

**USAID GLOBAL HEALTH  
SUPPLY CHAIN PROGRAM**  
Procurement and Supply Management



# FISCAL YEAR 2021

## ANNUAL REPORT

OCTOBER 1, 2020 TO SEPTEMBER 30, 2021



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Contract No. AID-OAA-1-15-00004

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](http://ghsupplychain.org).

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# Contents

<b>Acronyms</b>	<b>1</b>
<b>Executive Summary</b>	<b>6</b>
Introduction: Reflections on FY 2021	6
Mitigating Risk of Supply Chain Interruptions Due to COVID-19	9
Global Supply Chain Performance	11
Value to the U.S. Taxpayer and the U.S. Government's International Health Programs	13
Health Areas	17
Strengthening Health Institutions	22
<b>Introduction</b>	<b>24</b>
A1. Background	24
A2. About This Report	24
<b>PROGRESS BY HEALTH AREA</b>	<b>27</b>
B1. HIV/AIDS	27
Introduction	28
HIV/AIDS Supply Chain On-Time Delivery and cost savings	29
Supporting PEPFAR's HIV Prevention Agenda	32
Supporting the First 95: Testing	33
Supporting the Second 95: Treatment	34
Supporting the Third 95: Viral-Load Testing	37
HIV/AIDS Supply Chain Data Visibility and Commodity Security	38
Country Support	39
B2. Malaria	40
Introduction	40
Cost Savings on Malaria Commodities	42

Commodity Sourcing, Procurement and Delivery	43
Proactive Procurement Strategy	46
Quality Assurance	47
Promoting Supply Chain Health	48
Adoption of Standards-Based Identification, Barcoding, and Data Sharing Standards	48
Prioritizing Orders and Transferring Stock	49
Stockout Reduction Initiative	50
LLIN Distribution Support	50
Country Support	53
<b>B3. Family Planning and Reproductive Health</b>	<b>54</b>
Introduction	55
Cost Savings on Contraceptives	57
Addressing FP/RH Priorities	58
Commodity Sourcing and Procurement	58
Collaboration with Global Stakeholders	62
Public Health Supply Chains Post-Black Swan Event	63
Documenting Private Sector Concepts in Outsourcing and Costing Supply Chains	64
Country Support	64
<b>B4. Maternal, Newborn and Child Health</b>	<b>66</b>
Introduction	67
Provide international MNCH supply chain leadership and guidance	68
Support data-informed health supply chain decision-making for MNCH commodities	73
Improve adherence to globally recognized MNCH commodity quality standards	75
Conduct ad hoc strategic procurement to increase the availability of MNCH commodities	78
<b>PROGRESS BY OBJECTIVE</b>	<b>80</b>

C1. Global Commodity Procurement and Logistics	80
C1a. Global Supply Chain: Focused on Safe, Reliable, Continuous Supply	81
More Health Through Market Dynamics, Strategic Sourcing, and Supplier Management	82
Decentralized Procurement	83
Global Standards	83
Impacts of COVID-19 on Freight and Logistics	85
C1b. Project Performance	86
Timeliness of Delivery	86
C2. Systems-Strengthening Technical Assistance	89
Introduction	89
Advanced Analytics	91
Environmental Compliance	93
Forecasting and Supply Planning	93
Global Standards and Traceability	96
Laboratory Networks	98
Leadership and Governance	100
Management Information Systems	100
Warehousing and Distribution	101
Workforce Development	103
C2a. Project Performance	103
Supply Plans	104
Capacity Building	105
C3. Global Collaboration	105
Strategic Engagement	105
Knowledge Sharing	106

Supply Chain Collaboration in Global Fora	107
Collaboration With Other USAID GHSC Projects	108
<b>Annex A. COVID-19 Response</b>	<b>109</b>
Introduction	109
COVID-specific country support	110
Procurement of COVID equipment for Italy	110
Ventilator procurement	111
Oxygen	111
Technical assistance	111
HSS: COVID-19 and Emergency Preparedness and Response	112
Supporting the global COVID-19 Vaccine rollout	113

## ACRONYMS

3HP	isoniazid/rifapentine (combination treatment for tuberculosis)
3PL	third-party logistics
4PL	fourth-party logistics
ABC	activity-based costing
ACT	artemisinin-based combination therapy
ALu	artemether-lumefantrine
API	active pharmaceutical ingredient
APWG	ARV Procurement Working Group
ARPA	American Rescue Plan Act
ART	antiretroviral therapy
ARV	antiretroviral
COC	combined oral contraceptive
COP	community of practice
COVAX	COVID-19 Vaccines Global Access
DAP	delivered at place
DCP	decentralized procurement
DDD	decentralized drug distribution
DMPA	depot-medroxyprogesterone acetate
DRC	Democratic Republic of the Congo
DRF	drug revolving fund
DT	dispersible tablets
DTG	dolutegravir
DUE	drug use evaluation
EID	early infant diagnosis

ENAP	Emergency Newborn Action Plan
eLMIS	electronic logistics management information system
EPI	Expanded Programme on Immunization
EUV	end-use verification survey
FASP	forecasting and supply planning
FDA	Food and Drug Administration
FP/RH	family planning/reproductive health
FY	fiscal year
GAD	goods availability date
GDSN	Global Data Synchronization Network
GFPVAN	Global Family Planning Visibility and Analytics Network
GHSC-PSM	Global Health Supply Chain Program-Procurement and Supply Management project
GHSC-QA	Global Health Supply Chain Program-Quality Assurance project
GHSC-RTK	Global Health Supply Chain Program-Rapid Test Kit project
GPS	global positioning system
GTIN	global trade item number
HDP	hypertensive disorders of pregnancy
ICU	intensive care unit
IFPW	International Federation of Pharmaceutical Wholesalers, Inc.
IM	intramuscular
IUD	intrauterine device
KPI	key performance indicator
KSM	key starting material
LLIN	long-lasting insecticide-treated net
LMICs	lower- and middle-income countries
LMIS	logistics management information system

LQAG	LLIN Quality Assurance Group
LZN	lamivudine/zidovudine/nevirapine
M	million
MCH	maternal and child health
MMD	multi-month dispensing
MNCH	maternal, newborn and child health
MOH	Ministry of Health
MOHW	Ministry of Health and Wellness
mRDT	malaria rapid diagnostic test
MTaPS	USAID Medicines, Technologies, and Pharmaceutical Services project
NEST360	Newborn Essential Solutions and Technologies alliance
NIV	non-invasive ventilation
NPC	National Product Catalog
NMCP	National Malaria Control Program
OOS	out of specification
ORS	oral rehydration salts
OTD	on-time delivery
OTIF	on-time, in-full delivery
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PLHIV	people living with HIV
PMI	U.S. President's Malaria Initiative
PPE	personal protective equipment
PPH	postpartum hemorrhage
PPMR	Procurement Planning and Monitoring Report
PPMRm	Procurement Planning and Monitoring Report-malaria

PQM+	Promoting the Quality of Medicines Plus
PrEP	pre-exposure prophylaxis
PSA	pressure swing adsorption
PSBI	possible serious bacterial infection
Q	quarter
QA	quality assurance
QAT	Quantification Analytics Tool
QC	quality control
QMS	quality management system
RBC	Rwanda Biomedical Center
RDC	regional distribution center
RDD	requested delivery date
RDT	rapid diagnostic test
RFP	request for proposal
RHSC	Reproductive Health Supplies Coalition
RMNCH	reproductive, maternal, newborn and child health
RTK	rapid test kit
SC	subcutaneous
SDP	service delivery point
SMC	seasonal malaria chemoprevention
SMO	social marketing organization
SOP	standard operating procedure
SPAQ	sulphadoxine-pyrimethamine + amodiaquine
SSWG	Systems Strengthening Working Group
STGs	(national) standard treatment guidelines

TA	technical assistance
TB	tuberculosis
TLD	tenofovir/lamivudine/dolutegravir
TO	task order
TPT	tuberculosis preventive treatment
TransIT	transportation information tool
TWG	technical working group
TXA	Tranexamic Acid
UCC	ultra-cold chain
UNCoLSC	UN Commission on Lifesaving Commodities for Women and Children
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USG	U.S. Government
VEM	very essential medicines
VMMC	voluntary medical male circumcision
VSA	vacuum swing adsorption
WHO	World Health Organization
ZPBF	Zambian Pharmaceutical Business Forum

# EXECUTIVE SUMMARY

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 Fiscal Year 2021 (FY 2021). We describe our work in providing lifesaving medicines and other health commodities and building efficient, reliable, and cost-effective supply chains for delivering 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 and child health (MCH), which share the cost of the project. We also describe activities related to the novel coronavirus (COVID-19) response.

## INTRODUCTION: REFLECTIONS ON FY 2021

COVID-19 dominates GHSC-PSM's FY 2021 narrative. As described throughout this report, the impacts of COVID-19 on global logistics have been severe and long-lasting. But, as also illustrated, the project has turned hard-won lessons into supply chain advancements, maintaining high performance throughout the pandemic. With the support of USAID, the foundations and structures our project has established over the last six years, coupled with our learning mindset, enabled us to persevere in the face of myriad challenges to ensure an uninterrupted supply of health commodities to prevent suffering, save lives and create a brighter future for families across the globe.

GHSC-PSM's strategic goal is for every country to have a locally led health supply chain that is integrated, optimized, accountable, agile, lean, and able to sustainably supply quality products to all citizens. The project kept these programmatic commitments, maintaining the flow of health commodities and delivering technical assistance in creative ways, while also taking on new pandemic response activities. For example, GHSC-PSM collected and cataloged ultra-cold chain (UCC) capacity to accommodate vaccines across GHSC-PSM countries from central medical stores to vaccination sites while working in-country to lay the foundation for delivery. Ultimately, the project supported the delivery of vaccines, ancillary supplies, and oxygen pressure swing adsorption plants (PSAs) while coordinating closely with country government donors, and in-country implementing partners.

**GHSC-PSM Fast Facts**

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

- Delivered more than **61.1 million bottles of tenofovir/lamivudine/dolutegravir (TLD)** to **29 countries**
- Delivered enough antimalarials to treat **387.5 million infections**
- Delivered contraceptives to provide **90.1 million couple-years** of protection
- Procured a total of nearly **\$23.8 million in MNCH commodities**
- Delivered a total of **637,354 lab commodity items** valued at nearly **\$333.7 million** to 26 countries
- Supported **50 countries** with technical assistance
- Saved **\$48.5 million** on warehousing and logistics
- Saved **\$393.2 million** on commodity procurements

As we closed out FY 2021, the project saw the tenth consecutive quarter wherein the on-time delivery (OTD) rate was above 85 percent (75 percent COVID-impacted) while achieving best value for the U.S. taxpayer by implementing approaches that result in lower costs for commodities and freight, saving more than \$133.6 million in commodities and logistics this year alone (not including COVID-19 commodities). The project was able to accomplish this by leveraging open competition in shipping lanes, working closely with suppliers, qualifying new products and vendors, offering alternative products to countries, and identifying manufacturing sources not subjected to export restrictions, among other novel solutions.

This is remarkable in a market plagued by challenges ranging from exponentially higher freight logistics costs to container shortages, to port closures (e.g., Suez Canal), to natural disasters (e.g., volcanic eruption in the Democratic Republic of Congo), to political strife/conflict (e.g., presidential assassination in Haiti). Still our health commodities made it to their intended destinations and into the hands of those that need them most.

To be successful required us to be creative. For example, following Mali's military coup in August 2020, the U.S. Government (USG) prohibited projects it funds from using family planning (FP) resources to provide technical assistance to government entities at the national, regional and district levels and also barred the storage of USG-funded contraceptives in government facilities. Despite this challenge, GHSC-PSM, while still adhering to these USG requirements, devised a plan to collaborate with multiple partners to ensure that targeted regions were fully stocked by working with the private sector to store and distribute FP commodities.

Through this strategy, the project ensured that targeted regions were fully stocked with six months' worth of family planning commodities.

The project also made advancements in increasing data visibility and use at the country level by implementing new tools such as the Quantification Analytics Tool (QAT), which resulted in measurable improvement in supply planning from countries. This is of critical importance to make sure that public health supply chains have products available for patients. With an enhanced user interface and usability, greater analytical capabilities, and automated data exchange, this new tool enables program managers to optimize commodity procurement and delivery schedules, monitor product stock status, and share data with external platforms and key stakeholders.

Improving the sustainability of technical capacity at the country level is a key focus area for the project. Tools such as the technical independence indicator (known as the B8) help not only GHSC-PSM but also local stakeholders, such as the Ministry of Health, to understand how far their country has come and critically, to identify areas in which to focus systems strengthening activities to reach their goals. The B8 represents a crucial proxy to measure the outcomes of GHSC-PSM's technical assistance in the countries we support and the long-term sustainability of those outcomes. The indicator defines technical independence at the activity level, such as conducting an annual forecast or logistics management information system (LMIS) administration, through five key components that are needed to ensure long-term sustainability. So far, the indicator has been collected three times across the project with FY 2019 serving as the baseline for measurement. To date, the indicator has been primarily applied to inform work planning, using the tool to highlight gaps in targeted supply chain activity capability components. In FY 2022, the project will conduct a learning activity based on the B8 tool, investigating underlying dynamics and defining the most pressing barriers to achieving technical independence in key supply chain functions.

GHSC-PSM adapted management approaches to improve the efficiency of national public health supply chains. For example, GHSC-PSM introduced a new pilot project, DAP Incoterm, in which the supplier takes on increased logistics responsibility and assumes risks for the delivery of goods. Through this pilot project, GHSC-PSM successfully delivered antiretrovirals (ARVs) to three countries—Tanzania, Uganda and Zambia—all on time.

Another example was the introduction of a new contracting model, the global request for proposal (RFP), that shifted responsibility for long-term ownership and maintenance of HIV testing instruments from local entities to an all-inclusive leasing arrangement with manufacturers to reduce costs and standardize service levels.

These efforts are contributing to countries' ability to steward their supply chain without owning the entire process. Moving away from a central medical store model to more of a contract management model can be more cost efficient when a Ministry of Health does not manage all supply chain transactions.

In support of PMI's initiative to optimize its investments and significantly reduce stockout rates at service delivery points (SDPs) across all supported countries, GHSC-PSM rolled out a stockout reduction strategy to all project country offices in FY 2021. This technical assistance will allow GHSC-PSM to strengthen in-country supply chains to reach the unreached and ensure products are consistently available.

This was a strong documentation year for GHSC-PSM. The project produced several technical documents to support supply chain actors in implementing best practices as gleaned from the lessons of the project. (e.g., [Contracting for Transportation of Public Health Commodities to the Private Sector](#)). The project also actively engaged with other global and local players to promote the availability of medicines and commodities. For example, with the addition of new postpartum hemorrhage (PPH) commodity offerings and expanded clinical indications, World Health Organization updates introduced new clinical and supply management complexities. GHSC-PSM led three informational webinars in FY 2021 to expand knowledge on PPH commodity clinical and supply chain considerations.

FY 2021 also saw the introduction of new innovations around private sector engagement, including vendor-managed solutions and green supply chain, and piloting efforts to optimize the diagnostic laboratory services in several countries. GHSC-PSM will continue building on these initiatives into FY 2022, with a vision of increasing countries' stewardship of their own supply chains, more private sector involvement, and less centralized procurement, warehousing and distribution at the country level, and a shift to diagnostic laboratory services as a key backbone to health sector resilience. Data and interoperability of data systems continue to underscore the project across all health areas and are essential for planning and optimization. We aim for data visibility to grow stronger, particularly at the country level, so that as countries take on more, they have access to timely and relevant information.

GHSC-PSM's performance in the midst of the direst of circumstances is a testament to the strength and flexibility of the project's integrated global supply chain and the technical depth of staff who have been able to pivot to get the job done. Looking ahead, GHSC-PSM has an essential role to play in continuing to navigate international and in-country logistics now rising to the level of regular stories in the international press. It is an exciting time to be a key player in global health security.

## MITIGATING RISK OF SUPPLY CHAIN INTERRUPTIONS DUE TO COVID-19

In quarter 4 (Q4), the project continued to monitor and manage the effects of COVID-19 on the global health supply chain, but increasingly from the vantage point of longer-term mitigation needs, as the pandemic is not easing anytime soon. GHSC-PSM engages in ongoing consultations with USAID to look ahead and address the long-range challenges we expect to face over the next two to three years regarding COVID-19 interruptions while maintaining many of the ongoing mitigation measures the project has implemented. This has been fundamental in getting ahead of prevailing issues, especially in the wake of increased media attention and scrutiny of supply chain challenges. Manufacturers increased their safety stock for raw materials, diversified sources of supply, and intensified communications throughout the supply chain. Commodity risk profiles identified supplier delays to inform decision making and minimize or avoid further delays. The project liaised with potentially impacted suppliers to proactively identify and manage delays, obtain products as quickly as possible, and identify alternate fulfillment mechanisms to meet the most urgent needs. These methods helped to avoid many potential delays.

GHSC-PSM received \$6.11M to provide COVID-19 Vaccines Global Access (COVAX) technical assistance in 12 countries in FY 2021; these countries made significant progress in their planned activities in Q4. Technical support varies from country to country and includes cold chain and UCC storage and distribution, waste management planning, and coordination of vaccine rollouts through in-country technical working groups.

In Angola, GHSC-PSM and United Nations Children’s Fund helped the government establish storage and distribution plans for all incoming COVID-19 vaccines at the central and provincial levels, including the 1.1 million doses donated by the USG in Q4. GHSC-PSM also integrated vaccine tracking into Malawi’s existing electronic logistics management information system (eLMIS) and the project donated glucometers and blood glucose strips to Rwanda’s government to target high-risk populations for COVID-19 vaccination in Q4. Earlier in FY 2021, GHSC-PSM researched existing cold chain and UCC capabilities in the public and private sectors for 92 COVAX-supported countries and assessed cold chain and UCC capabilities in 36 GHSC-PSM-supported countries to aid in the USG’s distribution planning for pending and future vaccine donations. GHSC-PSM also prepared a global COVAX Waste Management technical brief to answer frequently asked questions and clarify the type of waste management support the project can offer partner governments in managing the increased levels of waste produced by the COVID-19 vaccination push.

In Q4, the project continued to grapple with the unpredictable nature of the pandemic and its ongoing threat to global supply chains, particularly as it affected international logistics. Ocean freight continued to suffer extreme disruptions with reduced vessel availability and a global container shortage. This unpredictability, along with other routine seasonal effects (e.g., year-end increases in demand) and unplanned events (e.g., Suez Canal blockage), further impacted the fragility of these supply chains. GHSC-PSM frequently communicated with suppliers and third-party logistics (3PL) providers to understand current and future impacts to their operations.

Communication with logistics providers has been essential, as the impact across the global supply chain (from origin, to transshipment ports, destination ports and destination cities) has continued longer than anticipated. As a result, the project continues to monitor and manage supply chain operations by

collaborating with suppliers, logistics providers, and in-country teams to identify risks and develop mitigation plans as needed. For more information, see section C1: Global Supply Chain.

Restrictions continued to prevent project staff from traveling to or joining in-person workshops to support activity implementation. GHSC-PSM worked with activity leads and country offices through virtual workshops or other strategies to ensure program continuity.

### MEETING OUR COMMITMENTS IN THE FACE OF COVID-19

Throughout Q4, the project monitored the pandemic's impact on supply, transport, and demand. GHSC-PSM worked with suppliers to assess the availability of existing supplies and production capacity to prioritize country orders.

### PREVENTING COUNTRY- AND SITE-LEVEL SHORTAGES

The project mitigates potential shipping delays and shortage risks by prioritizing commodities based on the 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 goods availability dates of existing orders sooner.
- Coordinating supply with other global partners to prioritize critical countries.
- Releasing orders from the regional distribution centers (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.

In Q4, GHSC-PSM delivered **28 high-flow, high-pressure concentrators** and spare parts kits and installed four PSA units in Ghana. The project also **delivered 310 h-type oxygen cylinders to Haiti (250) and Tajikistan (60)** and **18 orders for consumable and durable oxygen commodities (delivered across five countries) valued at approximately \$448,000.**

### COVID-19 RESPONSE ACTIVITIES

The USG allocated additional funds to GHSC-PSM for COVID-19 response activities. These include:

- Procuring medicines, medical equipment, and supplies for 16 countries.
- Procuring respiratory and cardiac supplies, intensive care unit (ICU) beds, and patient monitors valued at \$9.8 million for Italy.
- Providing ventilator support to 43 countries and North Atlantic Treaty Organization.
- Procuring oxygen-related equipment and providing technical assistance.

In Q4, GHSC-PSM made significant progress in procuring oxygen commodities and continuing clinical and non-clinical technical assistance for oxygen work in seven countries, ranging from delivering products

locally to training facility staff in the use of specific oxygen commodities. This oxygen sector strengthening assistance is part of USAID's greater response to the pandemic. This work is vital, as oxygen support has quickly become the primary clinical intervention for patients suffering from COVID-19.

For more information, see Annex A, COVID-19 Response.

## 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 FY 2021 are below.

	<b>Procured nearly \$776 million</b> in drugs, diagnostics, and health commodities in FY 2021, and over \$3.9 billion to date.
	<b>Delivered over \$907.1 million</b> in drugs, diagnostics, and health commodities in FY2021, and almost \$3.6 billion to date.
	Achieved <b>on-time delivery (OTD<sup>1</sup>) of 89 percent (75 percent COVID-impacted)<sup>2</sup> and on-time, in-full delivery (OTIF) of 86 percent (78 percent COVID-impacted)</b> (see Exhibits 1 and 2). The backlog of late orders was 4.6 percent.

OTD and OTIF rates stayed consistently strong for all health areas in Q4. OTD was 89 percent (75 percent COVID-impacted) and OTIF was 86 percent (78 percent COVID-impacted) for the quarter, the tenth successive quarter that OTD has been above 85 percent. OTD was 88 percent (79 percent COVID-impacted) for HIV; 96 percent (93 percent COVID-impacted) for malaria; 87 percent (80 percent COVID-impacted) for FP/RH; and 100 percent (19 percent COVID-impacted<sup>3</sup>) for MNCH medicines and

<sup>1</sup> 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 delivery date.

<sup>2</sup> 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 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 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.

<sup>3</sup> This percentage is low because most line items originally planned for delivery in FY2021 Q4 experienced a delay due to the pandemic. Their agreed delivery dates have been adjusted with a pandemic acceptable delay code and are now planned for delivery in late periods.

commodities, each of which exceeded the contract's 80 percent quarterly target. Note that, as of the end of Q2 FY 2020, the number of COVID-impacted orders started to increase significantly and as predicted in previous reports, continued to adversely impact on-time delivery performance through Q3 and Q4 FY 2020. The high degree of uncertainty and the extreme volatility in freight costs in global supply chains caused by the pandemic continued to impact a large number of orders in FY 2021. This impact is expected to continue through FY 2022. GHSC-PSM continues to conduct root-cause analysis of late deliveries to refine procurement and supply chain processes and to continuously improve performance.

Exhibit 1. OTD October 2020–September 2021

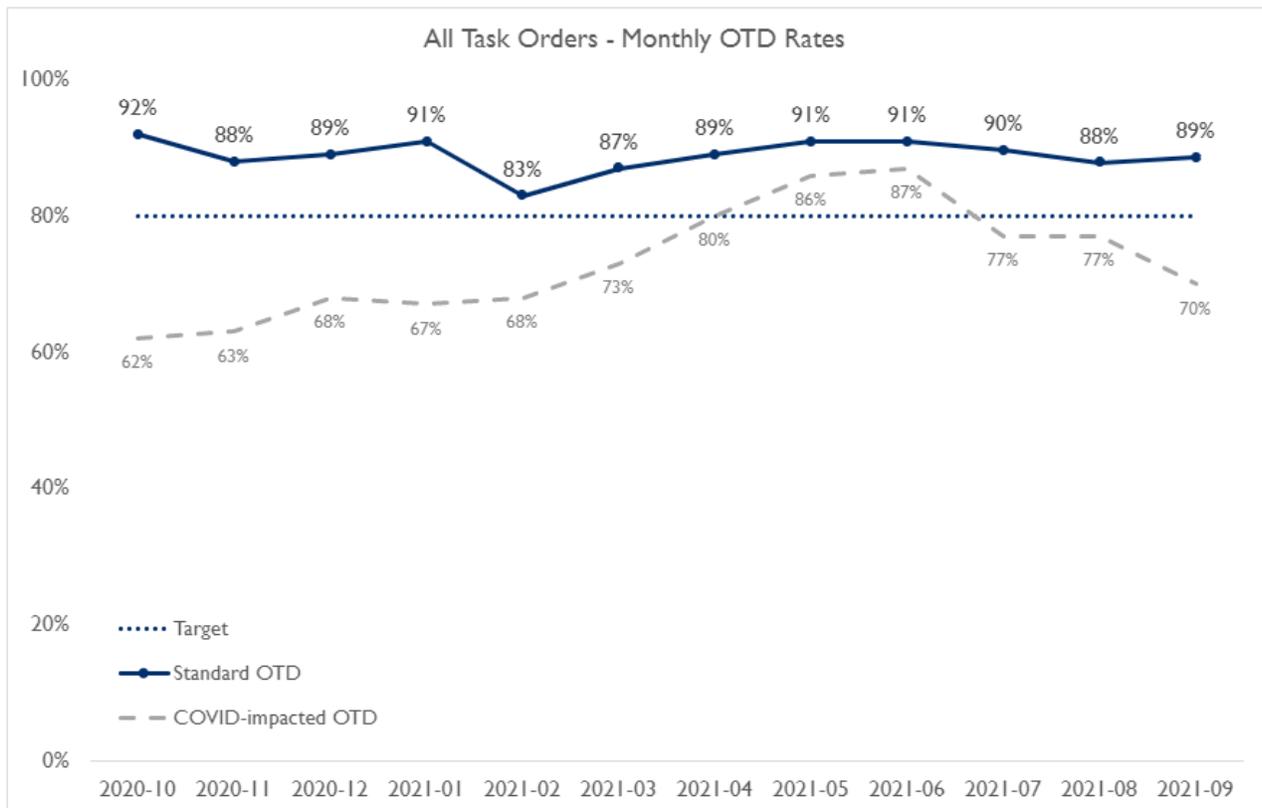
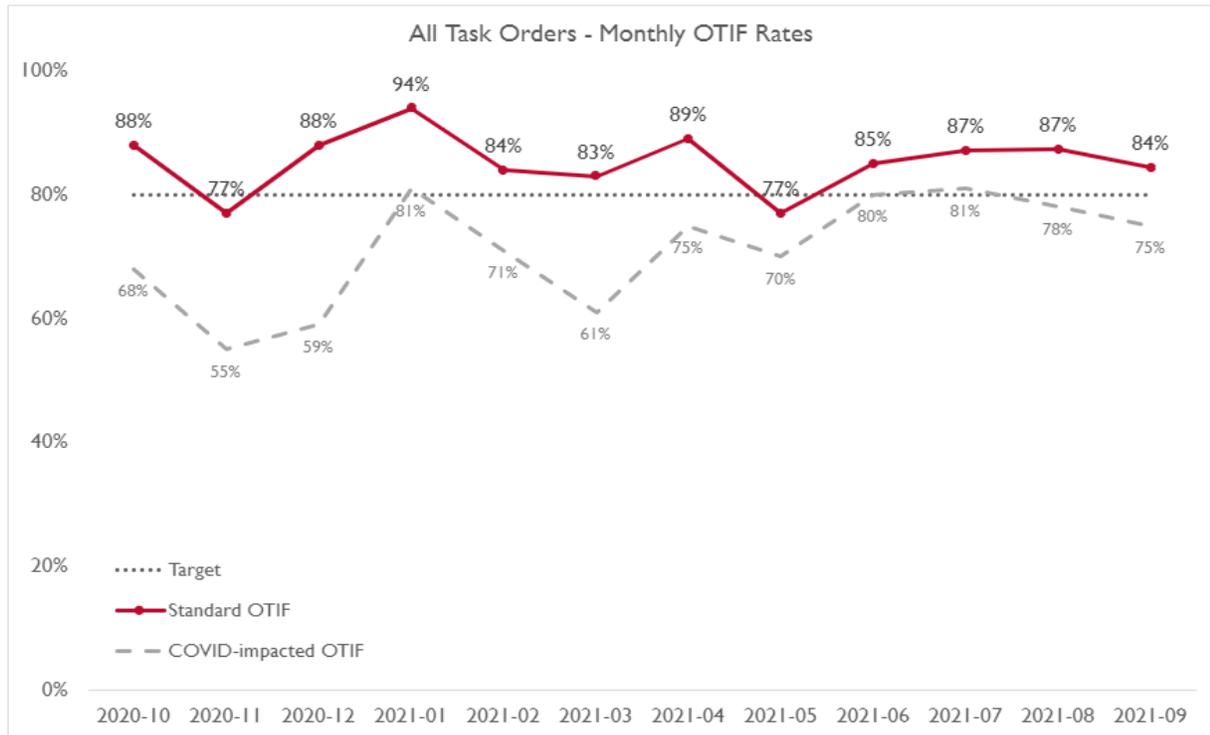


Exhibit 2. OTIF October 2020–September 2021



Significant efforts were made in Q4 to stem the impacts of COVID-19 on freight and logistics as deliveries faced a shipping environment defined by unprecedented COVID-19 shutdowns. The project continues to adapt to unforeseen shifts in the marketplace.

