burundi, faced a cycle time of over 400 days this quarter, due to a hold that lasted 307 days. Injectable contraceptives is the largest product group this quarter for warehouse fulfilments, with an average cycle time of 337 days (dwell-adjusted 278 days). Cycle times for direct drop fulfillments decreased to an average of 333 days, from last quarter's 340 days, with the dwell-adjusted cycle time remaining consistent at 329 days. Uganda accounted for one fifth of the line items of direct drop fulfillments this quarter, and had a cycle time of 421 (dwell-adjusted 402 days), an improvement from last quarter's 800+ day time. No countries this quarter had over 475 days of cycle time as compared to last quarter, where four countries did. Injectable contraceptives accounted for the majority of line items across all country direct drop fulfilments this quarter, and averaged a cycle time of 232 days (both standard and dwell-adjusted). For all family planning products, there were a total of four line items with holds applied this quarter, with an average dwell duration of 119 days.
TO4 - MNCH	Cycle times for maternal and child health increased to an average of 326 days this quarter, with a dwell-adjusted cycle time of 324. Because of how few maternal and child health products are delivered each quarter, the cycle time is incredibly variable, greatly impacted by individual line items. One line item had a hold applied this quarter, for 25 days. Other non-pharma accounts for two thirds of line items for MNCH products and had an average cycle time of 375 days this quarter, both standard and dwell-adjusted.

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 or dwell-adjusted cycle time.

Cycle Time Performance

Current Reporting Period

2022-Q3

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	Multiple	Sea	Air	Land	Sea	
TO1 - COVID19	**305**	**146**		**265**				**237**
COVID19	305	146		265				**237**
TO1 - HIV	**242**	**237**	**296**	**363**	**244**	**198**	**285**	**251**
Adult ARV	189	304		276	87	198	278	**234**
Condoms	103			485	493		324	**464**
Laboratory	246	237	296	247				**242**
Other Non-Pharma	276	223						**244**
Other Pharma	240	257		299				**251**
Other RTK	290							**290**
Pediatric ARV	189			267	195			**197**
TB HIV	253			371				**316**
VMMC	366			345				**353**
TO2 - Malaria	**287**	**388**		**335**	**96**		**303**	**321**
ACTs	216			325	96			**314**
Laboratory	287							**287**
LLINs		388		360				**362**
mRDTs	305			334				**331**
Other Non-Pharma	282							**282**
Severe Malaria Meds	370			367				**368**
SMC				264			303	**276**
SP				358				**358**
TO3 - FP/RH	**249**	**270**		**364**	**183**		**310**	**304**
Combined Oral Contraceptives				388			284	**360**
Copper-Bearing Intrauterine Devices					221			**221**
Emergency Oral Contraceptives				176				**176**
Implantable Contraceptives	299			652	81		233	**390**
Injectable Contraceptives		270		223	309		342	**271**
Other Non-Pharma		270						**270**
Progestin Only Pills					183		308	**233**
Standard Days Method	175			327				**226**

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

Fulfillment Channel	Direct Drop Fulfillment			Total
Product Category	Air	Land	Sea	
Other Non-Pharma	379		366	**375**
Other Pharma	323	66	301	**230**
Total	**368**	**66**	**344**	**326**

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 or dwell-adjusted cycle time.

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**	**2**	**48**		**88**	**45**	**37**
TO1 - COVID19	51	0	106		76	54	48
TO1 - HIV	65	2	49		96	39	23
TO2 - Malaria		3	24		60	56	63
TO3 - FP/RH		4	27		96	38	64
TO4 - MNCH	60	24	79		81	57	57
Warehouse fulfillment	**66**	**2**	**83**	**58**	**10**	**52**	**42**
TO1 - HIV	51	1	110	51	10	41	37
TO2 - Malaria		3	3	136	6	152	45
TO3 - FP/RH		4	41	49	10	45	53
Total	**73**	**2**	**49**	**108**			**38**

Quality Assurance Performance (TO2 only)