### IMPACT OF GHSC-PSM PROCUREMENTS

GHSC-PSM’s day-to-day activities focus on procuring health commodities, but we have not forgotten our overall goal, which is to “...prevent suffering, save lives, and create a brighter future for families.” To this end, the project developed and periodically reports important procurement impact indicators for TO1 and TO3. Calculating the estimated lives saved, couple years of protection provided, and unintended pregnancies prevented as a result of USAID’s support through GHSC-PSM provides an important piece of evidence, one that can be used to contribute to advocacy efforts and ensure that key decision makers globally understand the positive health impact of GHSC-PSM’s commodity procurements. This information is also useful in encouraging continued investments. For more details, please refer to sections B1 and B3 of this report.

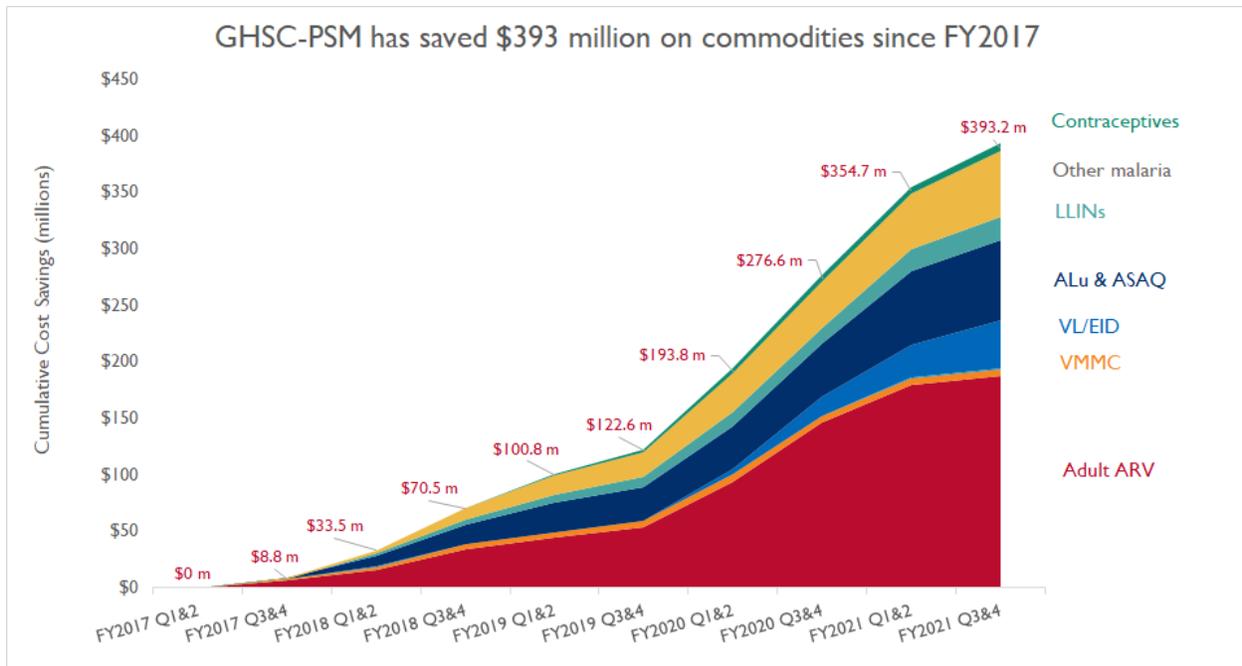
### VALUE TO THE U.S. TAXPAYER AND THE U.S. GOVERNMENT’S INTERNATIONAL HEALTH PROGRAMS

GHSC-PSM works to achieve best value for the U.S. taxpayer by implementing approaches that result in lower costs for commodities and freight.

## COST SAVINGS ON MEDICINES AND HEALTH COMMODITIES

GHSC-PSM conducts regular and detailed analysis to understand the markets for the medicines and health commodities we procure and to bring this knowledge to negotiations with suppliers. Through carefully negotiating long-term contracts with suppliers, for major product groups, including viral load testing this year, the project has saved \$393.2 million on commodities over the life of the project, including \$116.6 million in FY 2021, as shown in Exhibit 3.<sup>4</sup>

Exhibit 3. Life-of-Project Savings on Medicines and Health Commodities



To produce long-term value and sustainability, GHSC-PSM achieved these cost savings while working to ensure suppliers will maintain their interest in the market and expanding the number of suppliers in many commodity categories, such as condoms and malaria rapid diagnostic tests (mRDTs), so the USG can benefit from a competitive supplier base. This analysis appears in Section C1b.

<sup>4</sup> Cost savings are calculated based on orders placed in the period. cost savings values in those periods may be updated to reflect any subsequent changes to those orders.

## COST SAVINGS ON LOGISTICS

GHSC-PSM saved \$48.5 million on logistics over the life of the project. GHSC-PSM saves money on logistics by managing through a fourth-party logistics (4PL) model that competes lanes between shipping companies (known as 3PLs) to improve service and reduce costs. This leads to cost savings on shipping rates from an alternative approach with limited or no competition for shipping lanes (a simple 3PL approach) through scale and competition.

Task Order	Benefits of Competing Freight Lanes
Task Order 1	\$24,915,862
Task Order 2	\$7,356,000
Task Order 3	\$503,572
Task Order 4	\$2,633
Grand Total	\$32,778,067

As of April 2019,<sup>5</sup> logistics savings were calculated as the difference between the rates awarded to the selected 3PL and the average of the two most expensive 3PLs.<sup>6</sup> This method provides a comparison for all shipping lanes and simulates the rates that would likely be obtained under a non-competitive, 3PL model.

In April 2020, GHSC-PSM recognized that air freight market rates were increasing rapidly because of the COVID-19 pandemic. During this time, the project placed a hold on the Annual 3PL Rate Refresh for air shipments and the ocean rates were extended until the end of November 2020. As a result, the project, in consultation with USAID, decided to manage air shipment pricing under a spot bid model and review ocean shipments case by case with the expectation that there would be nominal impact on that pricing. In December 2020 the project refreshed ocean freight rates and used them to calculate ocean cost-savings from December 2020 to the end of March 2021.

GHSC-PSM had projected that the logistics market would stabilize after April 2021; however, this was not the case. COVID-19, and specifically the Delta variant, continued to impact the freight logistics market for air and sea shipments. Due to the fluctuations in logistics costs throughout the pandemic, 3PLs were unable to honor annual rates. The project employed spot bids on lanes to maintain competition among 3PLs while still meeting market demand. For this FY 2021 GHSC-PSM IDIQ Annual Report, the project, in consultation with USAID, adjusted the FY 2019 rate cards to account for the shift in the market, determined by taking the average of all spot bids acquired per order to arrive at a market increase rate per shipment. This rate was then applied to the FY 2019 rates per shipment to adjust the actual cost to current market values. The market adjustment made to the FY 2019 rates provide what can be called the FY 2021 rates. Utilizing these FY 2021 rates, the final cost savings figures were calculated as the difference between the rates awarded to the selected 3PL and the average of the two most expensive 3PLs, as done in previous years.

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<sup>5</sup> From FY 2017 through Q2 2019, the benchmark for comparison was the quoted rates on shipping lanes from the shipping company that handled the majority of shipments at the inception of the project. cost savings were captured only for the HIV/AIDS task order. Total cost savings generated during this period was \$1,942,009. For a more detailed narrative surrounding this methodology, please refer to the Q4 FY2019 Annual Report.

<sup>6</sup> The two 3PLs used for creating the benchmark can vary depending on how many quotes were submitted for a given lane.

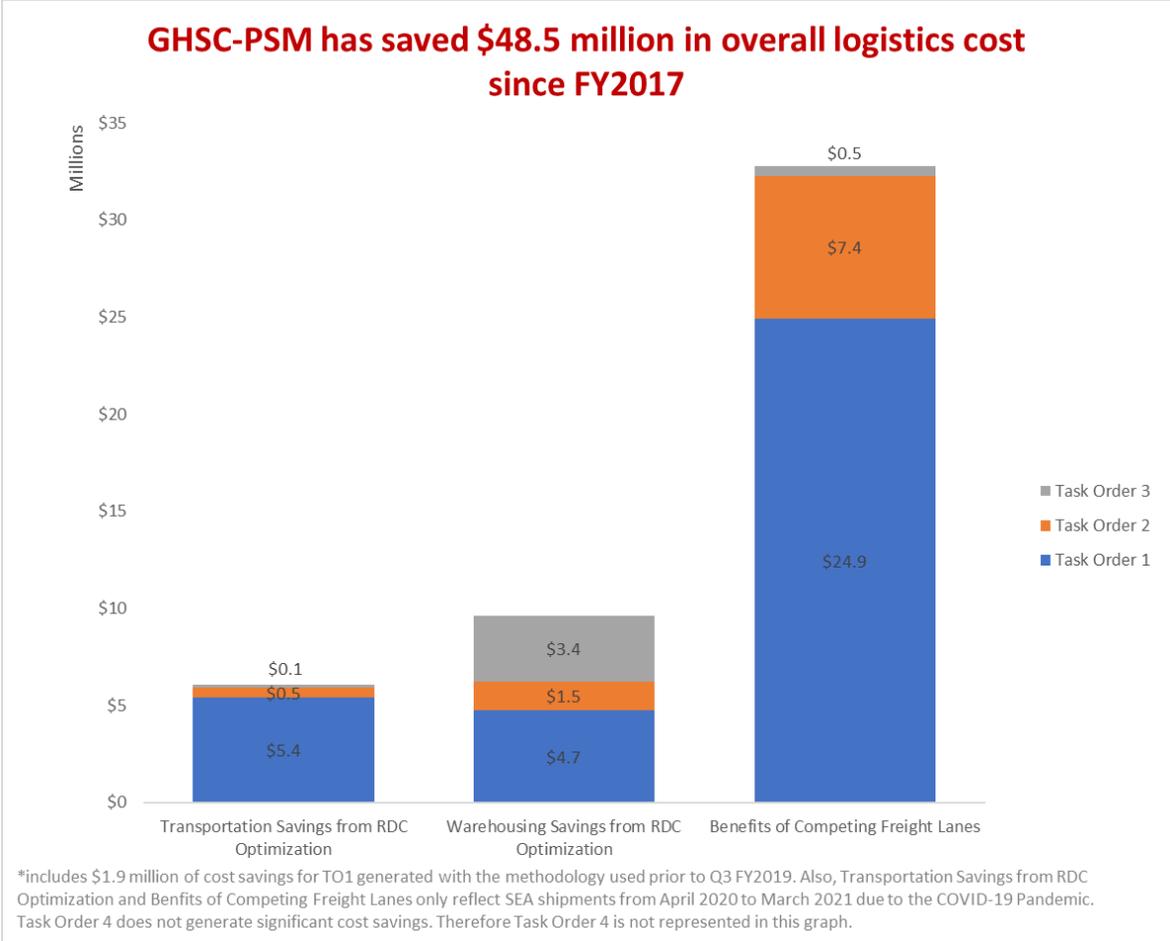
GHSC-PSM saved money on logistics through optimizing the project's network of regional distribution centers (RDCs). Savings are generated through:

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

The project also saved money on freight by implementing a 4PL model, competing all lanes and actively managing four 3PLs that service 11,663 lanes over the life of the project. The scale of the opportunity attracted many qualified freight-forwarders, and the competition drove down prices. More information on this analysis appears in Section C1b.

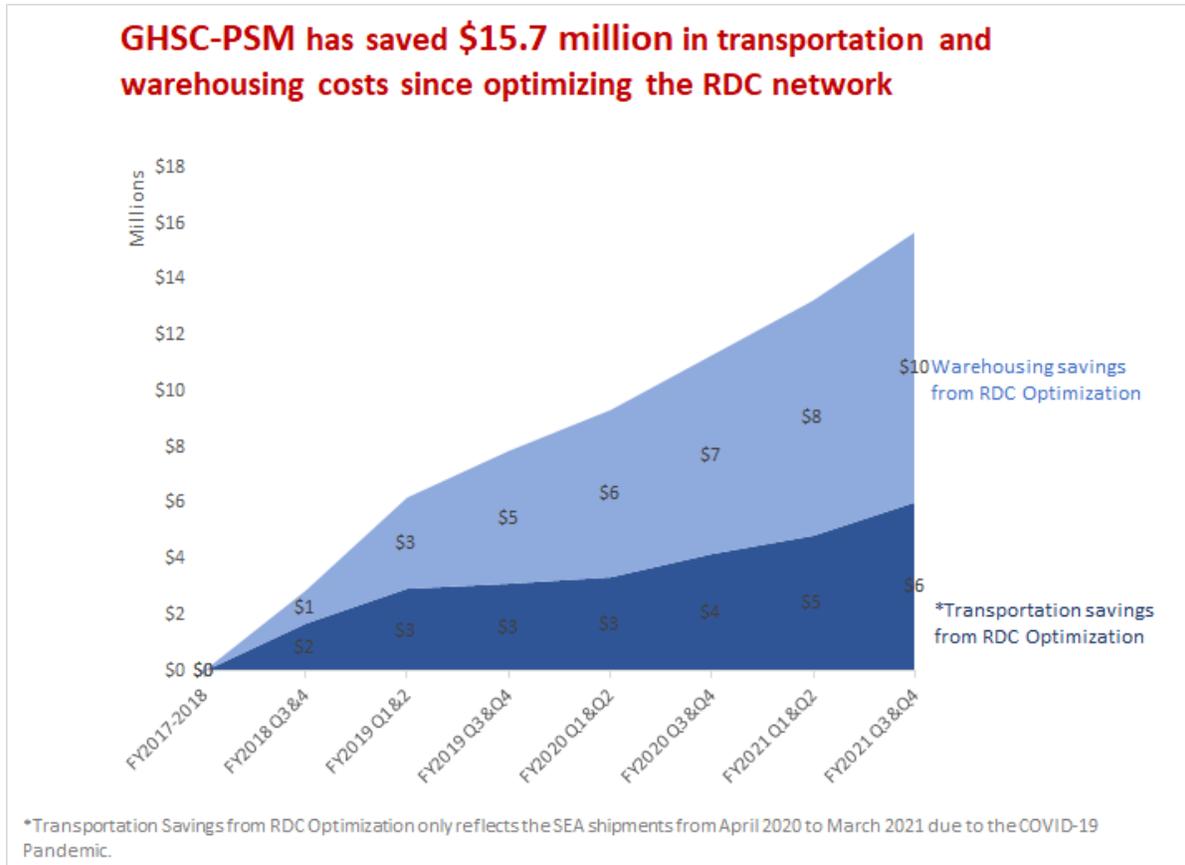
Total cost savings on logistics to date were \$48.5 million, which includes \$15.7 million in transportation and warehousing costs from optimizing the RDC network, and \$32.8 million from competing freight lanes. (See Exhibit 4.)

Exhibit 4. Logistics Cost Savings Breakdown



GHSC-PSM saved \$15.7 million in transportation and warehousing costs since optimizing the RDC network. In Exhibit 5, the light blue represents warehousing savings from RDC optimization, and the dark blue represents transportation savings from RDC optimization.

Exhibit 5. RDC Optimization cost savings



## 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 over 15.6 million patient-years of HIV treatment to date.

This includes 10.7 million patient-years of TLD treatment delivered to date.

### HIV/AIDS

**Transitioning to dolutegravir (DTG) 10 mg.** FY 2021 kicked off with the U.S. Food and Drug

Administration’s tentative approval of DTG 10 mg, opening the supply chain path for GHSC-PSM to place planned procurements with the manufacturer. By the end of FY 2021, GHSC-PSM had delivered more than 680,000 bottles of DTG 10 mg to 12 countries, helping to ensure the transition to the new optimal pediatric ARV. For more information, see section B1: HIV/AIDS.

**Actualizing multi-month dispensing (MMD).** Almost 100 percent of TLD delivered (by value) was in MMD packaging in 90- or 180-count bottles in FY 2021. By the end of the FY, GHSC-PSM had also increased the number of ARV suppliers for TLD from five to seven, while the average price offering decreased an average of 10 percent across the supply base. For more information, see section B1: HIV/AIDS.

**ARVs delivered at place (DAP).** In FY 2021, GHSC-PSM introduced a new pilot project, DAP Incoterm, in which the supplier takes on increased logistics responsibility and assumes risks for the delivery of goods. Through this pilot project, GHSC-PSM successfully delivered ARVs to three countries—Tanzania, Uganda and Zambia—all on time. For more information, see section B1: HIV/AIDS.

Strengthening data visibility. GHSC-PSM completed the standardization and mapping of key supply chain facility-level and planning and monitoring data of HIV/AIDS commodities in FY 2021. This paved the way for developing the HIV/AIDS Data Visibility Dashboard, helping the project better monitor stock distributions at facility and warehouse levels. For more information, see section B1: HIV/AIDS.

**Boosting efficiencies and saving laboratory commodity and service costs.** Under the global RFP, GHSC-PSM shifted responsibility of long-term ownership and maintenance of HIV testing instruments from local entities to an all-inclusive leasing arrangement with manufacturers. The new contracting model also pooled procurement across multiple countries, reduced costs, and standardized service levels. The result: over \$20 million in cost savings in FY 2021 alone. Also, the project continued building out the Global Viral Load Dashboard to help PEPFAR address critical needs around maintenance and repair, instrument activities, and more. For more information, see section B1: HIV/AIDS.

**On-time delivery.** GHSC-PSM delivered 88 percent (79 percent COVID-impacted) of HIV/AIDS commodities on time for the quarter. For more information, see section B1: HIV/AIDS.

### **Malaria**

GHSC-PSM supports USAID and PMI programs through the procurement, management, and delivery of high-quality, safe, and effective malaria commodities. The project partners with national malaria control programs to improve strategic planning, logistics, data analytics, and capacity building while providing global leadership in supply, demand, financing, and product development.



GHSC-PSM has delivered enough anti-retroviral therapy to provide **over 15.6 million patient-years of HIV treatment to date.**

This includes **10.7 million patient-years of TLD treatment delivered to date.**



To date, GHSC-PSM procured **\$938.3 million in malaria medicines and commodities for 30 countries.**

This includes **treatment for 116.4 million infections in FY 2021.**

In FY 2021, GHSC-PSM facilitated the distribution of **47.3 million long-lasting insecticide-treated nets (LLINs) in 24 countries.**

**Stockout reduction initiative.** In support of PMI's initiative to optimize its investments and significantly reduce stockout rates at service delivery points (SDPs) across all supported countries, GHSC-PSM rolled out a stockout reduction strategy to all project country offices in FY 2021, which will be reflected in their FY 2022 work plans. GHSC-PSM oriented the countries on the new strategy; they then set up their three-year investment plans that incorporate baseline targets for the next fiscal year. These activities assisted the project in kickstarting stockout reduction activities in FY 2021. For more information, see section B2: Malaria.

**On-time delivery.** GHSC-PSM achieved consistently high OTD performance for malaria drugs and commodities in Q4—96 percent (93 percent COVID-impacted) for the quarter. For more information, see section B2: Malaria.

**Sourcing and procurement strategies.** The impact of COVID-19 on malaria commodity supply chains continued throughout FY 2021,

compounded by port blockages and air freight delays globally. The project took proactive measures, liaising with potentially impacted suppliers and 3PLs to identify and mitigate potential disruptions. The project continued preparing for FY 2022 order fulfillment with an emphasis on key product categories, such as artemisinin-based combination therapies, severe malaria medications, sulphadoxine/pyrimethamine + amodiaquine (SPAQ), LLINs, and malaria rapid diagnostic tests (mRDTs). In proactively managing these procurements, the project focused on using suppliers who source key starting ingredients (KSIs) from a more geographically diverse range of locations, and on ensuring greater options for producing core commodities closer to client countries. For more information, see section B2: Malaria.

**Quality assurance (QA).** In Q4, the malaria task order completed the GHSC-PSM TO2 QA strategy and received PMI approval for implementation starting in September 2021. The strategy decreases the need for resources in inspection sampling and testing, as well as the overall lead time for getting products to patients.

The project continued its efforts to innovate and implement more robust quality assurance and quality management systems (QMSs) within the LLIN market space. These efforts included a strategic process for incorporating the strength of an LLIN supplier's QMS into the allocation process.

GHSC-PSM also led the collaboration between a receiving country and an LLIN supplier to proactively generate a quality agreement on the QC activities to be executed before and after an LLIN shipment occurs. For more information, see section B2: Malaria.

**Prioritization and redirection of orders.** In Q4, to address country demand and market constraints, GHSC-PSM, working closely with USAID, prioritized orders based on need and conducted commodity order transfers to improve stock status. For example, while Rwanda deferred its artemether-lumefantrine (ALu) order, Sierra Leone requested an emergency order of ALu. GHSC-PSM negotiated

with the vendor to use the original Rwanda production slot for Sierra Leone and delayed production of the Rwanda orders to meet the new requested delivery date.

A total of 28 countries submitted data to the Procurement Planning and Monitoring Report for malaria (PPMRm). For additional details, see section B2: Malaria.

**Distribution of LLINs.** In FY 2021, many countries continued to deliver LLINs for routine distribution. Other countries planned, launched, or continued large-scale LLIN distribution campaigns as a critical malaria prevention strategy. The project supported the delivery and distribution of nearly 47.3 million LLINs to protect more than 91.4 million people in 24 countries—Angola, Burkina Faso, Burma, Burundi, Cambodia, Cameroon, DRC, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Laos, Liberia, Madagascar, Malawi, Mali, Nigeria, Senegal, Sierra Leone, Tanzania, Thailand, Uganda, Zambia, and Zimbabwe. For more information, see section B2: Malaria

### **Family Planning and Reproductive Health**

In Q4, GHSC-PSM worked with activity leads and country offices through virtual workshops or other strategies to ensure program continuity despite COVID-19 restrictions. For more information, see section B3: Family Planning and Reproductive Health.

**On-time delivery.** GHSC-PSM delivered 87 percent (80 percent COVID-impacted) of FP/RH commodities on time in Q4. For more information, see section B3: Family Planning and Reproductive Health.

**Collaboration with global stakeholders.** The project supports global partners and raises awareness of the USG's FP/RH priorities and programs. It supported USAID's leadership in contraceptive security through various activities. In FY 2021, GHSC-PSM:

- Supported onboarding 37 countries to the Global Family Planning Visibility and Analytics Network (GFPVAN) basic country viewer roles as part of completing the transition from the Procurement Planning and Monitoring Report (PPMR).
- Launched the new [Harmonized Contraceptive Security Indicators Dataset, 2010–2019](#), which consolidates eight rounds of surveys into a single dataset.
- Welcomed the addition of the levonorgestrel-releasing intrauterine device (IUD), or hormonal IUD, for the first time to the USAID contraceptives product catalog.
- Published several important pieces of work, including a field guide and accompanying two-pagers for [Recovery Strategies for Public Health Supply Chains Post-Black Swan Event](#); an informative video and fact sheet on the [National Product Catalog \(NPC\)](#), and an [article](#) on [the Supply Chain Information Systems Maturity Model \(SCISMM\)](#).



GHSC-PSM has delivered enough contraceptives that, when combined with proper counseling and correct use, are estimated to **provide 90.1 million couple-years of protection to date.**

This includes **15.6 million couple-years of protection** in FY2021.

- Supported ongoing efforts of the African Resource Center’s outsourcing toolkit development. GHSC-PSM published [Contracting for Transportation of Public Health Commodities to the Private Sector](#) and [Implementing Activity-based Costing and Activity-based Management in Warehousing and Distribution](#).

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

**Contraceptive security tracking.** GHSC-PSM is finalizing data collection and validation for the 2021 round of the Contraceptive Security Indicators survey. This year’s survey includes several updates to further gauge the visibility of contraceptive commodities as well as a new section about COVID-19’s impact on several aspects of contraceptive security and the measures countries are taking to mitigate challenges.



In Q4, the project identified and quickly onboarded **a new, local supplier of essential medicines in Democratic Republic of the Congo (DRC)** to secure enough quality commodities for an **emergency delivery**, swiftly increasing availability of MNCH commodities.

**Maternal, Newborn and Child Health**

GHSC-PSM works to prevent child and maternal deaths by increasing access to quality-assured MNCH medicines and commodities and by providing global technical leadership on such commodities.

**Procuring and delivering commodities.** Since the start of the project, GHSC-PSM has delivered over \$23.8 million in MNCH drugs and commodities. In Q3 and Q4, the project sourced and procured amoxicillin, gentamicin, oral rehydration salts (ORS), and chlorhexidine for use in Liberia, Mozambique and Zambia. For more information, see section B4: Maternal, Newborn and Child Health.