Current Reporting Period

2022-Q3

A2. QA processes completed within required lead times

Task Order	Total # of QA processes completed	% QA Processes On Time	A2 Target
TO2 - Malaria	**96**	**97%**	**80%**
ACTs	20	85%	80%
LLINs	25	100%	80%
mRDTs	18	100%	80%
Other Pharma	0		80%
Severe Malaria Meds	31	100%	80%
SMC	0		80%
SP	2	100%	80%

A13. Out-of-specification percentage

Task Order	Total # of batches tested	Out-of-specification percentage	A13 Target
TO2 - Malaria	**301**	**4.0%**	**1%**
ACTs	52	0.0%	1%
LLINs	54	0.0%	1%
mRDTs	46	0.0%	1%
Other Pharma	0		1%
Severe Malaria Meds	147	8.2%	1%
SMC	0		1%
SP	2	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			
Severe Malaria Meds			
SMC			
SP			

Ref	Analysis
A02	A total of 97 percent of QA/QC processes were completed within the required lead times. This quarter is an improvement from previous quarters, specifically for the pharma product groups, leading to an overall strong result which surpasses the target of 80 percent. The only product group with QA processed outside of the estimated QA lead times was ACTs, which still performed at 85 percent. With COVID-19 transactions included, the result remains the same, having no impacted transactions this quarter.
A13	Out of specification findings rose this quarter to 4 percent of batches tested. Even though the number of non-conformed batches is higher, the non-conformity was only observed in one product (Artesunate injectable) from one manufacturer and one testing laboratory at different times, which impacted four countries. The investigation into this project non-conformity concluded with no assignable root cause and the rejection of all the batches, considering the safety of the patient.
A14b	The vendor scorecard rating for lab service providers this quarter was 95 percent, remaining consistent with the previous quarter. Scores were generally consistent across the board, as well, with cost and completeness both scoring 100 percent, reliability scored 94, and service scored 85 percent, each an improvement from last quarter. The only decrease this quarter was in responsiveness, which scored 97 percent, compared to last quarter's 100 percent.

Warehouse Performance and Product Losses

Current Reporting Period

2022-Q3

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	RDC	Damage	Adult ARVs	$644	$61,467,485	0.00%
TO1 - HIV	Kenya	Damage	ARVs	$4,685	$39,963,141	0.01%
TO3 - FP/RH	RDC	Damage	Combined oral contraceptives	$1,310	$11,166,572	0.01%
TO1 - HIV	Burundi	Damage	Laboratory	$14,768	$314,958	4.69%
TO1 - HIV	Kenya	Damage	Laboratory	$3,577	$34,018,664	0.01%
TO2 - Malaria	Malawi	Damage	RDTs	$557	$1,720,040	0.03%
TO2 - Malaria	Nigeria	Damage	RDTs	$2,764	$9,149,380	0.03%
TO1 - HIV	RDC	Expiry	Adult and Pediatric ARVs	$3,195	$20,080,763	0.02%
TO2 - Malaria	RDC	Expiry	NA	$0	$1,370,472	0.00%
TO3 - FP/RH	RDC	Expiry	NA	$0	$6,676,657	0.00%
TO1 - HIV	Zambia	Incorrect Product Ordered	Essential medicines	$108,528	$13,465,891	0.81%
TO2 - Malaria	Sierra Leone	Incorrect Quantity	Laboratory	$10,530	$917,243	1.15%
TO2 - Malaria	Rwanda	Incorrect Quantity	LLINs	$575	$2,789,832	0.02%
TO1 - HIV	Haiti	Missing product	COVID-19	$2,000	$70,750	2.83%
TO1 - HIV	Haiti	Missing product	Laboratory	$2,997	$2,036,469	0.15%
TO1 - HIV	Kenya	Missing product	Laboratory	$3,075	$34,018,664	0.01%
TO1 - HIV	Uganda	Missing product	Laboratory	$780	$23,378,783	0.00%
TO2 - Malaria	Malawi	Missing product	LLINs	$7,935	$405,000	1.96%
TO4 - MNCH	DRC	Missing product	Other Pharma	$1,283	$4,339,404	0.03%
TO1 - HIV	Mozambique	Temperature Excursion	Laboratory	$106,868	$13,472,764	0.79%
TO1 - HIV	Nigeria	Temperature Excursion	Laboratory	$99,600	$65,946,910	0.15%
TO1 - HIV	DRC	Temperature Excursion	Other Pharma	$3,800	$6,207,638	0.06%
TO1 - HIV	Nigeria	Temperature Excursion	Other Pharma	$40,584	$15,276,097	0.27%