**Providing international MNCH supply chain leadership and guidance.**

In FY 2021, GHSC-PSM worked with partners to update existing RH and MNCH forecasting guidance and validate the updates during quantification activities in Ethiopia, Ghana, Nepal, Nigeria and Pakistan. Feedback from the project, particularly from the validation period, was incorporated, improving the useability of the guide. For more information, see section B4: Maternal, Newborn and Child Health.

GHSC-PSM continued to collaborate with the Maternal Health Supplies Caucus—including through 2021–2025 work planning sessions for the group—and the PPH Community of Practice. In Q4, GHSC-PSM met with other USAID supply chain projects, MTaPS and Promoting the Quality of Medicines Plus (PQM+), to align work plan activities and collaboratively strengthen MNCH supply chains. The project also provided technical expertise to other MNCH supply chain groups and forums throughout FY 2021. For more information, see section B4: Maternal, Newborn and Child Health.

**Providing COVID-19 support.** GHSC-PSM published an update on [GHSC-PSM contract prices and lead times of MNCH commodities](#) and the [Ensuring Maternal, Newborn and Child Health Commodity Availability During COVID-19](#) resource to inform MNCH supply chain work in the countries it supports during COVID-19. For more information, see section B4: Maternal, Newborn and Child Health.

**Improving availability of quality MNCH commodities.** In FY 2021 in Ghana, the project conducted a landscape assessment of antihypertensives for use during pregnancy. GHSC-PSM also engaged

significantly in global discussions to support *private sector domestic wholesalers* and address barriers to their provision of quality MNCH commodities. GHSC-PSM shared its expertise at global fora and convened more than 30 organizations to generate solutions on the topic. This meeting will inform future project activities with these organizations to support domestic wholesalers. It also informed the project's current partnership with the Zambian Pharmaceutical Business Forum (ZPBF) and International Federation of Pharmaceutical Wholesalers, Inc. to work closely with ZPBF to improve the group's ability to avail quality commodities. For more information, see section B4: Maternal, Newborn and Child Health.

***Improving management of PPH commodities.*** The project continues to stay abreast of what PPH commodities are most clinically efficacious, cost-effective and appropriate for use in the environments in which health workers are using them in the countries we support. The project held three informational webinars in FY 2021 for country office staff to generate idea sharing and increase understanding of these PPH commodity options, including one in French.

GHSC-PSM worked in Malawi and Mozambique to assess the supply chain for PPH commodities. ***In Malawi***, the project assessed how temperature conditions and current procurement and inventory management policies may impact the quality of oxytocin available to health workers. Findings were used to generate recommendations to Malawi's government and will help develop a PPH 2022 commodity supply strategy. ***In Mozambique***, findings from the assessment are informing the government's policies—in Q4 the Ministry of Health issued a memo requiring that all oxytocin procured must be appropriately labeled for its required temperature range to maintain its quality. For more information, see section B4: Maternal, Newborn and Child Health.

***Supporting data-informed decision-making for MNCH commodities.*** In Q4, the project submitted end-use verification reports for Guinea, DRC, Liberia and Nepal. GHSC-PSM also gathered country teams' feedback on the recently developed catalog of MNCH data tools and committed to integrating data tools that were missed in the first version. For more information, see section B4: Maternal, Newborn and Child Health.

***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 providing technical assistance to 20 countries in FY 2021. GHSC-PSM helped mitigate MNCH supply chain risks in Ethiopia due to COVID-19 and delivered oxytocin to avoid stockouts in Malawi. The project also supported development of Mali's government budget for MNCH commodities so that USG procurement funds could be used for additional technical assistance. For more information, see section B4: Maternal, Newborn and Child Health.

## **STRENGTHENING HEALTH INSTITUTIONS**

GHSC-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. GHSC-PSM produced two landmark documents with TO3 funding that focus on private sector concepts and add to [the Africa Resource Center's Outsourcing Toolkit](#), designed to support MOHs in outsourcing selected elements of their public health supply chains:

- [“Contracting for Transportation of Public Health Commodities to the Private Sector”](#)
- [“Implementing Activity-based Costing \(ABC\) and Activity-based Management \(ABM\) in Warehousing and Distribution”](#)

Several years of investment in strengthening supply chain systems are yielding important innovations and positive results on many fronts. Examples include:

- In **Burundi** in FY 2021, GHSC-PSM developed a dashboard to support decision making that incorporates data from all viral load and early-infant diagnosis diagnostic platforms used in the country. For the first time, central-level decision makers have data visibility on peripheral-level stock levels that they use to develop commodity distribution plans based on actual consumption. These data will also be used in the next annual forecast for laboratory commodities.
- In **Malawi**, GHSC-PSM supported expansion of the number of health facilities using OpenLMIS from 160 to 260 as part of an ongoing effort to improve facility-level health commodity tracking and accountability. The project configured and tested the COVAX vaccine tracking system using OpenLMIS, trained 66 Expanded Programme on Immunization system users on the COVAX tracking system, and completed deploying the COVAX tracking system into the production server.
- In **Mozambique**, electronic logistics management information system coverage now extends to all 11 provinces in the country. As of July 2021, 83 percent of health facilities (1,322 out of 1,580) nationwide reported data through the system, providing visibility to HIV, malaria, FP/RH, MNCH, and nutrition commodities.
- Also in **Mozambique**, GHSC-PSM supported the national scale-up of decentralized drug distribution of ARVs through private sector pharmacies, which expanded from four pilot sites in Maputo City to 67 across the country.
- In **Rwanda**, in collaboration with GHSC-PSM and the Regional Centre of Excellence for Vaccines, Immunisation and Health Supply Chain Management (RCE-VIHSCM), the MOH launched two eLearning courses that are hosted on the Ministry of Health and RCE-VIHSCM e-learning platforms. The courses will be available through the Regional Centre of Excellence e-learning platform to the estimated 2,000 health professionals in need of training at the time of its development, as well as to new staff as they are hired.
- In **Zambia** in 2021, GHSC-PSM developed and began testing a dispatch optimization tool for the Zambia Medicines and Medical Supplies Agency (ZAMMSA). The tool helps supply chain professionals plan and map deliveries to health facilities and other warehouses.

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

# INTRODUCTION

## A1. BACKGROUND

GHSC-PSM 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:

- The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) to help reach its HIV/AIDS global 95-95-95 testing, treatment, and viral-load suppression targets.
- The U.S. President's Malaria Initiative (PMI) to reduce malaria deaths and substantially decrease malaria morbidity toward the long-term goal of elimination.
- USAID's Family Planning and Reproductive Health (FP/RH) program to ensure that key reproductive-health commodities are available for safe and reliable voluntary family-planning.
- USAID's maternal and child health (MCH<sup>7</sup>) 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. The project procured commodities or provided TA to 62 countries over the life of the project (see Exhibit 6 below).

## A2. ABOUT THIS REPORT

We are pleased to present our annual performance report for FY 2021 (October 1, 2020, through September 30, 2021). 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.
- Annex A describes the activities GHSC-PSM has undertaken with **COVID-19 funding** to respond to the pandemic.
- Annex B provides **performance indicators** for October 1, 2020, through September 30, 2021 (annual indicators).

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<sup>7</sup> 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.

Given the size and complexity of GHSC-PSM, this report summarizes our primary efforts and achievements in FY 2021 and reflects only a fraction of the project's efforts each day to help people around the world live healthier lives.

Exhibit 6. Countries for which GHSC-PSM procured commodities (proc.) or provided technical assistance (TA) over the life of the project (does not include ventilator procurements)

	Proc.	TA		Proc.	TA
<b>AFRICA:</b>			<b>ASIA:</b>		
Republic of Angola	●	●	People's Democratic Republic of Bangladesh	●	
Republic of Benin	●		Burma	●	●
Republic of Botswana	●	●	Kingdom of Cambodia	●	●
Burkina Faso	●	●	Republic of Indonesia		●
Republic of Burundi	●	●	Republic of Kazakhstan	●	●
Republic of Cameroon	●	●	Kyrgyz Republic	●	●
Republic of Chad		●	Lao People's Democratic Republic	●	●
Republic of Côte d'Ivoire	●		Federal Democratic Republic of Nepal	●	●
Democratic Republic of the Congo (DRC)	●	●	Islamic Republic of Pakistan	●	●
Federal Democratic Republic of Ethiopia	●	●	Independent State of Papua New Guinea	●	
Republic of Ghana	●	●	Republic of Tajikistan	●	●
Republic of Guinea	●	●	Kingdom of Thailand	●	●
Republic of Kenya	●	●	Socialist Republic of Viet Nam	●	●
Kingdom of Lesotho	●	●	<b>LATIN AMERICA &amp; CARIBBEAN:</b>		
Republic of Liberia	●	●	Barbados		●
Republic of Madagascar	●	●	Republic of Colombia	●	
Republic of Malawi	●	●	Dominican Republic	●	●
Republic of Mali	●	●	Republic of Ecuador	●	
Republic of Mozambique	●	●	Republic of El Salvador	●	●
Republic of Namibia	●	●	Republic of Guatemala	●	●
Republic of the Niger	●	●	Republic of Haiti	●	●
Federal Republic of Nigeria	●	●	Republic of Honduras	●	●
Republic of Rwanda	●	●	Jamaica	●	●
Republic of Senegal	●	●	Republic of Nicaragua	●	●
Republic of Sierra Leone	●	●	Republic of Panama	●	●
Republic of South Africa	●		Republic of Paraguay	●	
Republic of South Sudan	●	●	Republic of Peru	●	
Kingdom of Swaziland (Eswatini)	●	●	Republic of Suriname	●	●
United Republic of Tanzania	●	●	<b>OTHER:</b>		
Republic of Togo	●		Ukraine	●	
Republic of Uganda	●	●	Republic of Yemen	●	
Republic of Zambia	●	●			
Republic of Zimbabwe	●	●			

## PROGRESS BY HEALTH AREA

This section summarizes GHSC-PSM's support over the last quarter 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 over **15.6 million patient-years of HIV treatment over the life of the project**, including nearly **912 thousand patient-years of treatment in Q4**.



To date, GHSC-PSM has delivered over **61.1 million bottles of tenofovir/lamivudine/dolutegravir (TLD)** to 29 countries, which would provide over **10.7 million patient years of treatment**.

**Multi-month dispensing** packages of TLD first-line treatment accounted for **100 percent of all quantities delivered** in Q4 and **99 percent of all quantities delivered** in FY 2021.



**A total of 56 countries procured HIV/AIDS medicines and commodities and received health supply chain systems strengthening** with HIV/AIDS funding.



Thanks to multi-month dispensing (MMD), patients likely saved over **7.2 million trips** to the pharmacy in Q4, **38.9 million over FY 2021** and **almost 67.8 million over the life of the project, saving patients time and money**.



GHSC-PSM has delivered enough ARVs and condoms to avert approximately 950,000 infections and 248,000 deaths.<sup>8</sup>



As of Q4, GHSC-PSM delivered nearly **32.7 million viral load tests** to **24 countries** to support testing scale-up, while viral-load and early infant diagnosis contracts have generated **\$35.2 million in savings through Q4**.

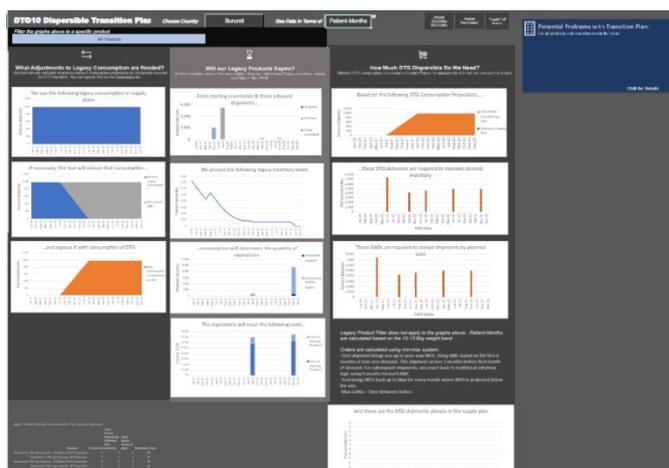
<sup>8</sup> These data points are LOP through June 30, 2021

## INTRODUCTION: REFLECTIONS ON FY 2021

The pandemic continued to shape the global supply chain landscape in FY 2021. Steps GHSC-PSM took to mitigate the challenges posed at the onset of COVID-19 were transformed into newly embedded approaches to better streamline various aspects of the supply chain.

From moving up the goods availability dates (GAD) of HIV/AIDS commodities to expanding multi-month dispensing (MMD) to include additional ARVs, the project continued to innovate and evolve its HIV/AIDS supply chain. Despite COVID-19's effects, the project maintained impressive on-time delivery, increasing the visibility and transparency of streamlined supply chain data, transitioning to a new pediatric ARV, expanding approaches to reach people living with HIV (PLHIV) through initiatives such as decentralized drug distribution, and strengthening laboratory services.

GHSC-PSM worked closely with country governments, clinical partners, suppliers, and USAID to support the **transition to the new pediatric ARV, dolutegravir (DTG) 10 mg**. Following the U.S. Food and Drug Administration (FDA) tentative approval of DTG 10 mg in November 2020, the project formed the DTG10 Transition Working Group to ensure a successful global pediatric regimen transition. The group developed and rolled out an interactive and dynamic modeling tool that was used across 21 countries to create a robust transition plan. The tool enabled countries and USAID to evaluate the impact of country-specific transition plans (i.e., the start and pace of DTG 10 adoption on the drawdown of legacy products and imminent product wastage, while identifying supply continuity risks).



DTG 10 Dispersible Transition tool.

GHSC-PSM placed an initial procurement order with the manufacturer for 352,000 DTG 10, 90-tablet dispersible bottles to secure production capacity, in anticipation of country demand that was estimated using the modeling tool. In FY 2021, GHSC-PSM delivered over 680,000 bottles to 12 countries to enable a timely transition to a more optimal pediatric treatment.

In FY 2021, GHSC-PSM also made strides in **data visibility**. The project completed standardization and mapping across Supply Chain-Facility-level AIDS Commodity Tracking (SC-FACT) and Procurement Planning and Monitoring Report HIV (PPMR-HIV) data collection activities. This eased the way for the development of the HIV/AIDS Data Visibility Dashboard, allowing GHSC-PSM to monitor stock distributions at facility and warehouse levels. This dashboard includes visualizations of stock level by facility, warehouse inventory data housed in the Warehouse AIDS Data Visibility, Evaluation and Reporting (ADVISER) tool, and drawdown of legacy ARVs. With greater data visibility, the project and USAID can better ensure countries have the HIV/AIDS commodity stocks they need for patients.

On the laboratory front, GHSC-PSM continued to build on its successes with implementation of the **global request for proposal (RFP)** for viral load (VL) and early infant diagnosis (EID) tests and services. Under the global RFP, GHSC-PSM shifted responsibilities of long-term ownership and maintenance of

HIV testing instruments from local entities to “all-inclusive” leasing arrangements with manufacturers. The new contracting model also pooled procurement across multiple countries, reduced costs and standardized service levels. The result: the RFP approach has resulted in almost \$35 million in cost savings this calendar year alone, all of which can potentially be reinvested in a country’s laboratory initiatives. Countries can better identify laboratory equipment and operation shortfalls to allow for targeted corrective measures. Additionally, the project continued to work on building out the Global VL Dashboard, which was first developed in FY 2020 by USAID, GHSC-PSM, and manufacturers. The dashboard will help PEPFAR address critical needs when it comes to maintenance and repair, instrument activities, and supply chain security as it provides near real-time instrument data, especially around throughput and error rates.

Lastly, GHSC-PSM began looking into and applying new approaches in FY 2021, specifically the **Delivered At Place** (DAP) pilot project. Through DAP, the supplier takes on increased logistics responsibility and assumes all risks for the delivery of goods. Under DAP, the project successfully delivered ARVs to three countries in FY 2021 all of which were on time.

In the coming fiscal year, GHSC-PSM will continue to work with countries and clinical partners on the transition to DTG 10 mg, while also advancing data visibility of various HIV/AIDS commodities at the country level.

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

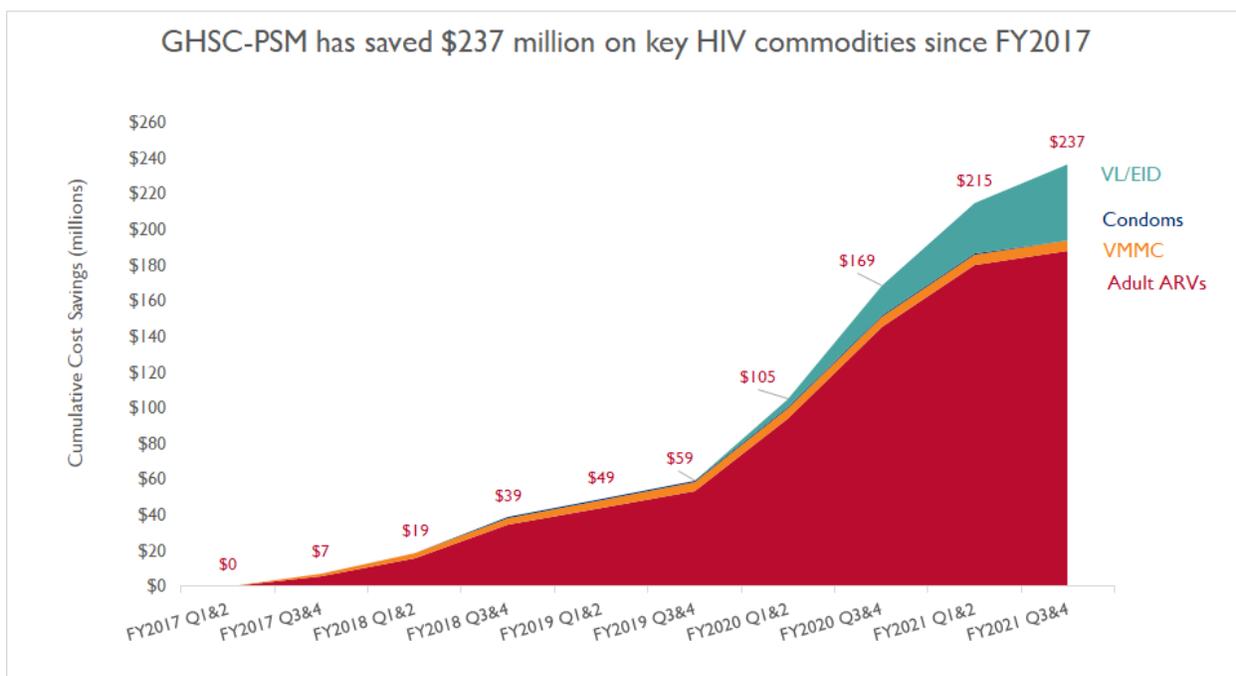
##### ***Procurement***

GHSC-PSM has procured more than \$2.6 billion in HIV commodities over the life of the project, with \$473.8 million worth of procurements in FY 2021. Adult ARVs made up 53 percent of all procurements by value in FY 2021.

##### ***Savings from strategic sourcing of HIV commodities***

GHSC-PSM’s strategic sourcing activities generated significant cost savings for PEPFAR and the countries and people served by its HIV programs. As shown in Exhibit 7, GHSC-PSM has saved \$236.9 million on core HIV commodities over the life of the project compared to baseline prices, including \$68.2 million in FY2021. Savings include a total of \$187.8 million on adult ARVs, driven almost entirely by the project’s TLD strategy. Per-tablet prices for 90- and 180-count bottles sizes remain about 4.5 percent lower than 30-count bottles, which continues to yield savings as the project focuses on TLD procurement in support of MMD. Lab cost savings has also topped \$45 million since the launch of the Global RFP. This figure includes GHSC-PSM orders with estimated goods availability dates through FY 2021; additional savings have also accrued to non-project buyers and for orders already planned for FY 2022.

Exhibit 7. Life-of-Project Savings on HIV Commodities



**Deliveries**

GHSC-PSM delivered \$598 million in HIV commodities to countries in FY 2021. Timeliness of GHSC-PSM deliveries remained consistently strong for standard OTD over the reporting period, as shown in Exhibit 8. In Q4, OTD was at 88 percent for HIV (79 percent for COVID-19 impact). GHSC-PSM’s on-time in-full (OTIF) rate measures the percentage of deliveries during a given period delivered on-time and in-full. 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, averaging 85 percent over FY 2021. See Annex A for further details.

**OTD and OTIF**

Over the life of the project, GHSC-PSM has delivered nearly \$2.4 billion in HIV commodities to countries. As previously mentioned, timeliness of GHSC-PSM HIV deliveries remained consistently strong. The high degree of uncertainty, extreme volatility and freight costs in global supply chains caused by the pandemic continued to impact a large number of orders in Q4 FY 2021, as shipping lanes continue to have a backlog and unloading containers at port continues to face delays.

Exhibit 8. HIV Commodities, OTD

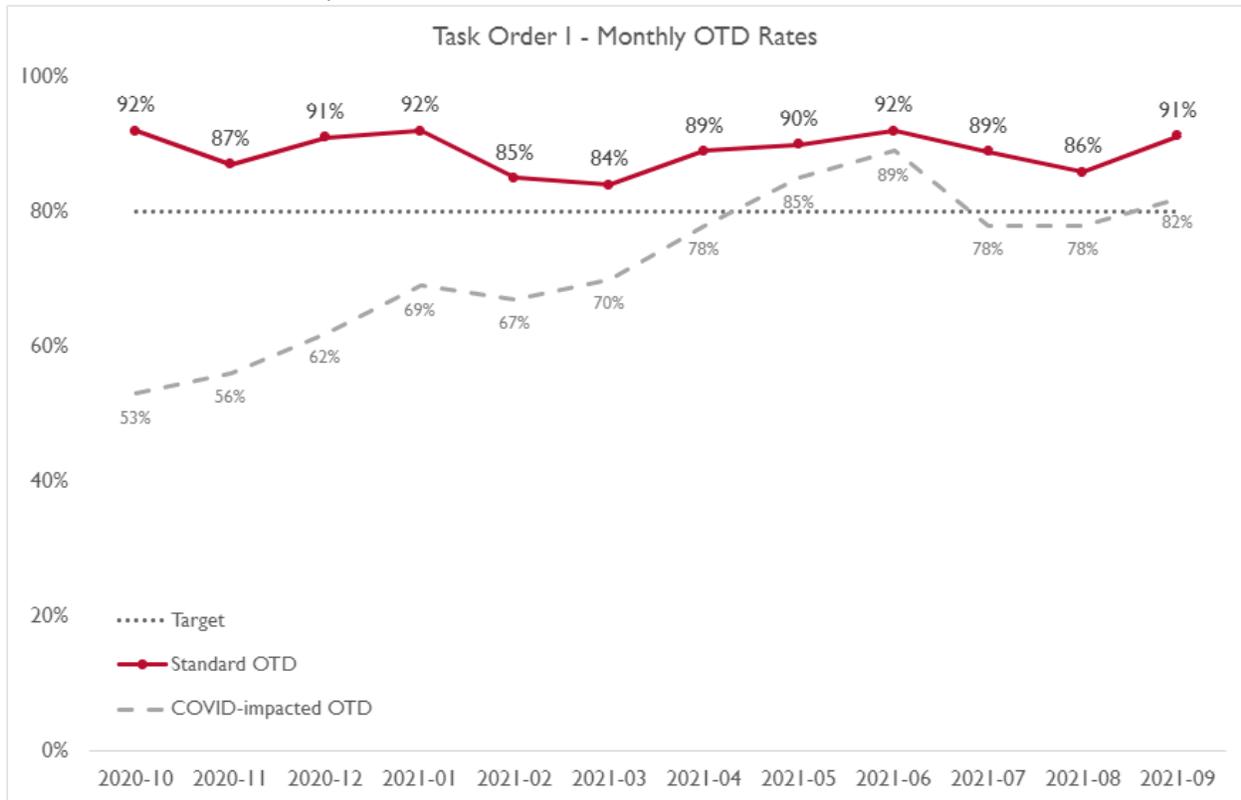
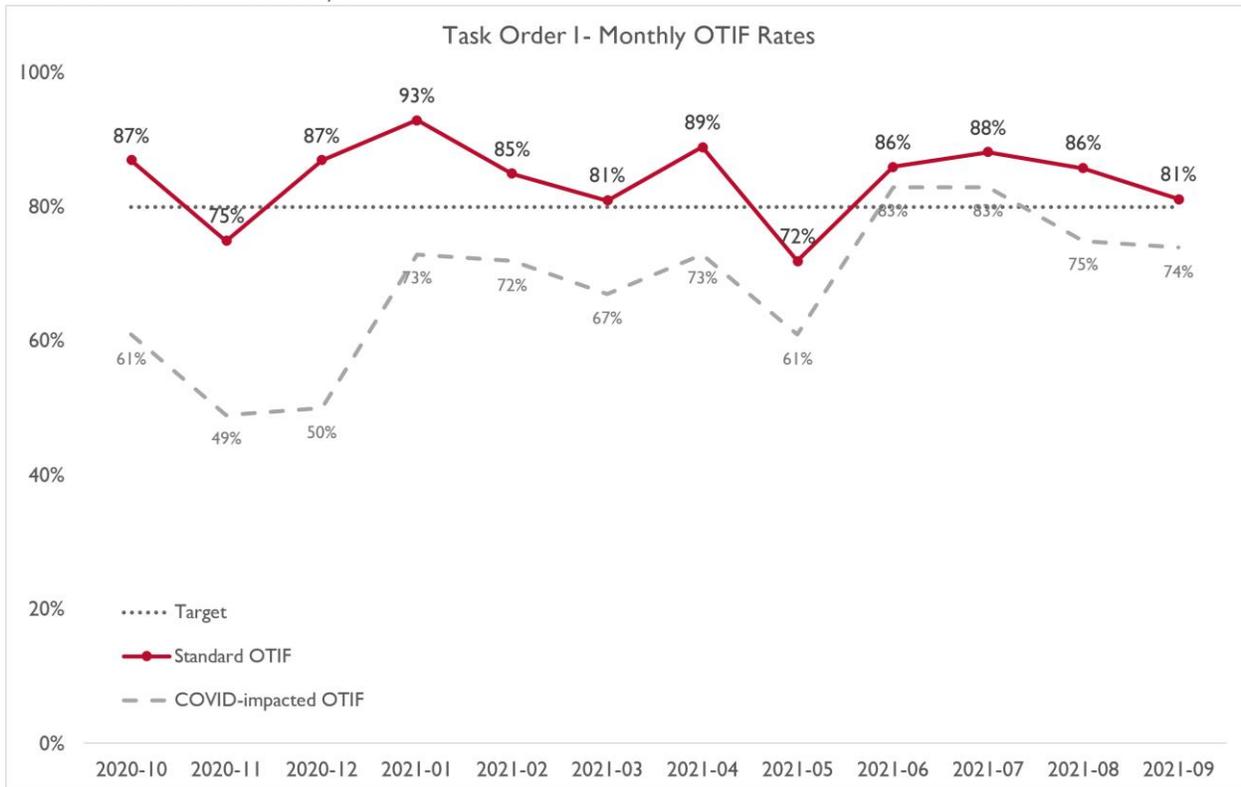


Exhibit 9. HIV Commodities, OTIF



## SUPPORTING PEPFAR'S HIV PREVENTION AGENDA

### *Pre-exposure prophylaxis*

Daily oral pre-exposure prophylaxis (PrEP) using the antiretroviral medicines tenofovir/emtricitabine (TE) or tenofovir/lamivudine (TL) dramatically reduces the risk of HIV infection in people who take it as directed. GHSC-PSM updated the regional distribution center (RDC) stocking strategy to include TE and TL as stocked products to support PrEP scale-up in countries. Stocking of the products enabled 40 percent of PrEP orders to be procured ahead of country order placements, resulting in product deliveries in line with transition plans. In FY 2021, GHSC-PSM delivered \$18.9 million worth—more than 4.9 million PrEP bottles—to 21 countries. During this quarter, \$4 million worth of product was delivered to Democratic Republic of the Congo (DRC), Eswatini, Guatemala, Mali, Nigeria, Rwanda, Uganda, Vietnam and Zambia.