A8. Shelf life remaining

Task Order	Inventory Balance	% Shelf Life Remaining	Shelf life target
TO1 - HIV	$20,674,941	87%	80%
TO2 - Malaria	$153,311	54%	70%
TO3 - FP/RH	$9,170,040	84%	80%
Total	**$29,998,292**	**75%**	

Ref	Task Order	Analysis
A08	TO1 - HIV	At the close of the quarter, the weighted average shelf life remaining for HIV/AIDS commodities at the RDC was 87 percent, with all product categories exceeding the 80 percent target.
A08	TO2 - Malaria	Average shelf life remaining for the ALu stockpile was 54 percent at the end of the quarter, translating to about 1.6 years of remaining life. The remaining products have been actively offered to multiple countries in order to minimize expiry risk for these emergency stockpile items.
A08	TO3 - FP/RH	Weighted average shelf life remaining for family planning products has increased to 83 percent in FY2022 Q3, with all product categories exceeding the 80 percent target.
C07a	TO1 - HIV	There were minimal expiries reported at the RDC this quarter. Expired products included small quantities of adult and pediatric ARVs that were damaged upon receipt at the RDC.
C07a	TO3 - FP/RH	There were no expiries of family planning commodities at the regional distribution center this quarter.
C07a	TO2 - Malaria	There were no expiries of malaria commodities at the regional distribution center this quarter.
C07b	Crosscutting	Following an HQ data collection process clarification, the project is reporting several loss incidents that occurred in previous quarters, going back to FY2021. The most common forms of product loss continue to be damage or discrepancies that occur during transit through the global supply chain, which affect relatively small proportions of GHSC-PSM's order volume. These types of losses are typical for large supply chain operations. Several larger incidents stemmed from temperature excursions for laboratory items. Root causes for these incidents varied, including improper packing by the supplier, lack of appropriate cold storage facilities during transit, and a delivery pre-alert process failure. GHSC-PSM investigates all loss incidents greater than $500 and pursues process improvements, replacements, reimbursements, and/or insurance claims where applicable.

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

2022-Q3

A10. Framework contract percentage

Task Order	Procurement total	Framework contract percentage	Framework contract target
TO1 - COVID19	$5,215,012	94%	
TO1 - HIV	$70,087,066	90%	90%
TO2 - Malaria	$27,446,855	98%	90%
TO3 - FP/RH	$12,291,438	100%	95%
TO4 - MNCH	$98,583	100%	85%
Total	**$115,138,954**	**93%**	**NA**

A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
TO1 - COVID19	**94%**	**$5,215,012**
COVID19	94%	$5,215,012
TO1 - HIV	**90%**	**$70,087,066**
Adult ARV	100%	$22,157,888
Condoms	100%	$6,132,875
Laboratory	80%	$30,217,124
Other Non-Pharma	83%	$564,871
Other Pharma	100%	$2,332,405
Other RTK	0%	$699,208
Pediatric ARV	100%	$5,709,783
TB HIV	100%	$2,245,933
VMMC	100%	$26,980
TO2 - Malaria	**98%**	**$27,446,855**
ACTs	100%	$1,036,413
Laboratory	100%	$368,170
LLINs	95%	$13,674,705
mRDTs	100%	$2,268,938
Other Non-Pharma	100%	$21,794
Other Pharma	100%	$28,260
Severe Malaria Meds	100%	$8,465,009
SP	100%	$1,583,566

A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
TO3 - FP/RH	**100%**	**$12,291,438**
Combined Oral Contraceptives	100%	$3,966,915
Emergency Oral Contraceptives	100%	$28,512
Implantable Contraceptives	100%	$4,535,800
Injectable Contraceptives	100%	$3,363,230
Levonorgestrel-Releasing Intrauterine Devices	100%	$6,867
Progestin Only Pills	100%	$300,024
Standard Days Method	100%	$90,090
TO4 - MNCH	**100%**	**$98,583**
Other Non-Pharma	100%	$41,653
Other Pharma	100%	$56,929