### **Commodities Procured for HIV/AIDS Programs**

- ARVs
- Diagnostics
- Essential medicines
- Injectable anesthetics
- Laboratory reagents
- Male and female condoms
- Personal lubricants
- VMMC kits

As more countries have initiated and stabilized their PrEP scale-up, in Q4, GHSC-PSM and USAID agreed to move from a monthly to quarterly analysis of PEPFAR-funded PrEP commodity deliveries and the impact of in-country scale-up for the PrEP program. The analysis generates qualitative and quantitative data from 24 countries to monitor stock levels and scale up progress. GHSC-PSM's regular communication with countries assisted them in adapting to the dynamics of their PrEP scale up programs by advancing or delaying shipments when necessary.

### *Condoms*

In Q4, GHSC-PSM conducted a condom commodity council to review the effects that COVID-19 and market demand changes have had on pricing and availability of key raw material inputs. The project analyzed market trends and worked with suppliers to understand their production concerns over increasing costs. Prices for natural rubber latex, the primary raw material for condom formulation, increased 30–45 percent from 2020. Residual effects from the price surge will likely inflate latex prices for condom manufacturers in the next 12 months. The secondary key input is silicone oil. Suppliers expressed availability as their main concern, followed by a dramatic 40–97 percent price increase. Market analysis and supplier data showed that laminated aluminum foil wrapper and paper packaging prices also increased an average of 20–25 percent last year. Due to rising costs of all key raw material inputs, the project anticipates male condom and lubricant prices to increase 15-25 percent for FY 2022. The annual pricing refresh activity was released in Q4 and pricing for male condom and lubricant suppliers will be updated in Q1 FY 2022.

### *Voluntary medical male circumcision (VMMC) kits*

In Q4, GHSC-PSM awarded contracts for the reusable instruments (non-sterile) for Forceps Guided Procedure for Mozambique. The project worked with the Global Health Supply Chain-Quality Assurance (GHSC-QA) program to support the temporary reinstatement of a previously ineligible supplier. GHSC-PSM also carried out market analysis related to proposed specification changes to surgical and examination gloves to determine the supply chain implications that would result from any change and presented this analysis to USAID. In Q1 FY 2022, the project will revisit its current sourcing strategy for VMMC kits and plan to release a request for proposal for a price refresh.

### ***Essential medicines***

USAID requested GHSC-PSM, through a technical directive memorandum, to procure essential medicines for VMMC programming in Malawi, ensuring the country is stocked. To do so, the project signed a contract and onboarded a new local supplier. The first deliveries from the local supplier occurred in Q4. Also, the project supported GHSC-QA with the evaluations of local wholesalers in Malawi and Mozambique. Moving forward, GHSC-PSM will work with GHSC-QA to determine which wholesalers will be audited and ensure the process for procurement from local suppliers is updated. In Q1 FY 2022, GHSC-PSM will release a request for quote for a price refresh in accordance with the current fixed-price schedule.

### ***Tuberculosis preventive treatment (TPT)***

According to the [World Health Organization's 2021 Global Tuberculosis \(TB\) report](#), 7.2 million people living with HIV were treated with TPT between 2018 and 2020, exceeding the 6 million target. Since scale-up began in 2019, GHSC-PSM delivered more than 4 million TPT treatment courses globally. In FY 2021 the project continued to work with countries to ensure PLHIV received the treatment needed to prevent TB, which is still the leading cause of morbidity among this global population.

### ***Three months of weekly high-dose isoniazid/rifapentine (3HP)***

GHSC-PSM delivered orders of rifapentine/isoniazid 300 mg/300 mg fixed-dose combination (FDC) tablets to four countries: Mozambique, Uganda, Zambia, and Zimbabwe in Q4.<sup>9</sup> By the end of the quarter, the ARV/3HP Procurement Working Group (APWG) confirmed an updated allocation from the sole source supplier of this commodity, which enabled GHSC-PSM to fulfill PEPFAR's FY 2021 demand. GHSC-PSM is working with the supplier to confirm GADs for these orders. Also, in Q4 GHSC-PSM began conducting an analysis of TPT shipments and country stock projections to provide better visibility into the transition to, and scale up of, 3HP for TPT-supported countries. This initiative will continue into Q1 FY 2022.

### ***Isoniazid Preventive Therapy (IPT)***

GHSC-PSM delivered orders of isoniazid 100 mg, isoniazid 300 mg, and cotrimoxazole/isoniazid/pyridoxine 960/300/25 mg tablets to Côte d'Ivoire, Haiti, Rwanda, and Zambia in Q4.<sup>10</sup> With most GHSC-PSM-supported TPT countries transitioning to 3HP in FY 2021 and FY 2022, GHSC-PSM continued to support these countries implementing IPT with the procurement of isoniazid.

## **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 procurement and international freight. The project promotes better management of RTK orders and deliveries through regional- and central-level stock data collection through the HIV/AIDS Data Visibility Dashboard. GHSC-PSM shares these data monthly with GHSC-RTK to guide RTK procurement

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<sup>9</sup> Mozambique received 13,067, Uganda 15,000, Zambia 15,363, and Zimbabwe 31,503 packs of rifapentine/isoniazid 300/300 mg film-coated tablets. Each pack contains 3x12 blister pack tablets.

<sup>10</sup> One order of isoniazid 100 mg order for Côte d'Ivoire (1,442 10 x 10 blister pack tablets). One isoniazid 100mg order for Haiti (1,190 10 x 10 blister pack tablets). One cotrimoxazole/isoniazid/pyridoxine order for Rwanda (91,296 3 x 12 blister pack tablets). One isoniazid 300 mg order for Zambia (6,112 24 x 28 blister pack tablets).

planning and triangulate data, reviewing HIV testing targets against RTK stock in countries with PEPFAR-supported HIV testing programs.

## SUPPORTING THE SECOND 95: TREATMENT

### *ARVs delivered at place (DAP)*

In Q4, GHSC-PSM continued the DAP pilot program. Suppliers took on increased logistics responsibility and directly oversaw their in-country partners' logistics coordination and clearance of goods with GHSC-PSM. ARVs were delivered on-time to Tanzania, Uganda, and Zambia. An additional \$29 million in product is destined for delivery under DAP Incoterms. In FY 2022, GHSC-PSM will be expanding its DAP program. The participating pilot suppliers also finalized development and granted access to the supplier visibility portals. These portals give GHSC-PSM partners the ability to track the real-time status of orders while under supplier custody. This saves significant time as internal team members are not reliant on email or manual updates from the supplier on delivery status during order transit. Future updates and greater efficiencies are expected to occur throughout FY 2022.

#### What is DAP?

Under the Delivered At Place (DAP) Incoterm rules, the seller is responsible for, and assumes all risks for, the delivery of the goods, ready for unloading, at the named place of destination.

#### Supplying TLD

To date, the project has delivered **61.1 million bottles of TLD to 29 countries.**

This is enough to provide more than **10.7 million patient-years of TLD treatment.**

#### *TLD and multi-month dispensing*

In Q4, the project processed a \$27.9 million RDC restocking order for TLD. The number of eligible ARV suppliers for TLD increased from five to seven, and the average price offering decreased an average of 10 percent across the supply base. This resulted in cost savings of more than \$3.8 million compared to historic pricing.

In Q4, 100 percent of TLD delivered (by value) was in multi-month dispensing (MMD) packaging in 90- or 180-count bottles. The project delivered these commodities to 29 countries<sup>11</sup> (see Exhibit

10).

<sup>11</sup> The countries shown on the map are: Angola, Botswana, Burkina Faso, Burundi, Cameroon, DRC, Côte d'Ivoire, Ecuador, El Salvador, Eswatini, Ethiopia, Guatemala, Haiti, Honduras, Kenya, Mozambique, Namibia, Nigeria, Panama, Peru, Rwanda, South Africa, Tanzania, Togo, Uganda, Ukraine, Vietnam, Zambia, and Zimbabwe.

Exhibit 10. MMD of TLD



To ensure close coordination with key stakeholders on TLD uptake, the project regularly shares data and facilitates technical coordination meetings. In Q4, GHSC-PSM completed a new round of Country Progress Towards Key PEPFAR Initiatives—A Supply Chain Perspective Meetings (i.e., Country First meetings) for HIV/AIDS Task Order-supported

In FY 2021, GHSC-PSM delivered **19 million bottles of TLD 90 and 180 to 27 countries.**

### DTG 10 mg

A dispersible tablet, DTG 10 mg – a more effective pediatric ARV – will help further reduce the pill burden for children living with HIV while maintaining dosage flexibility. GHSC-PSM placed orders for 12 countries and will be monitoring drawdown of legacy products to support the transition.

countries. These meetings continued to include reviews of supply chain–related support and progress toward key PEPFAR initiatives, including adult and pediatric DTG transitions, MMD, decentralized drug distribution (DDD), PrEP, and HIV laboratory services support.

### Pediatric ARVs

GHSC-PSM continued collaboration with the APWG to track overall demand for pediatric ARVs. The lead time for zidovudine oral solution increased in Q4 due to reduced demand that required manufacturers to consolidate orders prior to production. In FY 2021, GHSC-PSM delivered more than 660,000 bottles (\$4.6 million) of DTG 10 mg to Burundi, DRC, Côte d'Ivoire, Eswatini, Ethiopia, Haiti, Namibia, Nigeria, Rwanda,

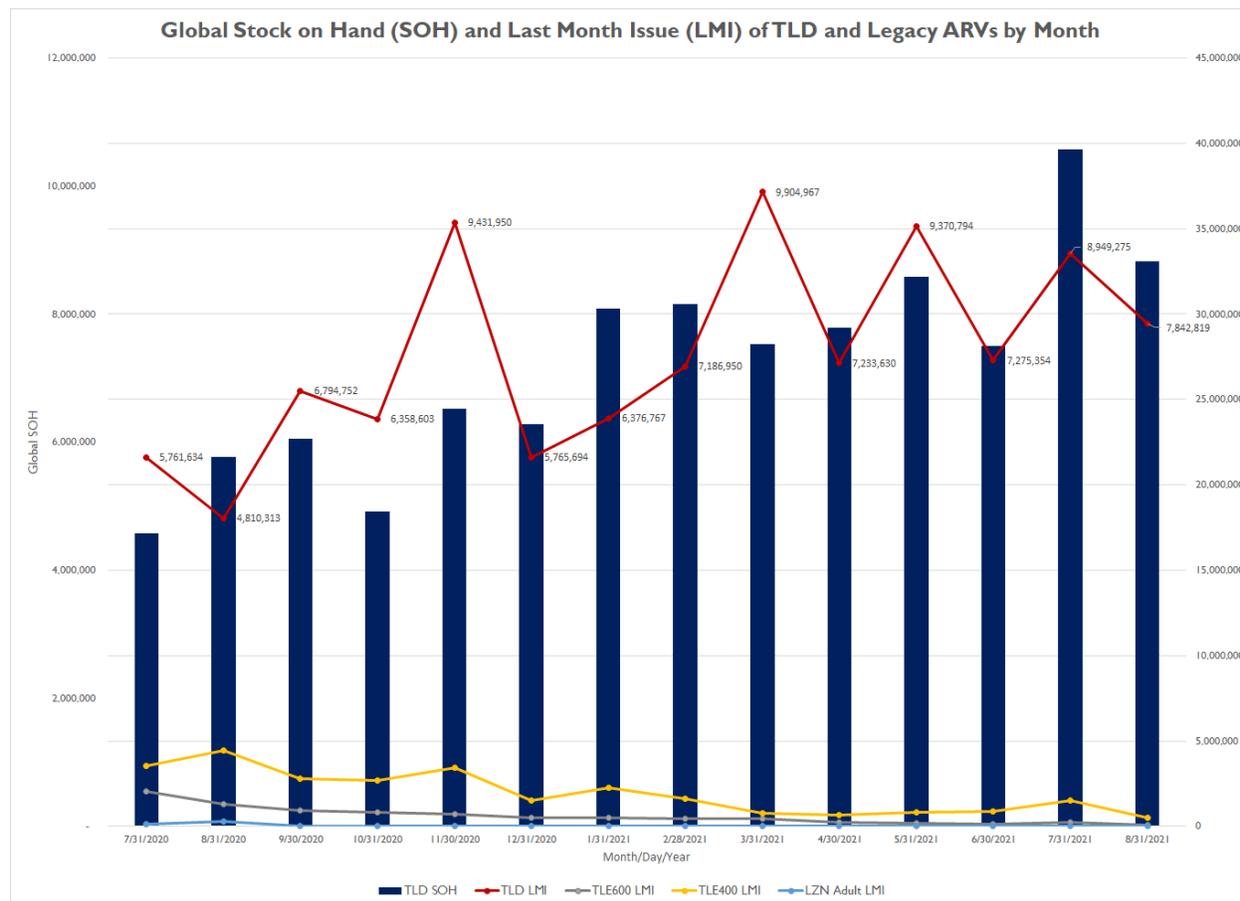
Uganda, Zambia, and Zimbabwe. These deliveries will ensure that each country can initiate their DTG 10 mg transition in line with their approved plans. Also, the DTG10 technical working group (TWG) performs monthly analysis of order and supply plan data to increase USAID and other stakeholder visibility into the pace and progress of country transitions.

***Legacy ARV drawdown***

To support efficient transition to more effective treatment regimens (TLD), and minimize remnants of less-effective, older first-line ARV regimens (legacy ARVs), GHSC-PSM collects, reviews and compiles monthly ARV inventory data from 31 central and 80 regional warehouses in 22 countries through First-Line ARV Reporting and Evaluation (FLARE) reports. These reports are submitted in Excel and PowerPoint every month, but can also be accessed on the TO1 Data Visibility Dashboard. GHSC-PSM aligned ARVs in the project's product catalog with the PEPFAR formulary to promote optimal ARV regimen ordering. The project submits weekly reports to USAID outlining any 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.

According to the data collected in the FLARE reports, global issues of LZN, TLE600, and TLE 400 decreased by 98 percent, 94 percent, and 89 percent, respectively, since August 2020. (See Exhibit 11.)

Exhibit 11. Drawdown of stock-on-hand and reduced consumption of LZN from August 2020 to August 2021<sup>12</sup>



The analysis above shows successful drawdown of efavirenz- and nevirapine-based regimens and an overall increase in TLD stock-on-hand each month from August 2020 to August 2021.

### SUPPORTING THE THIRD 95: VIRAL LOAD TESTING

#### Implementing viral load awards

Starting in early Q2 and through the end of Q4, GHSC-PSM and designated non-project buyers (e.g., Global Fund, Ministries of Health, and national procurement agencies) placed orders for 13 million viral load (VL) and early infant diagnosis (EID) tests for deliveries in 2021 and generated more than \$34 million in savings (compared to the pre-global RFP prices) under the terms of the global service level agreements (SLAs) with the three VL/EID manufacturers. The total spent on these orders amounts to approximately \$136 million.

<sup>12</sup> Countries included in this analysis were Botswana, Burundi, Cameroon, Côte d'Ivoire, DRC, Eswatini, Ethiopia, Ghana, Haiti, Lesotho, Mali, Mozambique, Namibia, Nigeria, Rwanda, Uganda, Zambia, and Zimbabwe.

In Q4 GHSC-PSM began analyzing data and consulting in-country stakeholders in preparation for making 2022 (calendar year) global volume commitments to VL manufacturers to secure the most favorable prices for PEPFAR-supported countries.

Working closely with USAID and the VL manufacturers, in Q4 GHSC-PSM continued to improve diagnostics supply chain transparency, commodity security, and predictive analytics through the development of the global VL dashboard. The dashboard provides GHSC-PSM and PEPFAR access to real-time, actionable data across countries, instrument platforms, test types, and more. During this quarter, the project completed four new dashboard modules that include: Key performance indicators (KPIs), Test Results, Anomaly Detection (for monitoring testing failure rates), and Consumption Forecast. The modules are all available and live on the dashboard. In addition, integration with two suppliers is complete, Abbott for KPI and test and error data, and Roche for test and error data.

Lastly, PEPFAR, GHSC-PSM, and VL manufacturers planned for the transition of older generation testing platforms and the introduction of new machines across a range of PEPFAR-supported countries in Q4.

#### ***Procurement of viral load and laboratory supplies***

In Q4, GHSC-PSM completed an automation tool to support the sourcing and quotation process for VL/EID under long-term agreements with manufacturers. Pre-negotiated (ceiling) prices can now be pulled into a document and sent to manufacturers for confirmation using the tool, which will reduce cycle time and level of effort for these procurements.

Lab consumables such as pipettes and pipette tips, and consumables used for VL and COVID-19 tests, remained in short supply globally due to the pandemic. Suppliers are rationing products as they ramp up their manufacturing capacity for COVID-19 and HIV RTKs. To mitigate risks, GHSC-PSM reviews product allocations with large suppliers. In Q4, GHSC-PSM began conducting an analysis of country VL and EID stock projections and the impact of PEPFAR shipments. This analysis provides a countrywide, cross-platform view of VL/EID testing continuity and aims to act as an early warning for VL and EID tracker commodity stockouts while also contextualizing reports of stockouts.

***Data-driven lab optimization using Opti-Dx.*** Through historical procurement data, forecast data, instrument coverage, utilization rates, and global positioning system (GPS) data, the [Opti-Dx web-based tool](#) guides appropriate laboratory instrument selection. The lab optimization pilot using Opti-Dx started in Eswatini and continued in Uganda in Q4. 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 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. Data generated include the status of first-line ARV drawdown, the transition to TLD, and HIV commodity stockout risk. These reports help mitigate imbalances and avoid rationing and waste, where possible, by raising awareness, identifying opportunities to shift GHSC-PSM shipments, and supporting redistribution within a country.

GHSC-PSM continued to host monthly Proactive Stock Risk Management (ProStock) meetings in Q4. Building on the project's HIV/AIDS data collection and analysis, this meeting is a forum for GHSC-PSM

and USAID to present and discuss actual and potential gaps in HIV commodity access and implement action plans to address them.

In Q4, through data collection and analysis at central and regional warehouses, GHSC-PSM identified 20 HIV commodity stockout risks in ten countries and quickly resolved them. A further analysis by GHSC-PSM showed stockout and expiry risk mitigated for all categories of HIV products, including ARVs, PrEP, RTKs, and VL/EID in FY 2021. Common causes of stock risks included COVID-19-related challenges such as transportation issues; supplier issues such as unavailability of pharmaceutical ingredients; program scale-up issues, such as country operational plan funding cycle time and registration challenges; and government bottlenecks, such as waiver, regulatory constraints, and treatment guideline updates. Most stock risks were mitigated due to active donor coordination and bilateral data sharing. At times, borrowing stock (redistributing facility stock and inter-warehouse transfers) and using alternative treatments were necessary.

## COUNTRY SUPPORT

The HIV/AIDS Task Order funds supply chain systems strengthening in 36 countries.

In Q4, GHSC-PSM in **Indonesia** formalized an agreement with a private, accredited laboratory that conducts VL testing services in the Greater Jakarta region. The agreement will support the acceleration and scale-up of VL testing services in Jakarta and Greater Jakarta by creating a system in which samples collected at public health institutions can be tested by the private laboratory. The new partnership is also anticipated to reduce average testing service turnaround time (i.e., less than seven days). Samples from 62 health facilities in Jakarta were initially selected as part of the new agreement to send their samples to the private laboratory. This new partnership is an exciting example of the ways that GHSC-PSM can support the integration of private sector vendors—and the efficiencies they bring to bear—into public health supply chains to ensure patients have continuous access to quality-assured VL testing with short turnaround times.

Decentralized drug dispensing through private pharmacies (DDD PP) of ARVs is a client-centric, convenient, differentiated care model with proven potential to improve patient retention in care, adherence to and outcomes of treatment by decreasing congestion and workload at high-volume sites and allowing new client enrollment. In **Mozambique**, GHSC-PSM works closely with the Ministry of Health USAID, the EPIC project, Friends of Global Health, and PEPFAR clinical implementing partners in the planning, rollout and implementation of ARV distribution and dispensing systems. In Q4, the project supported national scale-up from four pilot sites in Maputo City to over 67 private pharmacies across the country. The goal is to have a functional, secure, resilient, and scalable system to ensure future expansion to more sites. GHSC-PSM also supported the adaptation of the OpenLMIS electronic logistics management information system for the DDD PP to ensure visibility of ARV dispensing and management throughout the supply chain. Currently, over 2,000 clients are enrolled in the model across the country; 67 private pharmacy teams trained; 23 pharmacies with ARV stocks visible in the OpenLMIS ready to receive patients, and six pharmacies actively dispensing ARVs.

## B2. MALARIA



Delivered enough artemisinin-based combination therapies (ACTs) to treat nearly **387.5 million infections over the life of the project**, including **41.7 million in Q4** and **116.4 million in FY 2021**.



**A total of 29 countries procured malaria medicines and commodities**, and **23 countries received health supply chain systems strengthening** with malaria funding under the contract in Q4.



Delivered enough long-lasting insecticide-treated nets (LLINs) to provide **protection from malaria for over 20 million people in Q4** and **over 94.5 million people in FY 2021**.



Investigated upstream markets of key starting materials for artesunate, lumefantrine, and sulfadoxine to evaluate **malaria commodity market health** and mitigate risks for commodity security and quality.

The U.S. President's Malaria Initiative (PMI) 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 global supply, demand, financing, and the 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 (MOPs). Since early 2020, GHSC-PSM has monitored sourcing, procurement, and delivery challenges related to COVID-19, informing risk mitigation efforts, and providing technical support to in-country supply chains.

### INTRODUCTION: REFLECTIONS ON FY 2021

In FY 2021, GHSC-PSM continued to see the ongoing effect of COVID-19 on the global health supply chain. The project continued to monitor and address the impacts of the pandemic, but increasingly from the vantage point of longer-term mitigation efforts. The tools and processes put into place to mitigate COVID-19 challenges over the course of FY 2020 and FY 2021 have become more firmly embedded, as the project works to streamline our supply chains in a post-COVID-19 world.

While the focus in FY 2020 was on the rapid reallocation of over 31 million mRDTs to prevent stockouts in seven high stockout-risk countries, in FY 2021, GHSC-PSM expanded focus to cover short-term and long-term COVID-19 mitigation efforts to ensure the uninterrupted supply of malaria commodities across the board. The sourcing strategies for mRDTs and ACTs and additional proactive procurement strategies that the project implemented this year were conducted based on lessons learned from the initial COVID-19 outbreak response from last fiscal year. The continuation and wide-scale implementation of these strategies is one of GHSC-PSM's biggest success stories for FY 2021.

On the technical assistance side, the biggest accomplishment was implementing the stockout reduction strategy. While the strategy was developed in FY 2020, GHSC-PSM focused on rollout to 21 country offices in FY 2021, which will be reflected in their FY 2022 work plans. The strategy encourages countries to prioritize activities that are likely to provide the highest impact in reducing stockouts. In aligning with PMI's new strategy, this technical assistance will enable GHSC-PSM to strengthen in-country supply chains to reach the unreached and ensure products are consistently available to all those who need them.

Also, the project led the rollout of the Quantification Analytics Tool (QAT), which resulted in measurable improvement in supply planning from countries. This is of critical importance to make sure that GHSC-PSM always has products available for patients in treating malaria due to uncertainties around the disease. As of the end of FY 2021, the project onboarded Benin, Burkina Faso, Burundi, Cameroon, Ethiopia, Laos, Malawi, Mali, Nigeria, Sierra Leone, Zambia, and Zimbabwe, which account for half of GHSC-PSM's portfolio of malaria TO countries. Additional countries will be trained and onboarded in FY 2022, pending Mission funding.

In FY 2022, GHSC-PSM is looking to build on what was accomplished in FY 2021 and how the project can incorporate the new 2021-2026 PMI strategy. A core area of the PMI strategy is strengthening community health systems. The project is exploring ways to leverage the stockout reduction strategy to expand into other community-level health systems strengthening activities. In using the stockout reduction strategy framework, GHSC-PSM is interested in helping countries think about priority community HSS areas the project can help support. With this in mind, GHSC-PSM is anticipating that these community-focused HSS activities will then be incorporated into country work plans for FY 2022. This community-focused approach is also paired with the goal of identifying more local manufacturers to mitigate source risks associated with being concentrated in one or two geographic regions. We currently procure certain products from manufacturers in Tanzania and Uganda, but are looking to expand further in FY 2022.