Task Order	Analysis
TO1 - HIV	Use of framework agreements for HIV/AIDS products rose slightly to 90 percent in FY 2022 Q3, just matching the framework contract target. This increase was due to an increase of framework contract use in adult ARVs, laboratory products, and other non-pharma products. All other products maintained Q2's framework contract percentage. Even though there was an increase in framework contract use, laboratory products remained the largest category (in terms of number of products) using non-framework contracts. Condoms, adult ARV, other pharma, pediatric ARVs, TB HIV, and VMMC products each had framework contract percentages of 100 percent.
TO2 - Malaria	Malaria procurements remained above the target, at 98 percent utilization of framework contracts this quarter. This slight increase is primarily due to LLINs and laboratory products, which both had an increase in framework contract usage, from 93 to 95 percent for LLINs and from 98 to 100 percent for laboratory products. LLINs account for the 2 percent utilization of non-framework contracts, while ACTs, laboratory products, mRDTs, other pharma and non-pharma, severe malaria medicines, and SP all have made full use of framework agreements this quarter.
TO3 - FP/RH	Family planning continues to procure all items under framework contracts, per the sourcing strategy for these commodities.
TO4 - MNCH	There were only four orders for maternal, child and newborn health commodities released this quarter: two for other non-pharma supplies for Rwanda, and two other pharma supplies for Congo DRC. All orders were framework contract orders, accounting around $98,000 combined.

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	**7.7%**	**261**
ACTs	5.1%	99
LLINs	9.4%	53
Laboratory	0.0%	49
mRDTs	14.3%	21
SMC	15.4%	13
Severe Malaria Meds	18.2%	11
SP	33.3%	9
Other Non-Pharma	0.0%	6
TO3 - FP/RH	**12.0%**	**50**
Injectable Contraceptives	6.3%	16
Combined Oral Contraceptives	27.3%	11
Implantable Contraceptives	0.0%	10
Progestin Only Pills	40.0%	5
Standard Days Method	0.0%	3
Copper-Bearing Intrauterine Devices	0.0%	2
Other Non-Pharma	0.0%	2
Emergency Oral Contraceptives	0.0%	1
Total	**8.4%**	**311**

Task Order	Analysis
TO2 - Malaria	The project required registration waivers for about 8 percent of line items delivered in FY2022 Q3. Waivers were spread across product categories (RDTs, LLINs, and all pharmaceutical categories) and ten countries.
TO3 - FP/RH	The project used registration waivers for 12 percent of family planning deliveries this quarter, representing five line items. Two items were for Angola, which does not have a registration authority at present. One was progestin-only pills for Mozambique, which is typically imported under a waiver due to lack of Portuguese-language labeling for the product. Two additional line items were for combined oral contraceptives with non-iron placebo, which is a new product requiring new registrations in many countries. The last item was DMPA-IM for Haiti.

Supply Plan Submissions

Current Reporting Period

2022-Q3

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

Product Group	# of supply plans required	Supply plan submission rate	Submission target
ARVs	20	95%	95%
Condoms	21	95%	90%
FP commodities	22	95%	95%
Lab (HIV diagnostics)	15	100%	90%
Malaria commodities	28	96%	90%
RTKs	20	100%	90%
TPT	15	100%	85%
VMMC	5	100%	80%
Total	**146**		

Task Order	Analysis
TO1 - HIV	Supply plan submissions for key HIV/AIDS commodity groups remained strong in FY2022 Q3, with a 100 percent submission rate for TPTs, VMMC, Lab commodities, and RTKs, and 95 percent for ARVs and condoms.
TO2 - Malaria	All but one required supply plan was submitted this quarter. The missing supply plan is from Senegal.
TO3 - FP/RH	All but one family planning supply plan was submitted as expected this quarter, increasing the submission rate to just at the target at 95 percent. All but one condom supply plan was submitted this quarter, with the supply plan submission rate increasing to 95 percent, above the 90 percent target. The country that did not submit the supply plans as expected this quarter is Guinea. Guinea was unable to submit these plans due to restrictions in the country on family planning activities.

Supply Plan and Forecast Performance

Current Reporting Period

2022-Q3

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	13%	-13%	16%	22%	-16%
Condoms	45%	45%	41%	25%	41%
Laboratory	46%	46%	10%	25%	10%
Pediatric ARV	9%	-9%	8%	30%	-8%

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	83%	83%	16%	35%	-16%
mRDTs	283%	-283%	15%	25%	15%

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	10%	10%	8%	35%	8%
Copper-bearing Intrauterine Devices	0%	0%	39%	35%	-39%
Implantable Contraceptives	27%	-27%	20%	25%	-20%
Injectable Contraceptives	3%	-3%	4%	25%	-4%
Progestin Only Pills	0%	0%	13%	25%	13%

Task Order	Analysis
TO1 - HIV	Forecast error for condoms increased slightly to 45 percent for the quarter from last quarter's 42 percent. Requested quantities have consistently exceeded forecasts, with three countries placing male condom emergency orders with very short lead times this quarter. One country also placed a short order for lubricants. The rolling four quarters supply plan error also increased slightly to 41 percent this quarter. The GHSC-PSM team will work to remind countries of standard lead times and ask them to abide by them if possible.
TO1 - HIV	Supply plan error for adult ARVs has widened slightly this quarter, to 13 percent, from Q2's 4 percent. In Q3, requested quantities were only slightly less than supply plans. The entire variance can be accounted for by one large order of over a million units that was not placed. The four quarter metric remained consistent at 16 percent. For pediatric ARVs, supply plan error increased slightly to 9 percent for the quarter. Again, this error can be accounted for by a single large order of 122 thousand units that was not placed. The pediatric ARV four quarter metric remained low at 8 percent this quarter.
TO1 - HIV	Supply plan error for lab commodities widened this quarter, as compared to Q2, from 21 percent to 46 percent. While CD4 was generally over-planned, EID, VL, molecular products, and other products were under-planned. The primary cause of the lab product forecast error were orders placed by Zimbabwe, which had largely under-planned for lab products by almost 40,000 units, and Tanzania, who had under-planned by over 20,000 units. The rolling four quarters metric increased slightly to 10 percent, still falling within the goal of 25 percent.
TO2 - Malaria	Supply plan error for ACTs increased this quarter to 82 percent. For Q3, countries struggled with planning according to their need. Madagascar, for example required ASAQ that was not forecasted in their supply plan for each dose. This overall contributed greatly to the overall forecast error. However, Senegal has improved significantly, ordering exactly as planned. Many countries planned to procure RDTs for Q3, but had to scale down or delay their procurements based on consumption. While for AL, there were several unplanned orders. The rolling four quarters metric rose slightly to 16 percent, still within the target range. Among ACT products, ASAQ remains a challenging commodity as countries adjust to changing consumption trends, with an error of 91 percent, and AL products rose slightly to an error of 81 percent. mRDTs faced the opposite problem, with significantly fewer products ordered than had been planned. TO2 will reiterate to countries to plan according to their actual need. Additionally, we will request that field offices alert us as new consumption trends that are contrary to what was estimated are observed.
TO3 - FP/RH	Forecast errors for implants increased slightly from the previous quarter, though remaining relatively low, 26 percent, which also slightly increased the rolling four quarters metric to 20 percent. Insufficient funding in two countries led to several cancellations this quarter, accounting for the overplanning. The forecast error for injectable contraceptives, however, decreased to just 2 percent, from last quarter's 27 percent, with three major order cancelations. The rolling four quarters metric also remains low at just 4 percent. Combined oral contraceptives had a slight increase in forecast error, to 9 percent this quarter, but still remains relatively low. The rolling four quarters supply plan error has recovered from past quarters and now sits at 8 percent. Progestin-only pills saw an extremely low error this quarter, at less than one percent, which also slightly lowered the four quarters metric to 13 percent. Lastly, copper-bearing IUDs saw a perfect quarter, but saw an increase in the rolling four quarters metric to 39 percent.