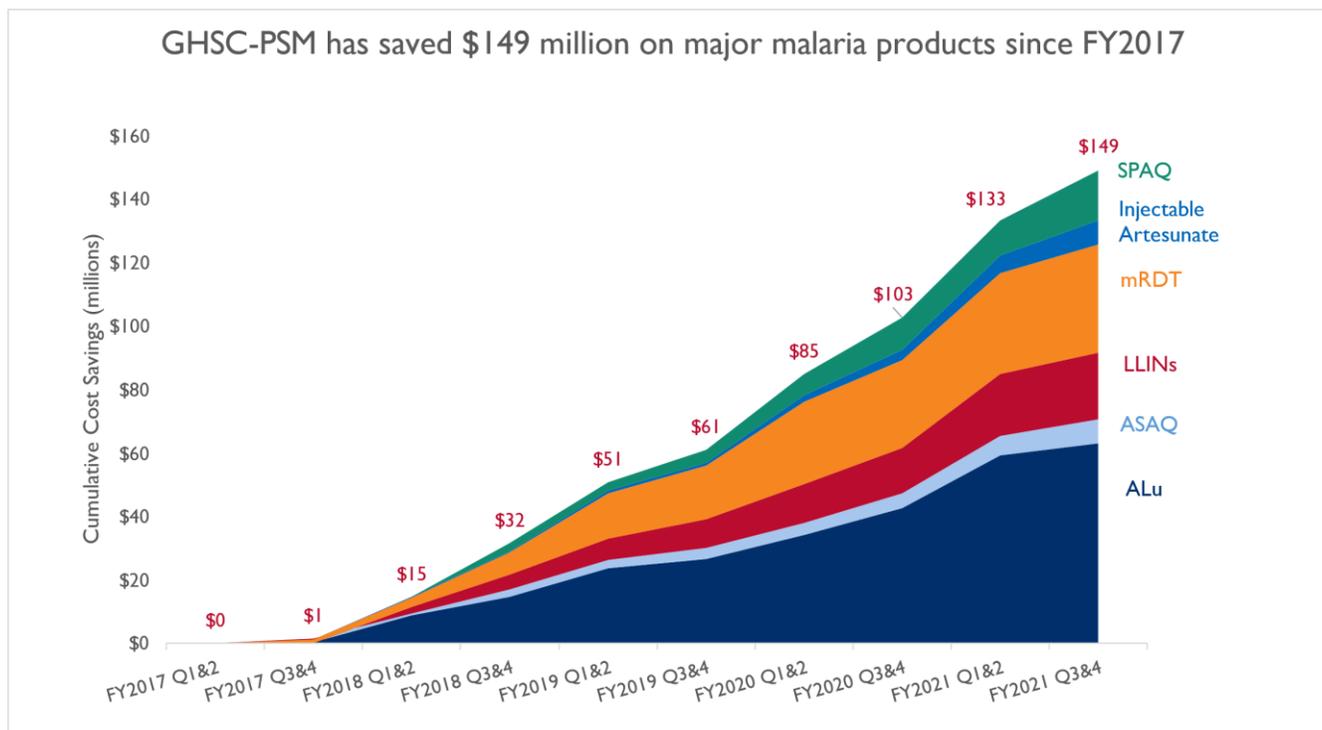
Long-term COVID-19 disruptions are driving up the cost of key starting materials. This required GHSC-PSM to conduct new sourcing events to update commodity pricing. Also, container shortages have severely limited the project's ability to move LLINs. These transshipment issues were more significant than production issues in FY 2021. The project anticipates these challenges will continue in FY 2022 and is exploring solutions to mitigate risk, such as focusing on air shipments for more agile deliveries. The project continues to work closely with suppliers to understand challenges and come up with creative solutions, including qualifying new products and vendors, offering alternative products to countries, and identifying manufacturing sources not subjected to export restrictions. These solutions are allowing the project to maintain a strong on-time-delivery (OTD) rate despite COVID-19 impacts.

Lastly, GHSC-PSM is focused on aligning with the PMI strategy of implementing tools to meet shared global priorities. Several tools developed in light of COVID-19 have helped streamline project work, including a Funding Allocation Decision Support tool to enable faster decision-making about spending down country pipelines and utilizing loans from the emergency account, revised forecasting that pulls from historical demand data, TO2 commodity category profiles and commodity portfolio reviews to identify risks with commodity markets and improved QA/QC protocols.

## COST SAVINGS ON MALARIA COMMODITIES

Commodity cost savings on core malaria products has reached \$149 million over the life of the project, including \$46.5 million in savings this fiscal year. This represents 24 percent of the total FY21 procurement value for these core commodities, and 21 percent of total procurement value for all malaria products. Weighted average prices for ACTs continue to be lower than baselines, although savings growth slowed in the second half of the fiscal year due to lower procurement volume and higher-priced emergency procurements of ASAQ. LLINs added savings as well, with high volumes of single-pyrethroid procurements yielding more than \$3 million in savings in the first half of the year. Volumes shifted more heavily toward PBO nets in the second half of the year, where, despite some price increases, the project added \$1.6 million in savings. For RDTs, prices have now stabilized following the market disruptions in 2020 and are expected to continue to fall. Other notable savings include injectable artesunate 60 mg vials, which saw its lowest average price so far, and SPAQ, with high volume procurements yielding \$4.6 million in savings in Q3 and Q4 alone.

Exhibit 12. Life-of-Project Savings on Malaria Commodities



### COMMODITY SOURCING, PROCUREMENT AND DELIVERY

GHSC-PSM regularly assesses the viability 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**

Although COVID-19 continues to impact the project’s suppliers and their upstream supply chains, particularly for malaria commodities, their ability to meet committed availability dates has improved across many commodities. In-country lockdowns have decreased as well, with Vietnam being the only supplier country that implemented lockdowns in Q4. Lead times for lab commodities have risen due to increased demand for the same lab commodities to be used for COVID-19 purposes; while suppliers for other commodities also adjusted lead times to account for extended lead times for raw materials and packaging components. The project continues to monitor and work to mitigate COVID-19 impact by soliciting bi-weekly updates from suppliers at the order line level to understand near-term, medium-term and long-term impact. GHSC-PSM obtains updates from suppliers through regularly scheduled business review meetings and global donor collaboration calls that feed into monthly GHSC-PSM commodity risk profile updates. These commodity risk profiles capture the latest supplier and market intelligence regarding malaria commodities, from the status of supplier production and sourcing of APIs, KSMs and packaging materials, to logistics constraints. Commodity risk profiles further examine currently sourced volumes by supplier and geographic region against COVID-19 impact to inform potential risk for future orders.

### **Strategic sourcing**

In Q4, GHSC-PSM strategic sourcing of malaria commodities focused on:

- **Concluding strategic tenders for critical commodity categories.** In Q4, GHSC-PSM finalized its strategic tenders for FY 2022 order fulfillment of its key product categories, such as ACTs, severe malaria medications, sulphadoxine-pyrimethamine + amodiaquine (SPAQ), LLINs and mRDTs. The primary objectives of these tenders were to update fixed pricing and mitigate risk to help ensure the uninterrupted supply of these critical health commodities. In Q4, the project focused on evaluating received offers and finalizing target volume allocations for FY 2022. An additional strategic tender is planned for Q1 FY 2022, which will solicit offers for another key product category, sulphadoxine-pyrimethamine (SP).
- **Executing long-term agreements with laboratories for third-party testing services.** To accommodate the testing of pharmaceuticals and LLINs, GHSC-PSM uses a network of third-party testing laboratories. In Q4, the project executed long-term agreements with awarded laboratories, successfully expanding its network of eligible laboratories and ensuring sustainable fixed pricing for the ongoing provision of critical testing services.
- **Expansion of forecasting to increase supply chain visibility.** To support suppliers' efforts to plan procurement of KSMs and production of finished products, the malaria Task Order is increasing the frequency of supplier-specific annual forecasts for suppliers that receive target volume allocations under strategic tenders. In FY 2022, the project will provide these suppliers with rolling quarterly forecasts reflecting the expected production needs for the applicable quarter(s).

### **Procurement and deliveries**

In Q4, GHSC-PSM procured malaria commodities for 29 countries<sup>13</sup> (including all PMI countries and one USAID-designated malaria country). This included \$42.2 million in malaria medicines and commodities.

**OTD and OTIF.** Timeliness of GHSC-PSM deliveries remained consistent and extremely strong for standard OTD and OTIF over the reporting period for malaria commodities in Q4, with a rate of 96 percent (93 percent for COVID-impacted) (see Exhibit 13). The OTIF rate in Q3 was 85 percent (81 percent for COVID-impacted). This is despite the high degree of uncertainty and the extreme volatility in global supply chains caused by the pandemic.

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<sup>13</sup> GHSC-PSM procured malaria commodities for the following countries: AFRICA: Angola, Benin, Burkina Faso, Burundi, Cameroon, Côte d'Ivoire, DRC, Ethiopia, Ghana, Guinea, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Tanzania, Uganda, Zambia, Zimbabwe; ASIA: Burma, Cambodia, Laos, Thailand.

Exhibit 13. Malaria Commodities, OTD

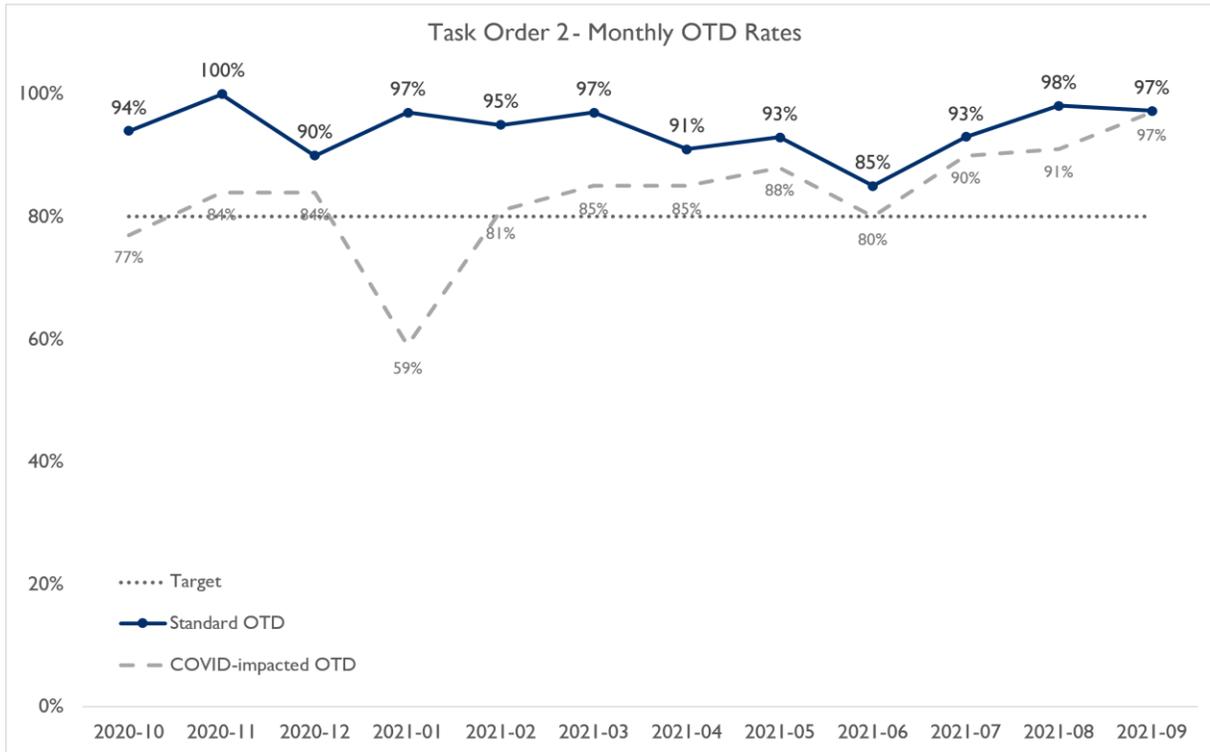
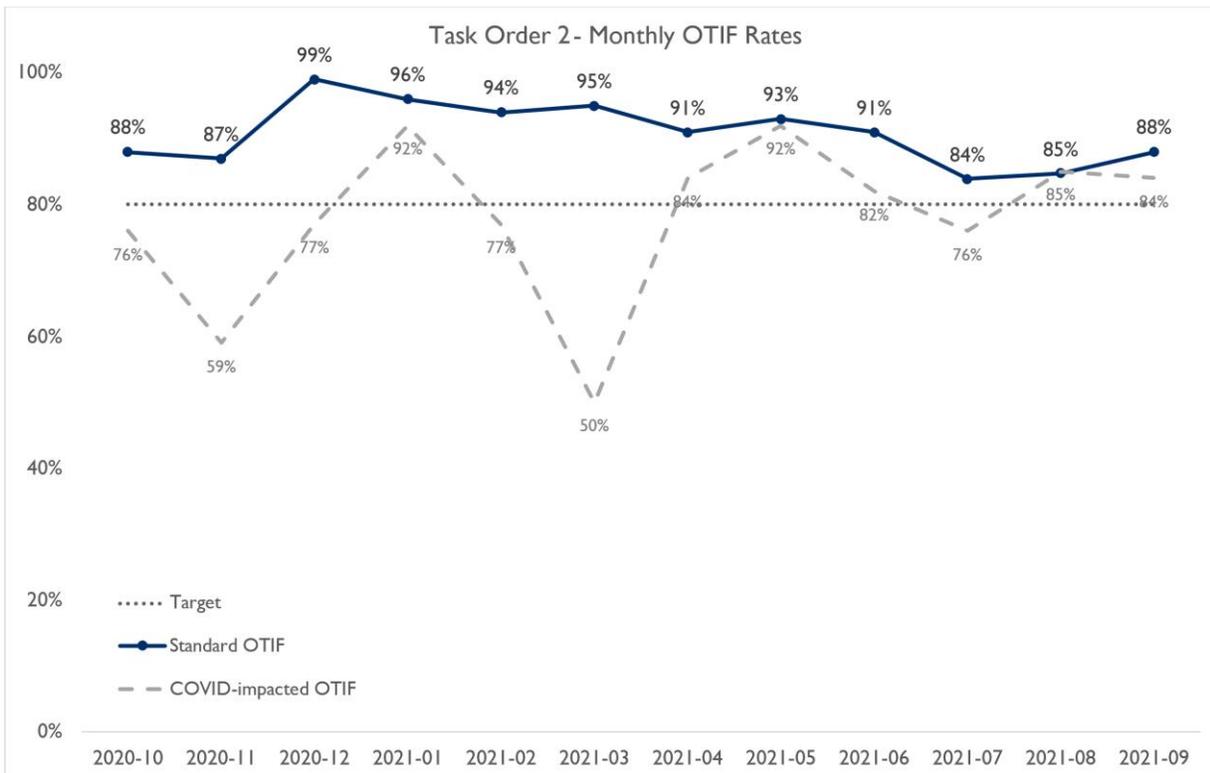


Exhibit 14. Malaria Commodities, OTIF



### ***Global sourcing collaboration***

GHSC-PSM participates in the Malaria Pharma Task Force<sup>14</sup>, mRDT Task Force<sup>15</sup>, and IRS/ITN Task Force<sup>16</sup>. These task forces provide a valuable forum for information exchange on market risks and promote 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 leading role in the Malaria Pharma Task Force KSM/API working group, which increases visibility and identifies and mitigates risks related to the upstream supply chains of KSM and API for finished malaria pharmaceutical products. In Q4, the working group focused on evolving developments in the sulfadoxine KSM market. Used in the manufacture of the project's highest-priority drug (SPAQ) for malaria prevention in children and in SP for pregnant women through IPTp programming, the intermediate has experienced ongoing economic constraints impacting production. Mainly manufactured in China, the pollutant and energy-intensive nature of the KSM production challenges has been exacerbated by known offline periods during the summer months, China's carbon neutral policy (several KSMs and APIs are energy intensive), and price increases in the crude oil and coal markets. Intelligence shared in this forum has informed project inquiries throughout the sulfadoxine value chain to ensure the continuous supply of the lifesaving drug.

GHSC-PSM also works with the Global Fund, United Nations Children's Fund (UNICEF), and the Malaria Consortium to share demand information and to coordinate procurement planning for SPAQ for FY 2022 seasonal malaria chemoprevention (SMC) campaigns. In Q4, the project identified opportunities for pooled procurement and collective bargaining, which secured timely supply of artesunate suppositories. The project continues to lead and facilitate monthly meetings with PMI, Global Fund and UNICEF to collaborate around mRDT procurements, supplier engagement, and stockout prevention.

### **PROACTIVE PROCUREMENT STRATEGY**

GHSC-PSM invests in and adapts a proactive procurement strategy for key malaria commodities. Since the onset of the COVID-19 pandemic, the project has executed several of these strategies, which are designed to move rapidly 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 it to secure production capacity far earlier in the ordering process—often well in advance of receiving actual orders. The intent of these proactive procurement strategies is to ensure access to supply of critical commodities when countries need them, to reduce fulfillment lead times, and to hedge against considerable uncertainty and disruption in these markets. These strategies are enabled in part by use of demand data—derived from country supply plans and the Procurement Planning and Monitoring Report for malaria (PPMRm)—which the project

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<sup>14</sup> Pharma Task Force members include the Asia Pacific Leaders Malaria Alliance Secretariat, CHAI, the Gates Foundation, GHSC-PSM, the Global Fund, Impact Malaria, the Malaria Consortium, Medicines for Malaria Venture (MMV), MSF, Pan-American Health Organization, PATH, PMI, UNICEF and WHO.

<sup>15</sup> mRDT Task Force members include CHAI, Foundation for Innovative New Diagnostics, the Gates Foundation, the Global Fund, the Malaria Consortium, Médecins Sans Frontières, PATH, PMI, GHSC-PSM, United Nations Children's Fund (UNICEF), United Nations Development Program, Unitaid and WHO.

<sup>16</sup> ITN/IRS Task Force members include the Against Malaria Foundation (AMF), CHAI, the Gates Foundation, GHSC-PSM, the Global Fund, Innovative Vector Control Consortium (IVCC), International Federation Red Cross (IFRC), MMV, MSF, PMI, Population Services International (PSI), Results In Health, UNICEF, Unitaid and WHO.

translates into country stock risk dashboards that illustrate the timing and scope of upcoming stock risks. These strategies are designed in part to mitigate these future stock risks.

In Q3, the project began converting the contractual letter finalized in Q2 into purchase orders for the proactive procurement of artesunate injectable. In Q4, the contractual letter was almost completely drawn down, with only a small remainder of goods unallocated with a GAD in February 2022.

After finalizing analysis that began in Q3, the project decided not to further pursue any proactive procurements, as the state of each market lent itself to the continued use of routine fulfillment without the need for any proactive planning/intervention.

## **QUALITY ASSURANCE**

### ***QA strategy***

In Q4, the project finalized the GHSC-PSM Malaria Task Order QA strategy and obtained PMI approval to implement the strategy starting September 1. This strategy builds on the adjusted QA/QC processes that were implemented to address COVID-19–related restrictions. The adjusted QA/QC process takes a new approach in inspection, sampling and testing of a product based on an evaluation of risk of the commodity type, the supplier’s quality management system (QMS), and the historical data that GHSC-PSM has for that particular product. The adjusted QA strategy continues to allow the QA team to monitor the quality of all products while focusing resources and attention on products that are deemed as higher risk. The process also allows consignments deemed as low risk to be evaluated for further, increasingly randomized testing, which improves efficiency in QC processes, without affecting our ongoing shipments. The new strategy continues to reduce the need to expend resources in inspection sampling and testing and decrease overall lead time in getting products to patients.

### ***Strategies and innovations***

In Q4, the project continued its efforts to innovate and implement more robust QA and QMS within the LLIN market. This included implementing a strategic process to incorporate the strength of LLIN suppliers’ QMS into the allocation process. GHSC-PSM generated a QMS questionnaire that the LLIN suppliers completed in response to the LLIN allocation RFP. LLIN supplier responses were scored, and the scores were factored into final allocation volumes.

The project also broadened the scope from quality-related activities pre-procurement for eligibility and pre-shipment to include the entire lifecycle of the LLINs covering quality-related activities during manufacturing and during the use of LLINs. The team continues to facilitate collaborative discussions with other global donors, including the Global Fund, UNICEF and the World Health Organization (WHO), to set meaningful goals and objectives that drive quality and standardization within the LLIN market.

### ***Collaboration***

In Q4, the LLIN Quality Assurance Group (LQAG) was made official. GHSC-PSM chairs this working group whose objective is to provide a forum for monitoring and communicating LLIN quality-related concerns and trends to facilitate and or implement activities to mitigate identified quality issues and potential risks.

The project continued its review of the draft East African Standards (EAS) for LLINs and began soliciting comments from LQAG members to provide feedback to EAS governing bodies.

GHSC-PSM also successfully led the collaboration with a receiving country and an LLIN supplier to generate a quality agreement on QC activities that would be executed pre- and post-shipment. The agreement was generated to proactively outline the requirements that govern QC inspection activities, determine criteria inspection outcomes, and identify responsible parties.

### ***Key performance indicators***

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

- The project exceeded the 80 percent QA lead time target with an on-time completion rate of 85 percent for QA activities in Q4.
- There were no batches of product showing nonconformity in Q4 (target is less than 1.0 percent).
- Percentage of QA investigation reports submitted within 30 days of outcome determination (QA investigation report submission) was 50 percent against a target of greater than 90 percent in Q4.

### ***Cost savings***

- In Q4, continuation of the risk-based testing along with the adjusted QA/QC protocol resulted in a cost savings of \$46,163. The cumulative FY 2021 cost savings by the project using the risk-based testing methodology is \$535,082.66.

## **PROMOTING SUPPLY CHAIN HEALTH**

In Q4, the project performed a QA review to ensure an additional four mRDTs— Pf (HRP2/pLDH), Pf/Pan (HRP2/pLDH) , Pf (pLDH) and Pf/Pv(pLDH/pLDH)—met the QA requirements for procurement eligibility. These products were also added to the restricted commodity waiver list governed by ADS 312.

GHSC-PSM completed the RFP for laboratories and successfully identified two additional laboratories with the technical capabilities and capacity to test products procured by the project, which has expanded the pool of qualified laboratories and provided enhanced alignment with GHSC-PSM laboratory contracts.

### ***Team activity in fostering a more robust QMS***

In Q4, the project investigated quality issues and out of specifications (OOSs) that were reported in the previous quarter and used these incidents as opportunities to enhance the Malaria task order's QA QMS and to assist suppliers in implementing a more robust QMS.

GHSC-PSM closed out an investigation of an LLIN that was OOS for area weight. The project engaged with the supplier and determined that the root cause was the result of using fabrics with higher area weight to maintain bursting strength. Noting that this parameter is critical for the durability of the LLINs, the project recommended acceptance of the order, which PMI approved. GHSC-PSM continued to engage with the supplier on the progress of their corrective action/preventive action for this OOS to ensure it is not a systemic issue.

## **ADOPTION OF STANDARDS-BASED IDENTIFICATION, BARCODING, AND DATA SHARING**

In Q4, GHSC-PSM continued to see 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, with the objective of creating an enabling environment for data exchange and visibility. Q4 and FY 2021 highlights and milestones associated with these standards are included in Section C.

### **PRIORITIZING AND TRANSFERRING ORDERS**

In FY 2021, to address country needs and market constraints, GHSC-PSM worked closely with USAID to prioritize orders based on need and conducted commodity order transfers to improve stock status. Below are examples of how the project continued these strategies in Q4 to ensure that countries could avoid stockouts.

In Q1 FY 2021, changes in Kenya consignee and import requirements delayed an order of mRDTs. In Q3 2021, Burundi requested the expedited delivery of 62,300 mRDTs for May 2021. This mRDT order was not available to be expedited, so the project proposed to fulfill a large portion of Burundi's mRDT order from the available stock of 60,000 kits that had been produced for Kenya. The Burundi Mission accepted the proposal, and GHSC-PSM worked with the supplier and country offices to redirect the 60,000 mRDTs to Burundi. The project fulfilled the balance of 2,300 mRDT kits for Burundi from fresh production. The shipment arrived in Burundi in Q4. A new order was placed for Kenya.

In Q4, GHSC-PSM began aggressively distributing goods from the artemether lumefantrine (ALu) emergency stockpile to mitigate the risk of expiry of goods in the RDC. Burundi, Uganda and Zambia agreed to receive disbursements from the stockpile to mitigate stockouts in their countries.

In Q4, Rwanda requested to delay their ALu delivery until mid-2022, with requested delivery dates (RDDs) ranging from April through September. At the same time, Sierra Leone placed an urgent order with an RDD in January 2022. The project negotiated with the vendor to use the original Rwanda production slot for Sierra Leone and delayed production of the Rwanda orders to meet the new RDDs.

In FY 2021, 28 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 review of forecasts and supply plans to optimize procurements. Examples in Q4 are as follows:

Through the review of PPMRm, Burma identified a stockout risk of mRDT, and initiated expedition of a PMI shipment to be delivered two months earlier in FY 2022.

In Zimbabwe, the ALu 6x4 was found to be low in stock. The project soon expedited a PMI shipment and expects it to be delivered in Q1 FY 2022. Also, artesunate-amodiaquine (ASAQ) 25 mg/67.5 mg/3 tabs were found to be overstocked, and a Global Fund shipment is expected at the end of Q1 FY 2022. The project communicated with the National Malaria Control Program (NMCP) and the Global Fund to delay the shipment.

PPMRm also provides country commodity security updates that help the project and PMI understand contexts, activities, and strategy changes in countries' supply chain or treatment regimens. For example, the Malaria Elimination Program of Cambodia decided to switch a pediatric ACT from artesunate-mefloquine (ASMQ) 25/50 mg tablets to pyronaridine-artesunate (Pyramax) granules for the treatment of uncomplicated malaria in children. This decision led to a new round of forecasting and planning for the procurement of the commodity by Global Fund.

## STOCKOUT REDUCTION INITIATIVE

Despite the positive impact of PMI's 15 years of supply chain investments, stockout performance for several countries has not seen consistent improvement over time. Many PMI countries have frequent stockouts of malaria commodities at service delivery points (SDPs). For example, across PMI-supported countries for which data are available, stockout rates of ACTs averaged roughly 22 percent during 2019–2020 calendar years. To address this gap, in FY 2020, PMI launched an initiative to optimize its investments with the goal of significantly reducing stockout rates at SDPs across all supported countries over the following two to three years.

Determining what combination of PMI supply chain investments will achieve and maintain large reductions in stockout rates at SDPs requires each country to create a set of activities tailored to the local context that addresses the key barriers and risks to consistent supply chain performance.

In support of this initiative, GHSC-PSM rolled out two activities: first, identifying the most critical barriers and risks to consistent stock performance that are already known by country teams; and second, building toward development of a comprehensive two-year PMI supply chain investment plan.

To prepare for FY 2022 work planning, in Q3 and Q4 FY 2021 the project began implementing stage 2 of the Stockout Reduction Initiative Playbook, with the objective of refining the high-level investment plans that countries developed during stage 1. In stage 2, countries built on stage 1 outputs to include greater detail and incorporate stakeholder input, including:

- Reviewing baseline and targets based on available data
- Reviewing root causes using supporting evidence
- Pressure-testing proposed solutions
- Completing additional deliverables, including a feasibility matrix and a PMI activity look-back
- Developing detailed investment plans to serve as the basis for FY 2022 work planning
- Refining potential risks and interdependencies that need to be addressed before and/or during implementation

In Q4, all PMI countries (except non-field office countries and Laos) completed investment plans and incorporated them into FY 2022 work plans.

## LLIN DISTRIBUTION SUPPORT

In Q4, GHSC-PSM delivered 10 million LLINs to countries for onward distribution as a malaria prevention measure. Many countries deliver LLINs from the central level to health facilities for continuous distribution. Other countries planned, launched or continued large-scale LLIN distribution campaigns as a key malaria prevention strategy. These massive initiatives ensure beneficiaries receive the nets they need, particularly in high-impact areas. While the actual distributions take just a few weeks, logistics, supply planning, procurement and pre-positioning the nets can take months. In addition to procurement, planning and capacity building, GHSC-PSM provides in-country logistics support including warehousing and transportation of LLINs to lower-level warehouses or health facilities. In some countries, GHSC-PSM also supports distribution to recipients.