Vendor Performance

Current Reporting Period

2022-Q3

A14a-c. Average vendor rating score

Vendor Type	Average vendor rating
Commodity Supplier	73%
Freight Forwarder	88%
QA Lab	95%

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?	94%	48%	45%
2 - Responsiveness	Does the lab provide prompt response after receipt of GHSC-PSM request for testing	97%	15%	15%
3 - Completeness of Documentation	Frequency of modification to Certificates of Analysis (CoA)	100%	18%	18%
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)	85%	10%	9%
Total			**100%**	**95%**

Analysis

This quarter's average freight forwarder vendor rating shows a result of 88 percent for average 3PL performance. Performance within the most heavily weighted components, including on-time performance, spot quote turnaround, and rate of deliveries without NCRs, was strong, exceeding 90 percent on all indicators. Invoicing accuracy saw a slight decline this quarter, to 72 percent overall (although timeliness remains a challenge, with only 44 percent of invoices received within 30 days of delivery). It is important to note that, in the month of May, five 3PLs are included. Following our RFP and rate refresh from the end of last year and beginning of this year, one 3PL will be moving off the project, and another will be coming on. As a result, subsequent scorecards will not have the original included, but will have the new 3PL, which has very little data; since they are new to the project, they have not done a great deal of business at this time. We anticipate that the rate refresh that we are undertaking now will remedy most of this indicator's issues, and the data will start to show those results in the FY23 Q1 scorecard, as those rates would go live at the end of October 2022

The vendor scorecard rating for lab service providers this quarter was 95 percent, remaining consistent with the previous quarter. Scores were generally consistent across the board, as well, with cost and completeness both scoring 100 percent, reliability scored 94, and service scored 85 percent, each an improvement from last quarter. The only decrease this quarter was in responsiveness, which scored 97 percent, compared to last quarter's 100 percent.

On-time performance (OTP) for high-risk, high-value suppliers was 73 percent this quarter, a slight increase from the last quarter, while remaining relatively consistent. This is in large part due to continued lower performance from lab suppliers, which accounted for a significant volume of orders from this past quarter, and which had an OTP score of 66 percent. However, there was a slight improvement from last quarter's lab OTP score of 61 percent. Some other commodity groups such as Condoms, Essential Medicines, and Malaria continue to perform at a high level, nearing or surpassing the internal benchmark of 90 percent. Other RTK, SMC, TB HIV, and VMMC products all scored an OTP of 100 percent this quarter. Only ARVs saw a slight decline in performance. Overall, each individual task order's performance increased by 3 to 5 percent.

Data notes

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

Complete Quarterly Results (TO1)

Reporting Period

2022-Q3

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	**72%**	**82**	**80%**	**74**	**0.0%**	**128**	**94%**	**$5,215,012**
COVID19	72%	82	80%	74	0.0%	128	94%	$5,215,012
TO1 - HIV	**83%**	**1,143**	**87%**	**1,142**	**1.4%**	**1,943**	**90%**	**$70,087,066**
Adult ARV	81%	101	87%	100	0.9%	115	100%	$22,157,888
Condoms	63%	41	72%	39	0.0%	107	100%	$6,132,875
Laboratory	84%	836	88%	849	1.6%	1,367	80%	$30,217,124
Other Non-Pharma	86%	42	79%	39	1.0%	105	83%	$564,871
Other Pharma	92%	38	91%	35	1.0%	104	100%	$2,332,405
Other RTK	88%	8	100%	8	0.0%	14	0%	$699,208
Pediatric ARV	72%	46	84%	43	1.5%	66	100%	$5,709,783
TB HIV	93%	15	100%	14	0.0%	32	100%	$2,245,933
VMMC	88%	16	93%	15	3.0%	33	100%	$26,980
Total	**83%**	**1,225**	**87%**	**1,216**	**1.3%**	**2,071**	**91%**	**$75,302,078**

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
87%	$20,674,941

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	13%	-13%	16%	-16%
Laboratory	46%	46%	10%	10%
Pediatric ARV	9%	-9%	8%	-8%
A6b - Forecast Error				
Condoms	45%	45%	41%	41%

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment				Warehouse Fulfillment			Total
Task Order	Air	Land	Multiple	Sea	Air	Land	Sea	
TO1 - COVID19	**305**	**146**		**265**				**237**
COVID19	305	146		265				**237**
TO1 - HIV	**242**	**237**	**296**	**363**	**244**	**198**	**285**	**251**
Adult ARV	189	304		276	87	198	278	**234**
Condoms	103			485	493		324	**464**
Laboratory	246	237	296	247				**242**
Other Non-Pharma	276	223						**244**
Other Pharma	240	257		299				**251**
Other RTK	290							**290**
Pediatric ARV	189			267	195			**197**
TB HIV	253			371				**316**
VMMC	366			345				**353**
Total	**245**	**230**	**296**	**349**	**244**	**198**	**285**	**250**

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	73%
Freight Forwarder	88%

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
ARVs	95%	20
Condoms	95%	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
RDC	Damage	Adult ARVs	$644	$61,467,485	0.00%
Kenya	Damage	ARVs	$4,685	$39,963,141	0.01%
Burundi	Damage	Laboratory	$14,768	$314,958	4.69%
Kenya	Damage	Laboratory	$3,577	$34,018,664	0.01%
RDC	Expiry	Adult and Pediatric ARVs	$3,195	$20,080,763	0.02%
Zambia	Incorrect Product Ordered	Essential medicines	$108,528	$13,465,891	0.81%
Haiti	Missing product	COVID-19	$2,000	$70,750	2.83%
Haiti	Missing product	Laboratory	$2,997	$2,036,469	0.15%
Kenya	Missing product	Laboratory	$3,075	$34,018,664	0.01%
Uganda	Missing product	Laboratory	$780	$23,378,783	0.00%
Mozambique	Temperature Excursion	Laboratory	$106,868	$13,472,764	0.79%
Nigeria	Temperature Excursion	Laboratory	$99,600	$65,946,910	0.15%
DRC	Temperature Excursion	Other Pharma	$3,800	$6,207,638	0.06%
Nigeria	Temperature Excursion	Other Pharma	$40,584	$15,276,097	0.27%

Complete Quarterly Results (TO2)

Reporting Period

2022-Q3

	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	**92%**	**261**	**87%**	**273**	**1.0%**	**398**	**7.7%**	**261**	**98%**	**$27,446,855**	**97%**	**96**	**4.0%**	**301**		
ACTs	97%	99	97%	95	0.9%	111	5.1%	99	100%	$1,036,413	85%	20	0.0%	52		
Laboratory	98%	49	81%	59	1.1%	91	0.0%	49	100%	$368,170						
LLINs	81%	53	90%	50	1.3%	75	9.4%	53	95%	$13,674,705	100%	25	0.0%	54		
mRDTs	95%	21	91%	22	0.0%	22	14.3%	21	100%	$2,268,938	100%	18	0.0%	46		
Other Non-Pharma	83%	6	100%	5	7.7%	13	0.0%	6	100%	$21,794						
Other Pharma					0.0%	3			100%	$28,260		0		0		
Severe Malaria Meds	91%	11	63%	16	0.0%	54	18.2%	11	100%	$8,465,009	100%	31	8.2%	147		
SMC	100%	13	100%	13	0.0%	6	15.4%	13				0		0		
SP	56%	9	38%	13	0.0%	23	33.3%	9	100%	$1,583,566	100%	2	0.0%	2		
Total	**92%**	**261**	**87%**	**273**	**1.0%**	**398**	**7.7%**	**261**	**98%**	**$27,446,855**	**97%**	**96**	**4.0%**	**301**		

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment		**Total**
Task Order	Air	Land	Sea	Air	Sea	
TO2 - Malaria	**287**	**388**	**335**	**96**	**303**	**321**
ACTs	216		325	96		**314**
Laboratory	287					**287**
LLINs		388	360			**362**
mRDTs	305		334			**331**
Other Non-Pharma	282					**282**
Severe Malaria Meds	370		367			**368**
SMC			264		303	**276**
SP			358			**358**
Total	**287**	**388**	**335**	**96**	**303**	**321**

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

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
Malawi	Damage	RDTs	$557	$1,720,040	0.03%
Nigeria	Damage	RDTs	$2,764	$9,149,380	0.03%
RDC	Expiry	NA	$0	$1,370,472	0.00%
Sierra Leone	Incorrect Quantity	Laboratory	$10,530	$917,243	1.15%
Rwanda	Incorrect Quantity	LLINs	$575	$2,789,832	0.02%
Malawi	Missing product	LLINs	$7,935	$405,000	1.96%