In Q4, GHSC-PSM supported LLIN distribution activities, including:

- **Ghana:** As part of efforts to ensure a cost-effective and sustainable mechanism for LLIN distribution to health facilities, GHSC-PSM is working with the NMCP to integrate the distribution of LLINs into routine last-mile distribution (LMD) in three regions (Western, Eastern and Volta). Through PMI funding, the project procured and installed three (2 x 40 foot) LLIN storage containers at the Western, Eastern and Volta regional medical stores (RMSs). These containers will ensure adequate storage space for LLINs to facilitate distribution from the RMSs to service delivery points (SDPs).
- **Guinea:** Under the leadership of the Ministry of Health, GHSC-PSM actively participated in a six-day workshop to develop a harmonized implementation plan for the 2022 mass distribution campaign with other stakeholders and to establish hypotheses to estimate distribution activity budgets. The project supports the logistics working group and will host subsequent activities for this working group.
- **Liberia:** In FY 2021, the project supported the NMCP in implementing the following activities:
  - Data visibility: GHSC-PSM worked with county supply chain coordinators to report on the total number of LLINs available at the county level. This information helps inform the NMCP about LLIN stock status at the county level for decisions related to emergency resupply of products to health facilities that require LLINs.
  - Support of the 2021 mass LLIN distribution campaign: The project and the NMCP launched the campaign on June 15, assisting the NMCP in training 20 national-level trainers who cascaded microplanning working sessions to include officers-in-charge of health facilities and district health teams. GHSC-PSM also supported the NMCP and Plan International Liberia (PIL) to train 20 national-level trainers on household registration (HHR), and they cascaded this training to the county level with remote support from the project to clarify issues related to household registration and COVID-19 prevention protocols. The project collaborated with the NMCP in training 75 national monitors to monitor the HHR process. Through partner support, NMCP had distributed 2,557,369 LLINs procured by Global Fund to households by August 2021, which benefited 1,157,038 registered households, representing 90 percent of household coverage.
- **Nigeria:** In FY 2021, the project supported planning, training and logistics activities for the LLIN mass distribution campaign in six states: Akwa Ibom, Benue, Kebbi, Nasarawa, Oyo and Sokoto. Two states (Benue and Oyo) progressed to household mobilization and registration, allocation of LLINs, transport of LLINs to designated warehouses, warehouse and inventory management, and data management, as well as monitoring and supervision, and returning of unclaimed nets by beneficiaries back to state warehouses. A total of 8,361,867 LLINs (4,786,097 in Oyo and 3,575,770 in Benue) were distributed to protect more than 15 million people. The remaining four states are scheduled to receive similar support in Q1 FY 2022. GHSC-PSM also trained more than 17,000 government officials in LLIN mass campaign operations and micro and macro logistics. In Q3, the project developed and deployed a web and mobile application to facilitate implementation of the 2021 micro-planning exercise in Akwa Ibom State. This application uses the information communication and technology for development, or ICD4D, concept that transitioned the planning and implementation of the campaign from a traditional paper-based to a technology-driven model that improves accountability and efficiency and mitigates fraud. In Q4, the project began full transition from paper-based processes to digital management of LLIN

campaigns with a pilot in one local government area (LGA) of Oyo State. Also, in Q4, GHSC-PSM worked with Sokoto and Kebbi States to adapt the technology in micro-planning and trained 186 government officials to use the technology.

- GHSC-PSM supported many additional countries in their LLIN distribution in Q4. Examples are provided in Exhibit 15.

Exhibit 15. GHSC-PSM Supported LLIN distribution in Q4

<b>Countries</b>	<b>Number of LLINs</b>	<b>Type of Distribution</b>
Burundi	181,400	Continuous distribution
Cambodia	79,675	Mass distribution (house to house distribution)
Ethiopia	2,937,697	Mass distribution campaign
Ghana	7,896,850	Point mass distribution campaign (delivered from the central level to the regional level for further distribution)
Liberia	60,600	Continuous distribution
Mali	648,732	Continuous distribution
Nigeria	8,361,867	Mass distribution campaign (in two states)
Niger	60,160	Continuous distribution
Uganda	79,443	Continuous distribution
Zambia	20,000	School distribution (delivered to four districts for further distribution)
<b>Total</b>	<b>20,336,424</b>	

These LLINs are enough to protect more than 40 million people.

## COUNTRY SUPPORT

GHSC-PSM provided supply chain systems strengthening support for malaria medicines and commodities in 23 countries<sup>17</sup> in Q4 FY 2021. Activities in Q4 included:

**Angola:** The project continued to support the postgraduate specialization course in the Integrated Management of Health Supply Chain at the National School of Public Health in FY 2021. A total of 28 students from the first cohort who started the course in 2019 graduated in December 2020 and received their certificates in June 2021. The MOH is committed to deploying these graduates to various areas of the health supply chain to make the best use of their knowledge and skills. In March 2021, the project worked with the ENSP (Escola Nacional de Saude Publica) and submitted a proposal for the second cohort to the MOH for approval. This proposal was still under the review of the MOH by the end of Q4 FY 2021.

**Malawi:** In Malawi, donor-funded malaria commodities were delivered in a parallel system. Aiming to provide greater efficiency in the supply chain management of malaria commodities, GHSC-PSM, the Global Fund, PMI and Malawi's NMCP piloted a program from June to September 2021 to consolidate distribution of malaria commodities. GHSC-PSM, through a third-party logistics (3PL) provider, managed delivery of Global Fund procured malaria commodities including mRDTs, artesunate injectables, ACTs, SP and LLINs. Similarly, within the period, the Global Fund-contracted 3PL provider managed delivery of PMI-procured malaria commodities including ACTs, SP, and Global Fund-procured ACTs and mRDTs. The consolidation of these efforts allowed for GHSC-PSM and Global Fund to coordinate on which health facilities each will deliver to, rather than both parties delivering commodities to the same facility.

Integrated distribution helped increase efficiency by reducing the number of trucks delivering to facilities from two to one. This also reduced the workload for health facility staff; rather than receiving and processing delivery from two separate vehicles over a two-hour period or more, they now handle one vehicle within a one-hour period, thereby freeing time to attend to other supply chain logistical issues. Integrated distribution could also help in saving money on fuel and truck maintenance and it promotes organized operations. GHSC-PSM will engage with the Global Fund-Project Implementation Unit (PIU)/MOH to finalize and sign off the Memorandum of Understanding for the integrated malaria commodities distribution.

**Rwanda:** In Q4, the project supported the Malaria & Other Parasitic Diseases Division (MOPDD) in revising the 2021–2024 malaria commodity forecast. Based on analysis performed during the supply plan review in Q3 and the continued reduction in malaria cases up to July 2021, GHSC-PSM and the malaria program convened on the necessity to revise the 2021–2024 forecast. This exercise resulted in a projected reduction of 20 percent in the forecasted consumption for all ACTs, artesunate injectables, and quinine tablets for FY 2022. According to the forecast, shipments of ACTs and artesunate injectables were pushed to later delivery dates to avoid overstocks and expiries.

The project also supported the MOH and Rwanda Medical Supply (RMS) Ltd to conduct quality management improvement approach sessions with RMS branches to discuss supply chain performance findings from the supervision conducted in April 2021, which showed an overall decline in performance compared to previous years. Participants tackled the performance results at the RMS branches as well

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

as at health facilities and identified key mitigation actions to improve performance at all levels. The RMS branch managers committed to conducting similar sessions with their respective health facilities and ensuring that the recommendations addressed to SDPs are implemented and monitored.

Also, GHSC-PSM supported development of a capacity-building plan for RMS Ltd, and a review of SOPs and the procurement manual. In total, 57 SOPs covering quantification, procurement, warehouse, distribution, sales, quality assurance and quality control were reviewed and SOPs validated. The RMS has started to use the validated and finalized SOPs.

### B3. FAMILY PLANNING AND REPRODUCTIVE HEALTH



To date, the GHSC-PSM project has delivered enough contraceptives that, when combined with proper counseling and correct use, are estimated to provide **90.1 million couple-years of protection**, including **3.5 million in Q4** and nearly **12.6 million in FY 2021**.



Procured FP/RH commodities for 20 countries<sup>18</sup> and provided **health supply chain systems-strengthening support to 23 countries** with FP/RH funding.

Continued to successfully fulfill USAID-supported countries' orders in a timely manner, **achieving 87 percent (80 percent COVID-impacted) OTD** in Q4.

The millions of contraceptives delivered through the GHSC-PSM project, combined with proper counseling and correct use, are estimated to prevent approximately:

- 74.3 thousand maternal deaths
- 614 thousand child deaths
- 31.2 million unintended pregnancies
- 11.1 million abortions
- \$2 billion in direct spending on healthcare



Launched the new [Harmonized Contraceptive Security Indicators Dataset, 2010–2019](#), which consolidates eight rounds of surveys into a single dataset.

In FY 2021, the project supported ongoing efforts of the African Resource Center's outsourcing toolkit (OSTK) development. GHSC-PSM published [Contracting for Transportation of Public Health Commodities to the Private Sector](#) and [Implementing Activity-based Costing \(ABC\) and Activity-based Management \(ABM\) in Warehousing and Distribution](#).

Supported onboarding 37 countries to the Global Family Planning Visibility and Analytics Network (GFPVAN) basic country viewer roles as part of the transition

<sup>18</sup> Per USAID guidance, all condom procurements are counted under the HIV/AIDS task order.

from the Procurement Planning and Monitoring Report (PPMR). Users include members of Ministries of Health, USAID Mission and United Nations Population Fund (UNFPA) staff, and implementing partners.

Welcomed the addition of the levonorgestrel-releasing intrauterine device (IUD), or hormonal IUD, for the first time to the USAID contraceptives product catalog.



Published several important pieces of work, including a field guide and accompanying two-pagers for [Recovery Strategies for Public Health Supply Chains Post-Black Swan Event](#); an informative video and fact sheet on the [National Product Catalog \(NPC\)](#); and an [article](#) on [the Supply Chain Information Systems Maturity Model \(SCISMM\)](#).

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 chain, increase financing, and introduce new FP/RH commodities.

#### INTRODUCTION: REFLECTIONS ON FY 2021

In the past year, GHSC-PSM secured pricing across all FP/RH commodities through November 2023, enabling the project to more effectively respond to the challenges linked to a constrained supply environment for many products; introduced the levonorgestrel IUD, or hormonal IUD, to the USAID Catalog to enable greater method choice; and underwent a transition from providing combined oral contraceptives with ferrous fumarate placebo to combined oral contraceptives with non-ferrous fumarate placebo.

The impact of the aforementioned activities is reflected in the TO3 commodities delivered to countries and can be estimated by incorporating procurement data from the GHSC-PSM project database into the Impact 2 model, an internationally accepted socio-demographic mathematical model used to measure the impact of reproductive health programs. The approximately 74.3 combined deaths averted (maternal plus child deaths averted) represent a significant contribution to the overall goal of GHSC-PSM to “...prevent suffering, save lives, and create a brighter future for families.” As a downstream consequence of contraceptive availability, not only are lives saved, but so is a considerable amount of money in these resource-limited lower- and middle-income countries (LMICs)—\$2 billion in direct spending is estimated to be saved on health care—much-needed resources that can be reinvested in the overall health system. For more details about how these numbers are calculated, and country-specific information, please visit the Family Planning Country Impact Briefs site [here](#).

The strong business partnerships with FP/RH suppliers that GHSC-PSM continued to foster over the course of the year led to greater data visibility for key decision making and supply chain resiliency. GHSC-PSM continued to provide support to countries through thorough analysis of existing stock and upcoming needs, in light of continued supply constraints, as well as support to the respective MOH staff and partners.

GHSC-PSM continued to implement strategies to ensure program continuity during the ongoing COVID-19 pandemic, such as conducting virtual workshops, switching to other communications methods, and

maximizing the use of staff on the ground to advance activities. The project sought creative methods to ensure reliable supply, such as leveraging stock from the RDC, as suppliers had to slow or stop production of FP/RH commodities for a period of time because of the pandemic. As a result of these efforts, GHSC-PSM managed to achieve 87 percent (80 percent COVID-19 impacted) OTD.

To cope with the pandemic this year, the project established more regular touch points among management and staff and with USAID. This helped enable greater flexibility, which has been needed during the pandemic. The project also designed activities with the idea that staff will likely work from home most of the time. That enabled the project to be more realistic in how it approached activities, taking into account the constraints of COVID-19. In addition to these measures, manufacturers diversified sources of supply, intensified communications throughout the supply chain, and increased their safety stock for raw materials. Commodity risk profiles identified supplier delays to inform decision making and minimize or avoid further delays. The project liaised with potentially impacted suppliers to proactively identify and manage delays, obtain products as quickly as possible, and identify alternate fulfillment mechanisms to meet the most urgent needs.

Throughout the year, ensuring data visibility and using data to make sound decisions were overriding themes across all the technical areas that encompass the FP/RH portfolio of core activities. As detailed below, the project aimed to achieve end-to-end data visibility and create an enabling environment whereby countries can use the data to plan as well as advocate for funding to achieve greater contraceptive security.

Social marketing activities enabled the project to expand the supplier base and provide another option for ensuring the availability of contraceptive options. By continuously engaging social marketing organizations (SMOs) and monitoring their unique requirements, needs and stock-level data, GHSC-PSM could ensure continuous availability of social marketing products, particularly in an environment of constrained supply. This ensured that generic alternatives were available where needed, thereby preventing stockouts for some SMOs and improving their method mix to support choice. Overall, GHSC-PSM now has greater visibility into the USAID-supported social marketing landscape, which continues to stabilize the social marketing supply chain.

In the area of market dynamics, GHSC-PSM actively participates in the Hormonal IUD Access Group to support the introduction and scale-up of the hormonal IUD; the Total Market Approach Working Group to support key activities focused on private sector involvement; and the International Conference on Family Planning (ICFP) Private Sector Subcommittee to plan and generate activities for ICFP, which will increase the strategic visibility and engagement of the private sector and the Market Development Approaches Working Group. The aim is to contribute to the goal of supply security through a greater focus on the “total market,” which includes the private and commercial sectors. In the area of global collaboration, in addition to GHSC-PSM’s participation in the GFPVAN, or VAN, the project presented the online Contraceptives Security Indicators and Interactive Dashboard to the global community. This dashboard enables LMICs to access a wide range of data from their own countries and others to help with planning and decision making. GHSC-PSM continues to be engaged with the RHSC Systems Strengthening Working Group through attendance at the RHSC general membership meeting and participation in numerous working group discussions.

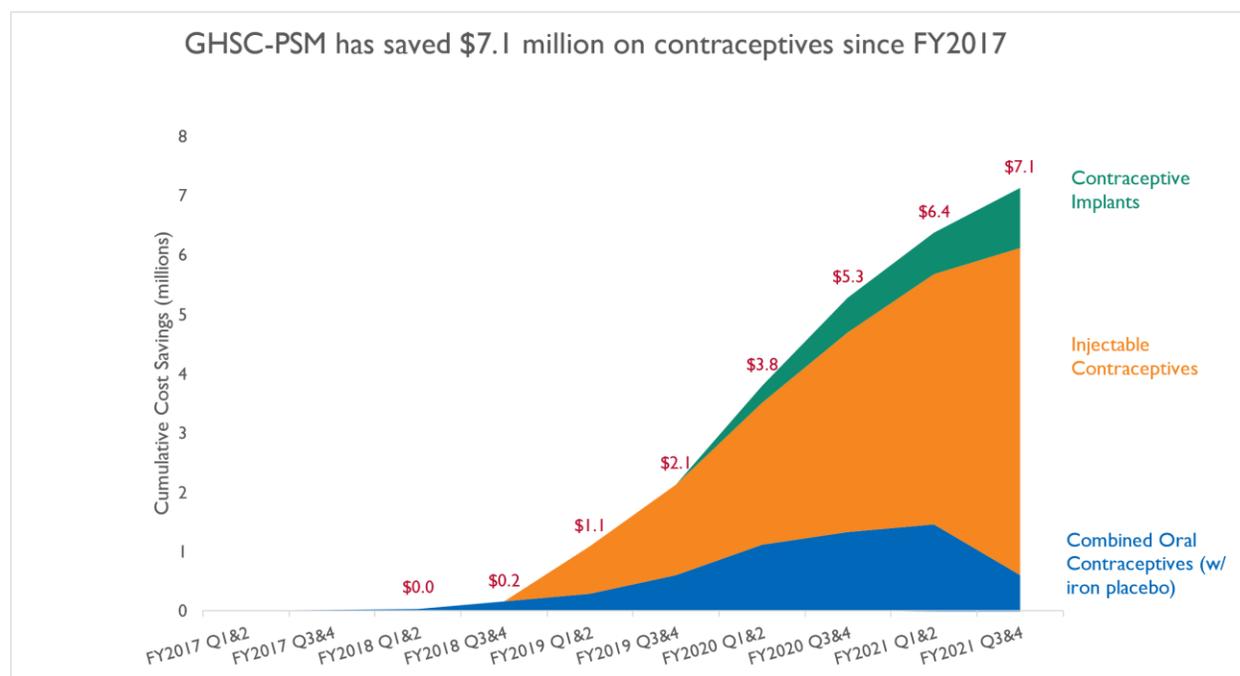
In FY 2022, TO3 is particularly looking forward to the continued work relating to the VAN and the next phase, which is onboarding suppliers. This work will significantly increase end-to-end visibility in the FP/RH supply chain. If we achieve that in the fiscal year, it will be a huge step forward in making data

available and enabling countries to take that data to make decisions about procurement and other aspects of the supply chain.

### COST SAVINGS ON CONTRACEPTIVES

Commodity cost savings on core FP products has reached \$7.1 million over the life of the project, including nearly \$1.9 million in savings this fiscal year. This represents 7 percent of the total FY21 procurement value for these core commodities, and 4 percent of total procurement value for all family planning products. The greatest savings driver is DMPA-IM, where procurement of generics continues to yield savings over baseline prices. Two-rod implants reached their lowest average prices since the project began monitoring, following a new price agreement with the generic supplier which went into effect during Q4 of this year. Despite these savings on these high-volume items, the project did see a steep price increase on combined oral contraceptives with iron placebo, which has caused a reduction in cost savings. The project continues to prioritize market health and product availability objectives in its sourcing strategy for oral contraceptives.

Exhibit 16. Life-of-Project Savings on Contraceptives



Intramuscular depot-medroxyprogesterone acetate (DMPA-IM) was the biggest cost savings driver in FY 2021. While supply constraints with the brand-name supplier continued through much of FY 2021, GHSC-PSM could procure some of the available stock for countries that were not yet in a position to receive a generic product. The expansion of the generic supply market was key in securing supply while achieving savings. It is unclear whether continued savings can be expected in FY 2022, given the anticipated increase in operating and raw material costs for all suppliers, but such expansion of the supplier base will undoubtedly continue to improve supply security for countries. The project is also now tracking savings on two-rod contraceptive implants. Before FY 2020, GHSC-PSM paid a single global

access price for all implants. In June FY 2021, the project secured reduced pricing for Levoplant, helping to generate savings on this product.

### ADDRESSING FP/RH PRIORITIES

With USAID’s FP/RH priorities in sight, GHSC-PSM continued to strengthen its global supply operations and collaborated with countries to continue building self-reliant supply chains. Much like earlier in FY 2021, Q4 was marked by COVID-19 challenges that continued to hinder project staff travel to conduct trainings or join in-person workshops. Despite these restrictions, GHSC-PSM worked with activity leads and country offices through virtual workshops or other approaches to ensure program continuity where possible.

### COMMODITY SOURCING AND PROCUREMENT

#### ***Securing reliable supply and maintaining high on-time performance***

Despite the COVID-19 pandemic and persistent and severe global supply shortages of injectable and implantable contraceptives, in Q4, GHSC-PSM ensured countries had access to a continuous and reliable supply of FP/RH commodities. While COVID-19 disrupted the DMPA-IM market, restricting the current offering of products, GHSC-PSM had secured supply of DMPA-IM by onboarding the first generic supplier in 2018 and two additional generic suppliers in 2020. The project leverages RDCs and regularly analyzes allocation of production to ensure countries receive adequate supply to avoid any stockouts. The impact of the pandemic on logistics continues, however, including reduced global shipping capacity, difficulty in confirming bookings and moving cargo, a global container shortage, and decreased availability of air freight capacity.

#### **Commodities Procured for FP/RH Programs**

- Consumable kits for implants
- Contraceptive implants
- Cyclebeads®
- Injectables
- Intrauterine devices
- Oral contraceptive pills

Timeliness of GHSC-PSM deliveries remained strong for standard OTD over the reporting period for FP/RH commodities at 87 percent (80 percent COVID-impacted). OTIF numbers remain high at 97 percent (83 percent COVID-impacted). At the end of Q2 FY 2020, the number of COVID-19-impacted orders started to increase significantly and, as predicted in previous reports, continued to adversely affect OTD performance throughout the past year. The high degree of uncertainty and volatility in freight costs caused by the pandemic continued to affect orders in Q4 FY 2021. This impact is expected to continue through FY 2022.

Exhibit 17. FP/RH commodities, OTD

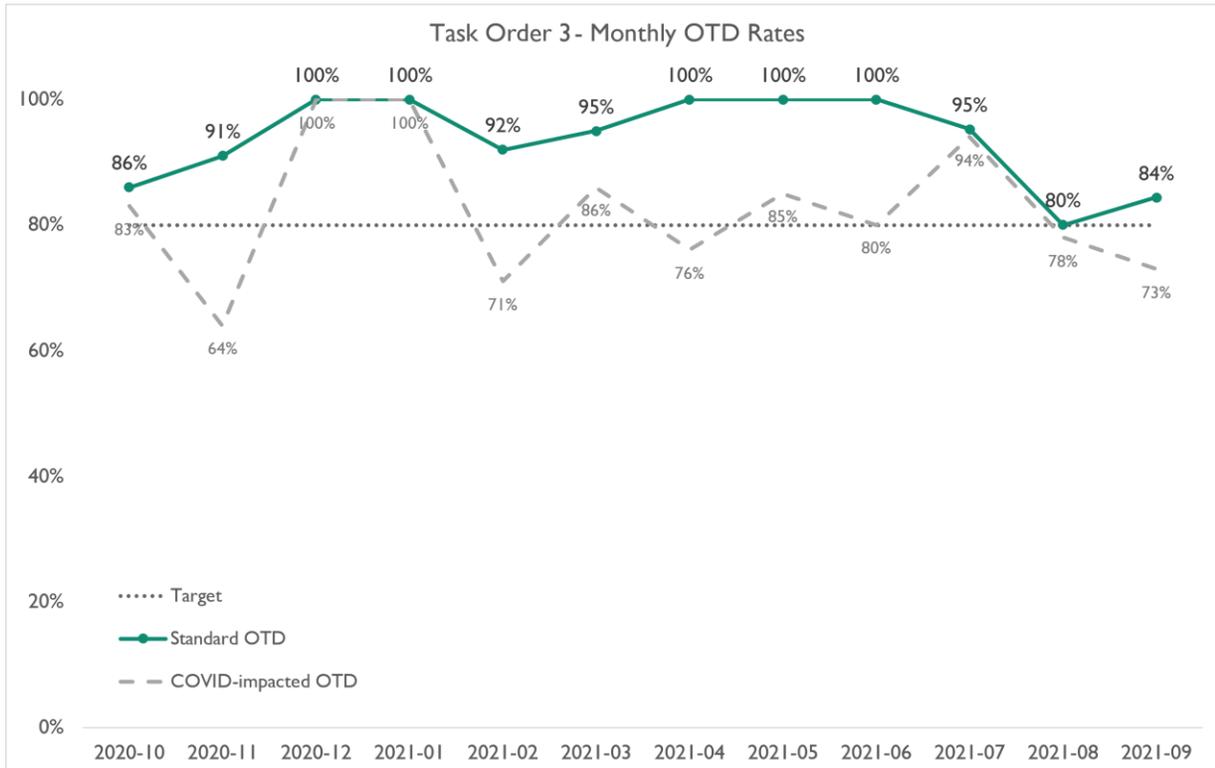
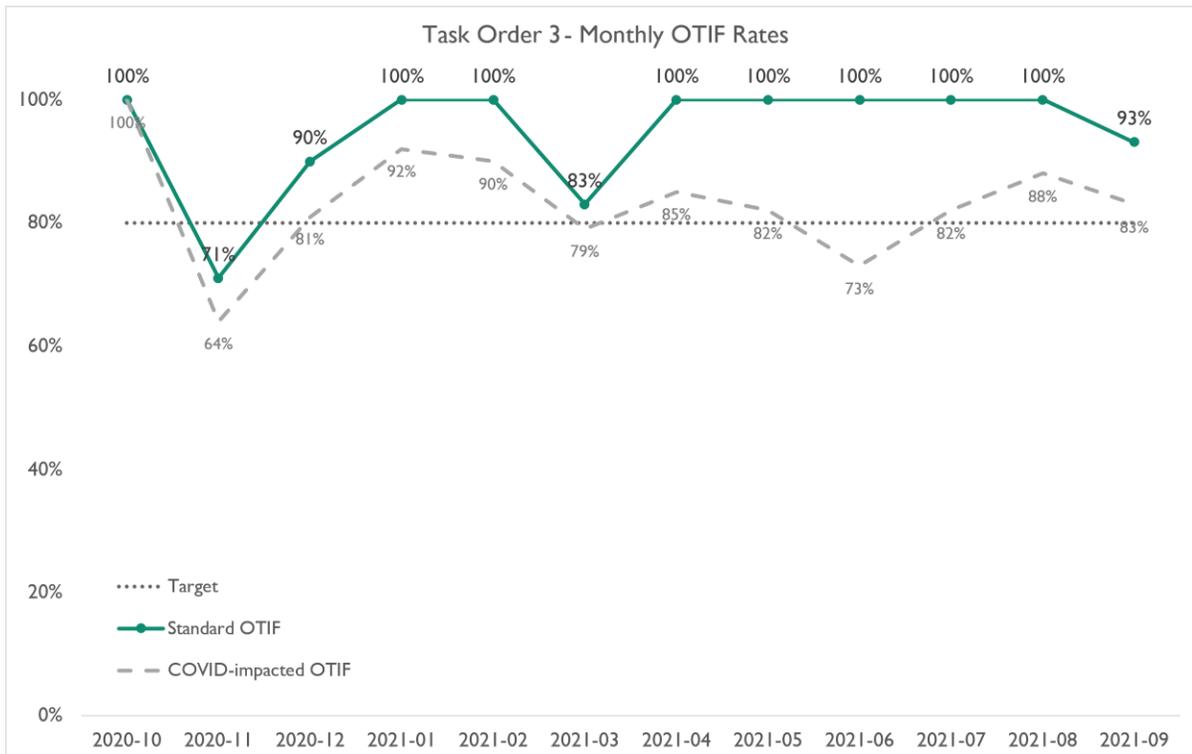


Exhibit 18. FP/RH commodities, OTIF



### ***Introduction of long-acting family planning method to the USAID Catalog***

In Q3, the hormonal IUD was added for the first time to [USAID's Product Catalog](#), enabling greater method choice.<sup>19</sup> The hormonal IUD is a highly effective, long-acting, reversible contraceptive with important non-contraceptive health benefits. The method was first introduced in Europe in 1990 and in the United States in 2000, and it has been popular in these settings. Despite its advantages, the method has not been widely available in LMICs to date.

Globally, the Hormonal IUD Access Group, a consortium of governments, donors, manufacturers, procurement agencies, researchers and service delivery groups, supports introduction of the hormonal IUD. The Hormonal IUD Access Group—GHSC-PSM is a member—takes a comprehensive approach to facilitating method introduction and scale-up. This includes ensuring availability of affordable, quality-assured products to facilitate sustainable markets and supporting countries that are ready and willing to introduce and scale up the method through a phased approach.

In Q4, the Hormonal IUD Catalog price was reduced to \$10.90, representing suppliers' commitment to making the product accessible in low- and middle-income countries.

### ***Transition to combined oral contraceptives with non-ferrous fumarate placebo pills***

In Q2, GHSC-PSM began to transition from providing combined oral contraceptives with ferrous (Fe) fumarate placebo pills to combined oral contraceptives with non-ferrous fumarate placebo pills. This transition was due to changes in the World Health Organization prequalification status of combined oral contraceptives containing ferrous fumarate, since the amount of ferrous fumarate in the placebo pills is at a non-therapeutic dose and is not of clinical relevance. In Q2 and Q3, to support the gradual transition from ferrous fumarate placebo to non-ferrous fumarate placebo combined oral contraceptives, GHSC-PSM continued to work with SMOs to maintain healthy stock levels of Combination 3 in preparing for the discontinuation of Combination 3 procurement in June 2021.

Beginning in Q4, all new combined oral contraceptive (COC) orders are being filled with COCs containing a non-Fe placebo. Also in Q4, the project, in collaboration with USAID, engaged in a series of strategy discussions with suppliers to address supplier regulatory restrictions and requirements on overbranding and the registration status of the product in project countries. GHSC-PSM continued to support countries in making this transition, including facilitating marketing authorization from suppliers where applicable to support a smooth transition for SMOs engaging in overbranding.

### ***Social marketing engagement activities***

In FY 2021, GHSC-PSM's continued engaging with SMOs and monitoring social marketing activities to provide critical visibility for supporting various strategic discussions, thereby stabilizing the social marketing supply chain. These included supplier regulatory restrictions and requirements on overbranding, the expansion of GHSC-PSM supplier base to include generic alternatives for some products, and the transition to non-ferrous fumarate placebo COCs following the discontinuation of Combination 3 from the USAID Catalog. Details are highlighted in relevant sections of this report.

Throughout the year, the project supported SMOs on artwork revisions to align with USAID and supplier overbranding guidelines and facilitated discussions with suppliers on product registrations that would facilitate SMO programming and the issuance of marketing authorizations. Also, GHSC-PSM helped

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<sup>19</sup> [Introduction of long-acting family planning method to USAID Product Catalog | U.S. Agency for International Development](#)

maintain proper stock levels for SMOs through supply planning and forecasting following analysis of SMO stock data.

### ***Packaging harmonization***

In coordination with UNFPA, GHSC-PSM developed and finalized a joint green packaging scope of work exploring opportunities for greener, more environmentally friendly packaging of priority FP products. In Q3, the project onboarded a green packaging consultant to investigate best practices in green packaging, assess the environmental impact of logo use across all FP products, and assess the environmental impact of various DMPA-IM packaging options. The project will present the results of this green packaging to USAID in Q1 FY 2022, and these results will inform the timeline for implementing recommendations for harmonization and optimization of packaging of FP products that have been developed over the course of this multi-year exercise.

### ***Landscape survey of local manufacturers' capacity to produce modern contraceptives***

In FY 2021, GHSC-PSM contracted IQVIA to conduct a landscape survey of local capacity to manufacture oral contraceptives and DMPA-IM in sub-Saharan Africa (SSA). The survey concluded that facility manufacturing of both injectable and oral contraceptives may not be sustainable even if the facility exports only to South Africa. Also, a facility producing only injectable contraceptives may not be sustainable if it exports to FP2020 SSA countries, whereas a facility making only injectable contraceptives is sustainable if it achieves 10 percent market share in the South African market. These conclusions will be further explored in FY 2022 to develop a more robust business plan that stakeholders can use to attract potential investors and manufacturing partners.

### ***The role of domestic wholesalers in supplying quality FP and MNCH products***

In FY 2021, GHSC-PSM drafted a joint FP/RH and MNCH white paper, in coordination with GHSC-QA, discussing the role of private sector wholesalers in supplying quality FP and MNCH products. The white paper provides a summary of previous reports, publications and information collected through key informant interviews on the role of domestic wholesalers in providing quality- assured FP and MNCH products and an overview of the implications of wholesaler sourcing decisions. The project interviewed key stakeholders, including SMOs, manufacturers, and multinational and domestic wholesalers, to understand the challenges and successes of working with domestic wholesalers and to assess additional opportunities regarding how governments, donors, NGOs, SMOs and others can further engage with them. The paper is expected to be finalized and disseminated in FY 2022.

### ***Registration Tool update to include Global Data Synchronization Network data as a data source***

In FY 2021, GHSC-PSM made enhancements to the Registration Tool to support the transition to Global Data Synchronization Network (GDSN) as the source of supplier registration. These enhancements serve to make the data more reliable and minimize the risk of errors due to manual entry.

### ***New product catalog***

USAID's FP product portfolio has expanded in the last four years with the introduction of new products and generics. In FY 2021, GHSC-PSM revamped the USAID | DELIVER PROJECT product catalog to improve internal stakeholders' awareness of the USAID FP product portfolio with helpful information, including supplier profiles, volumetrics, logistics and stock planning, and warehousing information. The new product catalog is expected to be finalized and published in the first half of FY 2022.

## COLLABORATION WITH GLOBAL STAKEHOLDERS

The project builds global partners' awareness of and support for the U.S. Government's FP/RH priorities and programs and supports USAID's leadership in contraceptive security through the following activities.

### ***Support to Reproductive Health Supplies Coalition (RHSC) Systems Strengthening Working Group***

GHSC-PSM continued to support the Systems Strengthening Working Group (SSWG) throughout the fiscal year through participating in meetings and webinars. This support included providing input throughout the work plan development process launched in February, through the RHSC virtual meetings in April and once the work plan was published in September. Several staff have since volunteered to lead or support work streams identified in the work plan for the upcoming year.

### ***Tracking contraceptive security***

GHSC-PSM is finalizing data collection and validation for the 2021 round of the Contraceptive Security Indicators survey. This year's survey includes several updates, including questions to assess the quantity of contraceptives purchased and forecast (measured in couple years of protection) to further gauge the visibility of contraceptive commodities within a country's logistics management information system (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 measures countries are taking to mitigate challenges.

### ***Enhancing data quality for the stockout indicator***

A constant challenge in calculating health facility stockout rates is the interpretation of whether a facility is actively offering a product and tracking those facilities over time. To address this challenge, GHSC-PSM and USAID developed the Active Site Rule. This business rule uses available logistics data to better understand the stock status of FP methods at health facilities. An "active site" for an FP method is defined as a health facility that has had the method in stock, issued it to clients, or ordered it at any point in the previous 12 consecutive months. Facilities deemed inactive for the FP method are removed from the stockout rate calculation for that method and for that reporting period—whether for the average stockout rate indicator for USAID's annual Performance Plan and Report or for quarterly or monthly stockout reporting. In Q2, GHSC-PSM launched the first in a two-part video series explaining the business rule and how to apply it. The second part, *Understanding How to Apply the Active Site Rule*, launched in Q4. [Both parts](#) of the series are posted to the GHSC-PSM website and are available in English and French, along with full transcripts.

### ***Enhancing visibility of FP supplies data***

GHSC-PSM serves as a key contributor in supporting strategic development and scale-up of the [GFPVAN platform and processes](#). The VAN is the reproductive health community's pioneering undertaking to increase supply chain visibility and improve collaboration across stakeholders. In Q4, GHSC-PSM continued to focus on enabling the project to realize the benefits of the tool by supporting and onboarding users; validating new tools, processes, and data integration with the VAN; and engaging in strategy sessions for use of the VAN in FY 2022.

Specifically, GHSC-PSM staff:

- Assisted in the transition of 37 PPMR countries to the VAN. Users include members of ministries of health, USAID Mission staff, UNFPA staff, and implementing partners. The onboarding was

the result of a coordinated effort to raise awareness about the VAN through webinars and inter-donor collaboration.

- Completed funding gap analyses for supported country programs in Afghanistan, Bangladesh, Ghana and Malawi.
- Supported the review of and updates to supply plan data through the QAT data validation process, in addition to supporting the preparation and execution of the quantification review exercise following national-level quantifications in mid-September 2021.
- Trained 10 additional Malawi VAN viewers and retrained three planners from Central Medical Stores Trust, UNFPA, World Federation of People Management, and GHSC-PSM. The Malawi MOH is now independently uploading inventory data to the VAN on a regular basis.
- Participated in meetings with RHSC on identifying a cohesive strategy for use of the VAN in in-country health systems strengthening work.

Thanks to additional funding support from USAID over the last year, on June 30, 2021, the PPMR database was officially retired after a successful transition of all PPMR data and processes into the VAN. This enables global and country partners to benefit from more streamlined data entry, access to incoming order and shipment data linked to their inventory and consumption, and centralized collaboration. Read more on the [PPMR Transition Factsheet](#).

The VAN now includes 37 of the 38 countries previously reporting data through the PPMR, with 33 trained in the platform in the first six months of 2021, and the rest trained previously. These new users can now comprehensively track product movement throughout their supply chains, from orders to shipments and inventory. Former PPMR countries now have an automated mechanism for sharing exceptions management and data validation requests with the Consensus Planning Group, allowing for rapid problem solving and strengthened supply planning.

### ***Measuring the impact of contraceptive procurement***

In July, GHSC-PSM presented to USAID mission staff on the newly launched FY 2020 updated [FP/RH Procurement Impact Briefs](#). These briefs, which highlight the measured impact of USAID contraceptive procurement investments, can be a great resource in supporting efforts to advocate for additional resources for commodities and increasing the roles of partner governments to ensure health outcomes. The webinar provided an overview of the methodology used in the briefs and recommendations for dissemination in-country. Following dissemination of these briefs, in FY 2022 the project expects to conduct a survey on their use to inform the next round of the product.

### **PUBLIC HEALTH SUPPLY CHAINS POST-BLACK SWAN EVENT**

COVID-19 significantly disrupted supply chains globally, including those used to distribute public health commodities at the last mile. To support in-country recovery efforts following the COVID-19 pandemic, in FY 2020, GHSC-PSM initiated a new activity to develop the [Recovery Strategies for Supply Chains Post-Black Swan Event Field Guide](#) that in-country decision-makers can use to support supply chain recovery efforts at the last mile. The guide, which incorporates input from select country directors and USAID, helps decision makers plan for recovery, weigh the information and advice they have received, and make informed decisions. It introduces principles of more frequent planning cycles following rare “black swan” events, such as a pandemic, where demand is projected, adjusted and frequently assessed and reassessed to prioritize and reprioritize supply plans. This process provides stakeholders with a way to

think through their recovery strategy—not just internally within an organization but as part of the supply chain network—and make necessary adjustments to build resilient supply chains.

As part of this activity, the project created various products. In Q2 FY 2021, [GHSC-PSM finalized the field guide and accompanying two-pager](#) and published in English, French, Portuguese and Spanish. In Q3, GHSC-PSM created and published a short, three-part podcast on the Recovery Strategies. The project also published [an op-ed in Devex](#) on strengthening supply chains, linking to the Black Swan guide and three-part podcast. Since the [Black Swan Guide](#) went live on the GHSC-PSM website in March 2021, the page generated 357 pageviews, 294 of which were unique pageviews. The documents were widely disseminated through various platforms such as the IAPHL, the GHSC-PSM project website, Twitter, and LinkedIn, among others, to reach the largest audience of in-country stakeholders.

## DOCUMENTING PRIVATE SECTOR CONCEPTS IN OUTSOURCING AND COSTING SUPPLY CHAINS

In FY 2021, the project supported ongoing efforts of the African Resource Center’s outsourcing toolkit (OSTK) development. This was a synergistic opportunity to document ongoing work in the application of private sector concepts, notably in contracting for transportation services and ABC for public health supply chains. In FY 2021, GHSC-PSM published a new document, [Contracting for Transportation of Public Health Commodities to the Private Sector](#), that serves as a guide for private sector contracting, describes different options, and explains the potential benefits and challenges of each option. Also published was [Implementing Activity-based Costing \(ABC\) and Activity-based Management \(ABM\) in Warehousing and Distribution](#), which helps users determine the real costs of warehousing and distribution activities by providing tools to capture cost information daily, monthly and annually, new management processes, and organizational learning about how these tools and processes help improve cost management. The work on these documents was used to help inform the project “deep dives” into how the project looks at its own contracts with 3PLs and to inform inputs into future 3PL contracts, including those for COVID-19. The project disseminated these documents widely through various platforms such as the IAPHL, the GHSC-PSM project website, Twitter, LinkedIn, and other channels to reach the largest audience of in-country stakeholders.

## COUNTRY SUPPORT

Below are examples of the technical assistance that GHSC-PSM provided to strengthen in-country<sup>20</sup> supply chains for FP/RH commodities this reporting period.

**Nepal:** Over FY 2021, GHSC-PSM and the Government of Nepal made great strides in expanding coverage of the electronic logistics management information system (eLMIS) in Nepal, extending coverage from 211 to 1,107 sites in the year. Also, the eLMIS reporting rate was steadily above 95 percent throughout all quarters, and reporting timeliness from the health facilities increased from 52 percent in Q1 to 86 percent in Q4. As a result, the users of Nepal’s eLMIS now have data to ensure

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<sup>20</sup> GHSC-PSM procured FP/RH commodities for the following countries: AFRICA: Angola, Burkina Faso, Burundi, DRC, Ethiopia, Ghana, Guinea, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Uganda, Zambia; LAC: Haiti; ASIA: Nepal. The countries for which GHSC-PSM provides technical assistance with FP/RH funding are: 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.

accurate forecasting, supply planning, distribution, and inventory management of FP commodities, helping to reduce stockouts.

GHSC-PSM in Nepal also managed the delivery of FP commodities to an SMO (Contraceptive Retail Services/Nepal, or CRS) throughout the year. Despite COVID-19, in the last three months of FY 2021 alone, GHSC-PSM delivered over 1.6 million vials of injectable DMPA-IM and implants to CRS, thus delivering 100 percent of all FP products planned for FY 2021. This is a significant contribution to contraceptive security in Nepal.

**Mali:** Following Mali's military coup in August 2020, the U.S. Government (USG) prohibited projects it funds from using FP resources to provide technical assistance to government entities at the national, regional and district levels and also barred the storage of USG-funded contraceptives in government facilities. Despite this challenge, GHSC-PSM, while still adhering to these USG requirements, devised a plan to ensure that targeted regions were fully stocked by working with the private sector to store and distribute FP commodities. This included working with community health centers (CSCOMs), which are considered non profit private organizations in Mali.

GHSC-PSM initially stored all procured contraceptives at a central warehouse in Bamako operated by the nonprofit JIGI, a subcontractor of the USAID New Partnerships Initiative-Expanding Health Partnerships (NPI-EXPAND) project. To organize the delivery of contraceptives to the CSCOMs in five regions (Kayes, Koulikoro, Mopti, Segou and Sikasso), GHSC-PSM developed a distribution plan to build up a six-month stock of contraceptives in each CSCOM.

The plan also established the chain of custody of all USAID partners involved in the distribution, from storage at the central warehouse to the delivery of contraceptives to each CSCOM. For the three USAID focus regions (Mopti, Segou and Sikasso), GHSC-PSM subcontracted with a local third-party logistics provider (3PL) to distribute the contraceptives to 28 health districts, and from there, handed the contraceptives over to the USAID-funded Mali Health Systems Strengthening, Governance and Financing Activity (HSS) led by Palladium, which ensured the distribution of contraceptives to 612 CSCOMs. In the other two regions, Kayes and Koulikoro, GHSC-PSM is working with USAID partners such as NPI EXPAND/JIGI and Momentum/JIGI, which will ensure the distribution of contraceptives in the districts and CSCOMs.

Throughout this process, GHSC-PSM tracked the distribution through an innovative, Kobo-based distribution transportation tool, which monitored fuel consumption, managed the proofs of delivery and registered all trucks, drivers and points of contact at delivery locations. Through this distribution, GHSC-PSM ensured that each of the targeted regions will be fully stocked in FP commodities for the following six months. GHSC-PSM will continue to support this process in the same manner, with the next distribution scheduled for January 2022.

## B4. MATERNAL, NEWBORN AND CHILD HEALTH



**Nine countries procured MNCH medicines and commodities, and 20 countries received health supply chain strengthening support in FY 2021.**



**Nine countries procured MNCH medicines and commodities in Q4.** Since its beginning, the project has procured a total of **\$23.8 million in MNCH commodities, including nearly \$169 thousand in Q4.**

Disseminated **global guidance on distributing and dispensing MNCH commodities during COVID-19** and published **MNCH commodity price and lead time updates** in FY 2021.



Launched a **data tools catalog** capturing **inputs from 15 countries** and containing **information on 36 tools** used for health commodity decision making.

Worked with USAID to have a [story documenting improved MNCH commodity availability in Mali](#) featured on **four USAID channels**, reaching **13,000 people** through USAID newsletters and **hundreds of social media engagements.**

### Addressing COVID-19 challenges

Throughout FY 2021, GHSC-PSM continued to implement core activities in the MCH portfolio despite challenges related to COVID-19. Many activities were quickly adapted to virtual settings. More on how the project has supported countries' management of MNCH commodities in the time of COVID-19 is included under "Helping countries adapt to address COVID-19 challenges" below.

GHSC-PSM supports USAID's efforts to prevent child and maternal deaths by increasing access to quality-assured medicines and supplies under the Maternal and Child Health 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 report summarizes achievements under the MCH task order objectives during FY 2021, including those of the core work contributing to the global dialogue on priority MNCH issues and the performance of the project's global supply chain and country offices. The MCH task order objectives are as follows:

- **Objective 1. Provide international MNCH supply chain leadership and guidance:** GHSC-PSM contributes to the global MNCH commodity and supply chain knowledge base, engages with technical coordination bodies, and promotes international MNCH and supply chain best practices.
- **Objective 2. Support data-informed health supply chain decision making for MNCH commodities:** The project implements and trains staff in using MNCH data collection and analysis tools; advocates for data system investments; and works with countries to demonstrate the value of timely and accurate data to manage commodities.
- **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.

## INTRODUCTION: REFLECTIONS ON FY 2021

The MCH task order worked diligently in FY 2021 to facilitate better connections and knowledge sharing among the countries it supports. One key achievement was developing the Data Tools Catalog, a collection of analytics tools used by our country teams to inform health commodity decision making. The catalog allows users to learn from their colleagues and find solutions that can be adapted for use in their own country. We continue to collect feedback on the resource and will implement changes to improve utility and add more analytics tools in FY 2022. The focus on making these tools (and discussions of how to use or adapt them) ubiquitous is absolutely crucial as we work to attain active management of MNCH commodities, which are often underemphasized within health systems.

To further meet our goal of connecting and discussing current topics with our country teams, the MCH task order also held regular informational and knowledge-sharing sessions, typically centering on presentations from our colleagues in country offices, to inform our work in improving MNCH commodity availability, management and quality. This year, GHSC-PSM strengthened support to and relationships among technical and country teams that have allowed for more targeted support to address country-specific MNCH challenges.

The project was involved in global efforts to improve reproductive and MNCH commodity forecasting and supply planning in FY 2021. GHSC-PSM worked with the USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) project to incorporate updated WHO guidance and real-world implementation insights from country teams into the reproductive and MNCH commodity forecasting guide originally developed by the UN Commission on Lifesaving Commodities for Women and Children (UNCoLSC). The project is excited to help disseminate the updated guide in FY 2022. This collaboration with MTAps is a great example of how each of our projects can bring its strengths to the table to create useful and informed tools for improving MNCH and can serve as a model as we collaborate with MTAps and other partner projects and organizations in the future.

The last major achievement for the MCH task order this year was the enhancement of private sector partnerships. The project is currently working closely with a wholesalers association in Zambia, helping assess the association's needs and supporting efforts to improve its ability to supply quality MNCH commodities. Earlier in the year, we convened more than 30 organizations to identify opportunities to support domestic wholesalers and increase availability of priority essential health commodities. This convening represents an opportunity to strengthen supply chain performance and shift from "operating" supply chains to "governing and stewarding" them. GHSC-PSM came away with a clearer sense of the operating environment for domestic wholesalers and identified areas in which we can support and help fill in gaps. The project also looks forward to leveraging the relationships built around this activity and to push this effort forward within the global community through the [Child Health Task Force](#).

Specific progress in these areas is described below.

### ***Looking forward***

In FY 2022, GHSC-PSM will continue to implement the oxytocin degradation tool—used in Malawi and Mozambique to assess supply chain conditions—and use it to shape national policies that ensure supply of the correct mix of postpartum hemorrhage (PPH) commodities to safely care for pregnant women; expand activities to help countries address challenges and increase access to vital newborn and child health commodities; and use end-use verification (EUV) surveys to provide insights into the impact of countries’ supply chain work on MNCH commodity availability and persistent challenges. GHSC-PSM will continue private sector capacity building through domestic MNCH commodity wholesalers. The project continues to pilot a curriculum to strengthen wholesaler associations and co-design (with partners in this area) targeted interventions to enhance wholesaler capacity.

The project seeks to equip its country office staff with resources and information, as they are well placed to advise which interventions achieve the most lasting impact on commodity security. This goal will be achieved in FY 2022 through initiatives such as:

- *Enhancing countries’ access to analytics tools for supply chain decisions and performance monitoring.* The project will continue to build on the catalog of analytics tools and assist country teams to adapt and adopt existing tools in the catalog to their unique country systems, data and decision- making processes.
- *Continuing and enhancing EUV data collection and related supportive supervision.* The project has gleaned critical information about MNCH commodity availability using EUV data, and countries have lauded the opportunities for support identified during EUV visits. In FY 2022 the project will pilot data collection and supportive supervision during EUV specifically for newborn and child health commodities in Burkina Faso and possibly other countries to target challenges and develop solutions.
- *Facilitating frequent and strategic collaborations across the countries the project supports* through regularly scheduled webinars, listservs and facilitated discussions. Support will include sharing and discussing global trends and country lessons and successes to improve MNCH commodity management among project staff and with partners when appropriate.

The remainder of this section discusses FY 2021 activities and achievements.

## **PROVIDE INTERNATIONAL MNCH SUPPLY CHAIN LEADERSHIP AND GUIDANCE**

### ***Improving the management of PPH commodities***

PPH continued to be the global leading cause of maternal mortality in FY 2021. Since 2017, WHO and other global partners have updated clinical recommendations for the prevention and treatment of PPH, including heat stable carbetocin for PPH prevention and broadened use of existing legacy health commodities, including oral misoprostol and tranexamic acid. In response, GHSC-PSM continues to engage project staff, local implementing partners, and national government stakeholders to call attention to updated PPH global guidance and improve procurement and supply chain management of context-appropriate PPH commodities.

*Disseminating information to GHSC-PSM countries.* With the addition of new commodity offerings and expanded clinical indications, WHO’s updates introduced new clinical and supply management complexities. For example, heat stable carbetocin is clinically indicated for PPH prevention, but it should

not be used for labor induction, augmentation or PPH prevention. To this end, GHSC-PSM led three informational webinars in FY 2021 to expand knowledge on PPH commodity clinical and supply chain considerations.

Date	Title	# of participants	Countries in attendance
November 19, 2020	Postpartum Hemorrhage (PPH) Commodities: Considerations for Selection and Forecasting [in English]	26	Ghana, Ethiopia, Nigeria, Liberia, Guinea, Burkina Faso, Mozambique, Kenya, Malawi, Nepal and Mali
December 9, 2020	Postpartum Hemorrhage (PPH) Commodities: Considerations for Selection and Forecasting [in French]*	20	Benin, Burkina Faso, Guinea, Haiti and Senegal
September 22, 2021	Her Life Matters: Ensuring the Availability of Tranexamic Acid (TXA) to Prevent Maternal Mortality from Postpartum Hemorrhage (PPH)	41	Burkina Faso, Ethiopia, Guinea, Ghana, Haiti, Liberia, Mozambique, Nigeria, Pakistan, Rwanda and Zambia

\*Conducted in collaboration with the Francophone Task Order.

These sessions aimed to connect updated recommendations to real-world considerations for uptake and scale. Specific topics covered include: summary clinical indications for non-clinical audiences, information on product packaging requirements, quality findings for PPH commodities, forecasting and supply planning considerations, and storage recommendations.

*Malawi.* In FY 2021, GHSC-PSM conducted an assessment of Malawi’s public sector supply chain to identify high-risk procurement and supply practices that may compromise PPH commodity quality and availability. Oxytocin, the current first-line medication to prevent and treat PPH, is sensitive to heat and should be stored between 2° and 8°C in countries with tropical climates. In the assessment, GHSC-PSM analyzed local supply chain and temperature data to identify where excessive heat exposure may occur and how current procurement and inventory management policies may contribute to the presence of poor-quality PPH commodities at the point of care. The assessment was completed in Q4 and included recommendations to:

- Exclusively procure oxytocin labeled for storage between 2° and 8°C and store it accordingly
- In health facilities where oxytocin quality cannot be guaranteed due to lack of refrigerators, expand the use oral misoprostol for PPH
- Adjust inventory min and max policies and distribution schedules to ensure that an adequate supply of context-appropriate PPH commodities is always available

Assessment findings and supplementary PPH commodity quality training will be delivered in Q1 FY 2022 with local government counterparts and key partner staff. The assessment and training will serve as the

basis for developing a PPH commodity supply strategy and will support improved procurement and supply management of PPH commodities in Malawi.

*Mozambique.* In FY 2021, GHSC-PSM completed a supply chain assessment in Mozambique that similarly aimed to improve procurement and supply management policies and practices for PPH commodities. The activity was initiated in FY 2020; however, COVID-19-related delays slowed activity progress. In the assessment, GHSC-PSM conducted an end-to-end supply chain mapping to document the length of time that oxytocin spends at various points in the supply chain and developed a tool that predicts oxytocin degradation based on time and temperature inputs. The tool enabled GHSC-PSM to simulate cumulative oxytocin degradation and identify high-risk points within the supply chain for immediate action. The project prepared a report and presentation of findings, translated them into Portuguese, and shared preliminary findings with local government counterparts. Concurrently, GHSC-PSM collaborated with colleagues from WHO, who also had a related activity in progress. On August 30, 2021, the MOH issued a memo calling for procurement and management of oxytocin labeled for storage between 2° and 8°C. In FY 2022, the GHSC-PSM country office will share the full findings of the assessment, including recommendations to remove oxytocin from the essential medicines kits and replace it with oral misoprostol. GHSC-PSM in Mozambique will support the MOH in implementing the new policy in the new fiscal year.