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Malaria commodities	96%	28

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
54%	$153,311

A14. Average vendor rating - QA labs

Average vendor rating
95%

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	83%	83%	16%	-16%
mRDTs	283%	-283%	15%	15%

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	73%
Freight Forwarder	88%

Complete Quarterly Results (TO3)

Reporting Period

2022-Q3

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	**90%**	**50**	**95%**	**58**	**0.0%**	**176**	**100%**	**$12,291,438**
Combined Oral Contraceptives	91%	11	85%	13	0.0%	27	100%	$3,966,915
Copper-Bearing Intrauterine Devices	100%	2	100%	2	0.0%	9		
Emergency Oral Contraceptives	100%	1	100%	1	0.0%	9	100%	$28,512
Implantable Contraceptives	100%	10	100%	9	0.0%	56	100%	$4,535,800
Injectable Contraceptives	81%	16	93%	15	0.0%	40	100%	$3,363,230
Levonorgestrel-Releasing Intrauterine Devices					0.0%	1	100%	$6,867
Other Non-Pharma	50%	2	100%	2	0.0%	2		
Progestin Only Pills	100%	5	100%	5	0.0%	26	100%	$300,024
Standard Days Method	100%	3	100%	11	0.0%	6	100%	$90,090
Total	**90%**	**50**	**95%**	**58**	**0.0%**	**176**	**100%**	**$12,291,438**

A7. Temporary Waiver Percentage

Task Order	Temporary registration waiver percentage	Total # of line items delivered
TO3 - FP/RH	**12.0%**	**50**
Progestin Only Pills	40.0%	5
Combined Oral Contraceptives	27.3%	11
Injectable Contraceptives	6.3%	16
Copper-Bearing Intrauterine Devices	0.0%	2
Emergency Oral Contraceptives	0.0%	1
Implantable Contraceptives	0.0%	10
Other Non-Pharma	0.0%	2
Standard Days Method	0.0%	3
Total	**12.0%**	**50**

A3. Cycle time (average)

Fulfillment Channel	Direct Drop Fulfillment			Warehouse Fulfillment		**Total**
Task Order	Air	Land	Sea	Air	Sea	
TO3 - FP/RH	**249**	**270**	**364**	**183**	**310**	**304**
Combined Oral Contraceptives			388		284	**360**
Copper-Bearing Intrauterine Devices				221		**221**
Emergency Oral Contraceptives			176			**176**
Implantable Contraceptives	299		652	81	233	**390**
Injectable Contraceptives		270	223	309	342	**271**
Other Non-Pharma		270				**270**
Progestin Only Pills				183	308	**233**
Standard Days Method	175		327			**226**
Total	**249**	**270**	**364**	**183**	**310**	**304**

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	Damage	Combined oral contraceptives	$1,310	$11,166,572	0.01%
RDC	Expiry	NA	$0	$6,676,657	0.00%

B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Condoms	95%	21
FP commodities	95%	22

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	10%	10%	8%	8%
Condoms	45%	45%	41%	41%
Copper-bearing Intrauterine Devices	0%	0%	39%	-39%
Implantable Contraceptives	27%	-27%	20%	-20%
Injectable Contraceptives	3%	-3%	4%	-4%
Progestin Only Pills	0%	0%	13%	13%

A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
84%	$9,170,040

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	73%
Freight Forwarder	88%

Complete Quarterly Results (TO4)

Reporting Period

2022-Q3

	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%**	**9**	**93%**	**14**	**0.0%**	**13**	**100%**	**$98,583**
Other Non-Pharma	100%	6	86%	7	0.0%	12	100%	$41,653
Other Pharma	100%	3	100%	7	0.0%	1	100%	$56,929
Total	**100%**	**9**	**93%**	**14**	**0.0%**	**13**	**100%**	**$98,583**

Crosscutting indicators

A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	73%
Freight Forwarder	88%

A3. Cycle time (average)

Task Order	Direct Drop Fulfillment	Total
TO4 - MNCH	**326**	**326**
Other Non-Pharma	375	**375**
Other Pharma	230	**230**
Total	**326**	**326**

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.

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.