#### ***Conducting a commodity landscape study in Ghana on antihypertensives for use during pregnancy***

Hypertensive disorders of pregnancy (HDP)—comprising chronic hypertension, gestational hypertension, pre-eclampsia, and eclampsia—are the second-leading cause of maternal death and account for 14 percent of maternal deaths globally. HDP is highly preventable and treatable when timely and effective care is provided, including the administration of lifesaving health commodities. WHO recommends the use of four antihypertensives for managing HDP. These include methyldopa, nifedipine, hydralazine and labetalol. The availability of these commodities throughout the supply chain is crucial to delivering high-quality maternal health services.

In Ghana, while maternal health care has improved in the past decade, HDP remains a major challenge. Furthermore, supply chain management data and information on HDP-related commodities are limited, as they have not traditionally been a part of MNCH commodity studies. In FY 2021, GHSC-PSM, the Ghanaian MOH, and Ghana Health Service assessed Ghana’s antihypertensives supply chain to identify factors that either contribute to or inhibit commodity availability. The project collated information on supply chain policies and practices to determine if HDP commodities are available at the point of care. This included reviewing the national medicines list, standard treatment guidelines, financing mechanisms, and LMIS data to identify supply chain–related barriers that may impact antihypertensive availability.

In addition to sharing findings with key government and partner stakeholders, the landscape study highlighted the need for additional data collection and analysis on commodity availability, case management, and care provider preferences. Based on the findings and recommendations, the MOH’s Family Health Division and GHSC-PSM co-developed next steps, to be implemented in FY 2022. GHSC-PSM in Ghana will continue to engage with in-country stakeholders to advocate for policy changes that will improve the availability of quality antihypertensive commodities for use in pregnancy.

#### ***Validating revised RMNCH commodity forecasting guidance***

In 2012, the UNoLSC identified high-priority reproductive, maternal, newborn and child health (RMNCH) commodities that address leading avoidable causes of death for mothers, newborns and children. If these priority commodities can be accessed widely and used properly, they have the power to significantly reduce preventable deaths. A key aspect of ensuring availability is accurate and timely commodity quantifications. To that end, a group of experts developed forecasting guidance for UNCoLSC commodities.

In FY 2021, with GHSC-PSM support, MTaPS revised and expanded the guidance to include additional maternal health commodities in line with recent changes in WHO recommendations. In addition to UNCoLSC products like oxytocin and misoprostol, the revised guidance now includes heat-stable carbetocin, TXA, calcium gluconate, and four WHO-recommended antihypertensives for use in pregnancy. For newborn health, products such as antenatal corticosteroids, chlorhexidine, antibiotics for possible serious bacterial infection (PSBI), and resuscitation equipment are included. Lastly, for child health, amoxicillin, ORS and zinc are included. In addition to expanding the product list, the guidance includes product characteristics, supply chain considerations, global burden data, proxy data, updated algorithms for PSBI and other health conditions, and sample calculations to guide the quantification process.

GHSC-PSM supported the validation of the updated RMNCH guidance. Five GHSC-PSM country teams participated in the validation process by using the guidance during national quantification exercises:

- In March 2021, the Ghana team validated the updated RMNCH forecasting document during their family planning quantification.
- In April 2021, the Nigeria team validated the document during their MNCH quantification exercises in three project-supported states.
- In April 2021, the Nepal team validated the document during their quantification exercises for newborn and child health commodities.
- In May 2021, the Pakistan team validated the document during their MNCH quantification in one project-supported province.
- In June 2021, the Ethiopia team validated the document during their MNCH quantification exercises.

In Q4, GHSC-PSM country teams and MTaPS discussed the detailed feedback that was provided during the validation and agreed to modifications to incorporate the feedback. Modifications consisted of, but were not limited to:

- Emphasizing the use of regional or country-specific disease burden data instead of global averages for increased accuracy.
- Forecasting for the private sector or social marketing sector where applicable.
- Revising assumptions for select health conditions to disaggregate number of cases based on the level of care.

In FY 2022, MTaPS will continue to incorporate feedback and modifications provided by GHSC-PSM country teams. Also, a one-page user guide will be developed, which will accompany the guidance and provide information on how to use it properly. To increase its accessibility, the revised guidance, user guide, and Excel tool with examples will be translated into French. Upon finalization of all materials, GHSC-PSM and MTaPS will work together on a dissemination plan, including developing a website to share the revised guidance publicly.

### ***Supporting domestic wholesalers to improve access to quality MNCH commodities in the private sector***

*Technical leadership in global dialogue around domestic wholesaler operating context, challenges and opportunities.* A critical component in reaching health goals in LMICs is improving the availability of quality health products. Private sector domestic wholesalers are a central actor in many health supply chains, often the connection point between manufacturers and points of dispensation. In particular, domestic wholesalers are often suppliers of essential MNCH commodities. The global health community recently increased interest in improving the availability of quality essential medicines and products from private sector domestic wholesalers to improve health outcomes. Several partners and organizations have engaged domestic wholesalers to improve their ability to source and distribute affordable, quality health products.

In Q1 FY 2021, GHSC-PSM convened 30+ organizations, including global health partners and private sector domestic wholesalers, to collectively identify opportunities to continue to support domestic wholesalers and increase availability of priority essential health commodities in select LMICs. Participants discussed the domestic wholesaler landscape in global health supply chains, including roles, what is working, and what challenges these organizations face. The interactive meeting included presentations from private sector international and domestic wholesalers and facilitated dialogue regarding opportunities to improve domestic wholesaler abilities to avail quality health commodities. The discussion and expert feedback will inform future GHSC-PSM coordination with global health partners and project activities to support domestic wholesalers.

*Supporting private sector domestic wholesalers in Zambia.* GHSC-PSM initiated a technical assistance activity supporting Zambia's national wholesaler association, *Zambian Pharmaceutical Business Forum (ZPBF)*, in FY 2021. ZPBF is a non-profit association of pharmaceutical wholesalers, manufacturers and retailers that aims to help members effectively operate as suppliers of health commodities. GHSC-PSM partnered with the foundation arm of the *International Federation of Pharmaceutical Wholesalers, Inc. (IFPW)* to assist ZPBF as it supports domestic wholesalers, promotes private sector interests, and effects positive change. GHSC-PSM developed a Memorandum of Understanding with ZPBF on the roles, responsibilities, duties and obligations of each organization under this activity. IFPW and GHSC-PSM conducted interviews with key ZPBF members and partners in Zambia, including clients, the Zambia Medical Regulatory Authority, and the MOH about ZPBF's priorities and needs. Workshops were delayed while COVID-19 peaked in Zambia in Q4 and national elections caused further delays, but re-scheduled workshops will begin in October 2021 to support organizational development efforts.

### ***Supporting international and regional MNCH supply chain groups***

The project's involvement in MNCH supply chain groups informs its work and allows it to provide lessons learned and technical expertise to these groups. The project supported such groups in the following ways in FY 2021:

- GHSC-PSM played an active role in the RHSC's **Maternal Health Supplies Caucus (MHSC)** and participated in its **Postpartum Hemorrhage Community of Practice (PPH COP)**. This role included participating in monthly MHSC meetings and contributing to PPH-related outputs of MHSC's annual work plan. GHSC-PSM also participated in the RHSC annual meeting and supported the initial stage of MHSC 2021–22 work planning.
- In September 2021, GHSC-PSM participated in the two-day **PPH COP annual meeting**. Topics from the meeting included updated clinical guidance from WHO, rationale for the use of uterine balloon tamponade in lower-level facilities, highlights of how countries have ensured uterotonic quality, and country successes and lessons learned to date.

- GHSC-PSM participated in a meeting of partners to provide feedback on a **Newborn Essential Solutions and Technologies (NEST360) and UNICEF toolkit** of information, experiences, resources and best practices for implementing small and sick newborn care services.
- The project participated in a meeting on the **Emergency Newborn Action Plan (ENAP)** to discuss how to better coordinate work supporting newborn medical devices going forward.
- In Q4, USAID brought together key partners working in the **USAID supply chain portfolio**, GHSC-PSM, MTaPS and PQM+, to align work plan activities and identify opportunities to collaboratively strengthen MNCH supply chains. GHSC-PSM will continue to participate in these working groups and relevant sub-working groups in FY 2022.

**Helping countries adapt to address COVID-19 challenges**

**Ensuring MNCH commodity availability.** Since the initial outbreak of COVID-19, health supply chains in GHSC-PSM countries needed to adjust to new demands, including changes in patient consumption, upstream supply shocks and the need to ensure health care workers' access to personal protective equipment (PPE). Maintaining MNCH services and commodity availability at health facilities remains critical to prevent suffering and potential deaths of women and children. COVID-19 also aggravated existing service delivery challenges and prompted a need for new and dynamic supply chain planning and operations. In FY 2021, GHSC-PSM released a technical resource, [Ensuring Maternal, Newborn and Child Health Commodity Availability During COVID-19](#), in English and French to help countries address MNCH commodity challenges during COVID-19. In light of the Delta variant and COVID-19 resurgences, the project hosted a webinar to highlight this technical resource and encourage sharing across TO4-supported countries. The webinar encouraged country teams to implement COVID-19–related activities that align with the resource in their FY 2022 work plans, including around forecasting and supply planning, community-based distribution, and alternative methods of commodity dispensing. The webinar also provided a platform for countries to share their experiences with the COVID-19 pandemic, including their MNCH supply chain challenges and the mitigation steps they have taken.



The project published this update on MNCH commodity prices and lead times in Q3.

**Update on GHSC-PSM contract prices and lead times of select MNCH commodities.**

In January 2021, GHSC-PSM re-issued and negotiated contracts for MNCH essential commodities as part of its objective to increase availability of quality-assured MNCH commodities in project-supported countries. Despite COVID-19 impacts on global supply and logistics, GHSC-PSM did not observe substantial disruptions in MNCH commodity availability, prices or lead times due to the pandemic. GHSC-PSM compared prices and lead times of select MNCH commodities in project contracts negotiated before the pandemic and recently negotiated prices and lead times in the document [GHSC-PSM contract prices and lead times of MNCH commodities](#). This resource was published in Q3.

**SUPPORT DATA-INFORMED HEALTH SUPPLY CHAIN DECISION MAKING FOR MNCH COMMODITIES**

**Conducting EUV surveys in project-supported countries**

MNCH data and analytics within national LMISs are not always adequate to identify and resolve supply chain issues. As a result, GHSC-PSM uses the 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 SDPs. EUV data collection is also an opportunity for GHSC-PSM country teams to provide on-site capacity building for SDP staff and MOHs, gather supplemental qualitative data on reasons for stockouts, and cross-check LMIS data accuracy on stock availability trends.

In FY 2021, the project supported data collection on MNCH commodities through EUV surveys in 10 countries. The table below depicts GHSC-PSM country offices that collected, analyzed and submitted EUV reports during each quarter of FY 2021.

Quarter	TO4 countries that submitted* EUV reports
1	Ghana and Guinea
2	Benin, Burkina Faso, DRC, Mali, and Liberia
3	Burkina Faso, Ethiopia, Ghana, Mali and Nigeria
4	Guinea, DRC*, Liberia and Nepal*

\*DRC and Nepal implemented the survey in Q4 and started drafting their first report; they will submit in early FY 2022.

Based on the report findings, GHSC-PSM country teams developed context-specific recommendations and initiated advocacy efforts with national stakeholders:

- In Guinea, initiated discussions with the National Directorate of Family Health and Nutrition around storing oxytocin in national vaccine refrigerators to improve storage conditions for the product.
- In Ethiopia, continued supportive supervision visits and advocacy, which helped decrease stockouts for essential commodities such as oxytocin, magnesium sulfate, and ORS.
- In Mali, supported the MOH in holding biannual meetings where EUV results were presented, including challenges related to commodity availability. Based on the presentation, solutions were proposed to improve the availability of MNCH commodities.

*Global EUV leadership.* GHSC-PSM also participated in a series of project EUV meetings and trainings, including monthly technical working groups. At the beginning of the fiscal year, the project engaged with USAID/Washington to discuss survey improvements for future EUVs. GHSC-PSM provided feedback and voted on the proposed changes for survey design and MNCH indicators. Since the meetings, the project has continued to support changes and provide input where needed.

**Supplemental EUV data analyses for high-priority MNCH commodity areas.** As mentioned earlier, GHSC-PSM supports efforts to improve the utility of the EUV. The project was tasked in FY 2021 with conducting a supplemental EUV analysis using 2018 data from Ethiopia, Ghana, Liberia and Mali to identify observable trends related to:

1. The uptake of amoxicillin dispersible tablets (DT) and co-packaged ORS and zinc
2. Facility-level management of oxytocin and magnesium sulfate

Due to data quality and sampling limitations, it was not possible to describe observable trends over time. In some instances, data on commodity availability aligned with broader contextual knowledge and insights from in-country project staff, e.g., information on government-led procurements and challenges with MNCH commodity financing. GHSC-PSM generated recommendations based on this analysis to inform the annual EUV change board meeting and allow for potential trend analysis in the future.

### ***Improving data analytics for MNCH commodity decision making***

eLMIS platforms help stakeholders analyze an array of national supply chain information. In FY 2020, GHSC-PSM conducted a data use survey in 15 countries and mapped the availability of MNCH commodity-related data across electronic and paper-based systems. Findings indicated that countries often face the time-consuming challenge of manually entering, consolidating and analyzing logistics data. These challenges often delay decision making and response to supply chain challenges.

As a result of these findings and interest generated within country teams to scale up use of data for MNCH commodity management, in FY 2021, GHSC-PSM conducted focus groups in 15 countries that receive MNCH support. These discussions focused on the need to identify common MNCH commodity management decisions and the corresponding analytics tools that countries use to inform them. GHSC-PSM then used the information gathered to design a Power BI data catalog of adaptable and robust data analytics tools in use by its country teams. 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. The project hosted a data use webinar to formally launch the catalog and encourage country teams to invest in new tools for future GHSC-PSM activities. In Q4, the project surveyed its country teams on the utility of the catalog and used the feedback to plan future improvements. These include integrating data tools that were missed in the first version of the catalog, providing screenshots of the analytics tools to demonstrate use of each tool, and improving the intuitiveness of the interface to facilitate user engagement.

In FY 2022, select GHSC-PSM country teams will select, adopt and adapt analytics tools from the catalog based on their supply chain needs. Through this activity, GHSC-PSM aims to continue to improve MNCH commodity management through data analytics.

## **IMPROVE ADHERENCE TO GLOBALLY RECOGNIZED BEST PRACTICES IN MNCH COMMODITY MANAGEMENT**

### ***Systems strengthening technical assistance***

GHSC-PSM provided MNCH systems strengthening support to increase access to quality-assured MNCH commodities to 20 countries<sup>21</sup> in Q4. Specific country achievements are described below.

***Improved management and use of amoxicillin in Ethiopia.*** In Q4 FY2021, GHSC-PSM in Ethiopia assessed amoxicillin use for treating childhood pneumonia at Mekaneselem Hospital, following a series of project-supported interventions to improve prescribing practices. This assessment is part of a larger

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<sup>21</sup> GHSC-PSM provided MNCH technical assistance to 20 countries in FY 2021: Burkina Faso, El Salvador, Ethiopia, Ghana, Guatemala, Guinea, Haiti, Honduras, Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Nicaragua, Nigeria, Pakistan, Panama, Rwanda, and Zambia.

Drug Use Evaluation (DUE) conducted in FY 2020 and 2021, during which the project worked with five Ethiopian health facilities to assess and address their challenges in correctly prescribing amoxicillin. An initial DUE analysis established a baseline for the work, revealing mostly low rates of proper dosing and prescribed duration of treatment (13 percent, 43 percent, 48 percent, 88 percent and 90 percent at the five facilities). The DUE also revealed that many patients were prescribed costly second-line treatments not aligned with Ethiopia's National Standard Treatment Guidelines (STGs), such as amoxicillin clavulanic acid suspension.

GHSC-PSM implemented strategies to address the challenges voiced by prescribers at the assessed facilities, including sharing the DUE findings, increasing awareness and availing of the STGs, advocating for use of amoxicillin oral formulations, disseminating order sheets, and conducting supportive supervision visits. After one year of intervention activities at Adama Hospital, a post-intervention DUE was conducted, which indicated an increase in STG adherence from 13 percent (at baseline) to 86 percent. The follow-up DUE conducted at Mekaneselam Hospital in Q4 also revealed promising results:

- The prescribing practice of the recommended treatment, amoxicillin DT, improved from 0 percent to 14.2 percent as compared to the previous DUE
- Prescription at the correct dosage improved from 54.96 percent to 80.82 percent
- Prescription of the correct indication improved from 90 percent to 92 percent
- Prescription for the correct duration improved from 80 percent to 83.32 percent
- Amoxicillin DT were reported to be consistently available at the hospital

Post-intervention DUEs will be conducted at the three remaining facilities by December 31, 2021. GHSC-PSM will also support the Ethiopian Ministry of Health to develop and roll out a standardized, user-friendly DUE guide in FY 2022 that supply chain managers and other staff can use to conduct DUEs for critical MNCH commodities at their own facilities.

***Assessing supply chain barriers to availing MNCH commodities in Nepal.*** GHSC-PSM in Nepal worked in FY 2021 to propose and receive full governmental approval to assess the availability of newborn resuscitation equipment in birthing centers and distribution and storage of oxytocin, which was granted in Q4. Following approval, the team began recruiting data collectors and kicked off research activities. The assessments will be completed in FY 2022.

***Ensuring availability of MNCH commodities in Pakistan.*** As a result of GHSC-PSM's continuous advocacy to improve MNCH outcomes in Pakistan and ensure the availability of MNCH very essential medicines (VEMs), by the end of FY 2021, all provincial health departments in Pakistan had instituted MNCH VEM lists. Specifically in Q4, the project provided technical support to the Department of Health in Balochistan province to develop an MNCH VEM list and a comprehensive forecasting and supply planning (FASP) tool. The project also conducted a five-year provincial forecast of MNCH VEM. The FASP tool can be used for future MNCH VEM forecasting at provincial, district and facility levels. The project trained staff from the provincial MNCH program, Lady Health Workers program, Expanded Program on Immunization, and Medical Store Depot on the FASP tool for self-sufficient, structured forecasting and supply planning. These activities will help the department strengthen the provincial planning and procurement processes for improved estimates of lifesaving MNCH commodities that in turn will help save the lives of millions of women and children in Balochistan province.

***Increasing availability of MNCH commodities in Mali.*** GHSC-PSM supported the Malian government in FY 2021 to [increase availability of oxytocin, magnesium sulfate, and chlorhexidine](#) at SDPs. To further

these efforts in Q4, GHSC-PSM and the Regional Directorate of Health of Sikasso conducted supportive supervision focused on managing select MNCH products. The supervision team selected three health districts in the Sikasso region (Kadiolo, Kolondieba and Niena) and visited the depot and service delivery point of each district. Eight MNCH products were selected as key products for the supervision: magnesium sulfate, chlorhexidine gel, oxytocin, zinc, ORS with zinc, amoxicillin syrup, amoxicillin DT, and injectable gentamicin. During the visits, the supervision team noted the following:

- Stock cards for magnesium sulfate, oxytocin, and amoxicillin syrup were available in all depots and SDPs of the three districts.
- Only 67 percent of the depots and SDPs visited had maintained stock cards for chlorhexidine gel, amoxicillin DT, and injectable gentamicin.
- Oxytocin and amoxicillin syrup were available in all depots and SDPs visited, compared to 83 percent availability of magnesium sulfate and amoxicillin DT, and a 60 percent availability for chlorhexidine gel and injectable gentamicin.
- Chlorhexidine was used for umbilical cord care in 68 of the 155 births (43.8 percent) that were registered during the period.

Each of these observations of MNCH product management highlighted the areas where MNCH STGs are not being applied in health facilities. Following this supportive supervision, the supervision team (which included GHSC-PSM) conducted follow-up trainings to develop health workers' capacity to properly manage MNCH products and adhere to MNCH standard treatment guidelines, a critical step in lowering maternal and neonatal mortality rates in Mali.

**Throughout FY 2021** the project also facilitated the following country successes:

***Assessing private-sector capacity in Ghana.*** GHSC-PSM in Ghana designed and launched a landscape analysis in FY 2021 to assess MNCH commodity availability in the private sector. The project recruited and trained data collectors, who used a quantitative tool and qualitative interviews to collect information from wholesalers and distributors, hospitals, clinics and retail pharmacies in four regions. Data were collected on commodity availability, storage conditions, and product components including brand, manufacturer and price. The data collection was completed and analysis began in Q4. The goal of this analysis is to identify systemic challenges that impede availability and access to priority commodities at all levels of distribution in the private sector and its supply mechanisms to the public sector. A complementary data collection exercise was carried out in Q4 to interview 15 domestic wholesalers that are a primary source of MNCH commodities for hospitals, clinics and retail pharmacies. These interviews touched on MNCH product offerings, contracting processes, and barriers to adequately supplying MNCH commodities to public and private sector clients. Analysis and lessons learned will be shared with stakeholders in early FY 2022.

***COVID-19 vaccine support funneled through MNCH work in Ethiopia, Ghana and Guinea.*** In FY 2021, each country received funds for technical assistance to support COVID-19 vaccine distribution, managed by the MCH task order. In Ghana, the funds are being used to improve electronic systems for vaccine inventory management, strengthen human resource capacity, and strengthen last mile delivery support. In Guinea, the funds are being used to support the country's vaccine logistics working group, the MOH's vaccine forecasting and supply plan reviews, inventory management, distribution planning and tracking. The project is also helping optimize existing stock management and health information systems and integrating COVID-19 vaccine data. Similar efforts are being undertaken in Ethiopia, though because funds were only received in Q4, activities were in planning phases by the end of Q4.

**Ethiopia supports maternal health during COVID-19.** Ethiopia faced many challenges with MNCH commodity availability and service delivery during the COVID-19 pandemic. GHSC-PSM worked closely with the Government of Ethiopia to analyze and address these challenges and ensure continuation of MNCH services during COVID-19 by helping increase communication across government stakeholders to limit stock risks and assure approvals for emergency actions; conducting data analyses and stock monitoring to inform funding mobilization; expediting shipments and clearance processes; mitigating supplier challenges; and moving commodities further down the supply chain to mitigate risk. With these actions, the MNCH supply chain in Ethiopia continues to provide MNCH commodities despite COVID-19 challenges and by Q3 FY 2021, stockouts of MNCH commodities were lower than before the pandemic.

**Nigeria Drug Revolving Fund (DRF).** GHSC-PSM in Nigeria works in three states—Bauchi, Kebbi, and Sokoto—to strengthen their technical and financial capacity for managing MNCH commodities. To this end, the project is working to establish functional DRFs in collaboration with these local governments. The DRF ensures a steady supply of essential MNCH commodities through the sustainable management and financing of procurement, storage, distribution, and monitoring of those commodities. The Nigeria DRF was piloted in Bauchi State in FY 2021 with activities including months of coordination and preliminary work; the formal Bauchi State DRF launch and medicines handover; project verification of three Bauchi State warehouse upgrades (conducted by the state); and installation and use of a warehouse management system. The state is now more prepared to manage the DRF commodities and save the lives of thousands of women and young children, and will serve as a model for other states as they implement similar activities.

In Q4, GHSC-PSM organized a five-day workshop in Abuja to support states in developing multi-year supply chain master plans that are costed and actionable. In attendance were UNICEF and key government stakeholders, including Heads of Drug and Medical Supplies Agencies, Directors of Pharmaceutical Services and Heads of State Health Contributory Management Agencies from Bauchi, Kebbi, Sokoto, Cross River and Zamfara States. Each state leveraged the opportunity to articulate and present their sustainability plans for DRFs, state-led last mile delivery and warehousing, and end-to-end visibility. Participants left the workshop with draft state-specific sustainability plans and better understanding on the need to develop and own a sustainable mechanism for their supply chains.

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

Over the course of FY 2021, GHSC-PSM supported procurement of MNCH commodities for 9 countries<sup>22</sup> including a large emergency procurement of MNCH essential medicines in DRC, with a newly onboarded domestic supplier.

GHSC-PSM also facilitated the complex transfer of oxytocin from Madagascar to Malawi. Through this [successful transfer](#) in Q2, GHSC-PSM averted oxytocin stockouts in Malawi and prevented the risk of product expiry in Madagascar. By leveraging its relationships with governments and suppliers and using its insights on the needs and challenges of both countries, the project was able to find solutions that worked for each country. GHSC-PSM also provided cold chain distribution support to get the 260,000 ampoules into 381 health facilities for immediate use. This injection of the critical maternal health

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<sup>22</sup> GHSC-PSM procured MNCH commodities for 9 countries in FY2021: Congo DRC, Haiti, Liberia, Malawi, Mali, Mozambique, Nigeria, Rwanda, and Zambia. Over the course of the project, GHSC-PSM has also procured MNCH commodities for Madagascar, Bangladesh, Ghana.

commodity into Malawi's supply has reduced stock-out rates from 17 percent in November 2020 to approximately 9 percent in February 2021.

In Nigeria, GHSC-PSM procured \$900,000 of MNCH seedstock commodities to help operationalize DRFs in three states. The project also provided procurement support in Liberia, Mozambique and Zambia for a range of priority newborn and child health products including amoxicillin, gentamicin, ORS and chlorhexidine.

## PROGRESS BY OBJECTIVE

### C1. GLOBAL COMMODITY PROCUREMENT AND LOGISTICS

	<b>Procured \$156.2 million</b> in health commodities in Q4 and <b>\$775.6 million</b> in FY 2021. Total values for the life of the project are over <b>\$3.9 billion</b> .
	<b>Delivered 1,489 line-item orders</b> in Q4, with a value of <b>\$213.7 million</b> .
	<b>Delivered 89 percent (75 percent COVID-impacted) of line items on time</b> , based on the defined on-time window (within the period 14 days before or seven days after the agreed delivery date). <b>Delivered 86 percent (78 percent COVID-impacted) on time and in full</b> .

#### INTRODUCTION: REFLECTIONS ON FY 2021

Many of the overall characteristics that defined FY 2021 for GHSC-PSM stemmed from the previous year. Halfway through FY 2021, it became increasingly apparent that the impacts of COVID-19 on global supply chains were more fundamental and long lasting, particularly on the logistics side. Ongoing consultations between GHSC-PSM and USAID have been critical in understanding and addressing the implications of these wide-ranging and longer-term supply chain challenges that are expected to extend out over the next two or more years. As supply chain disruptions continue and affect a wider range of products, they are also being more widely discussed in mainstream media, rather than limited to a more niche audience. From a technical standpoint, the overarching supply chain disruptions underlie a significant increase in costs; longer shipment delays; and more difficulty in finding flights, transshipments, and particularly containers. Port closures across China have been a major source of these supply chain strains, as they have upped prices and logistics costs, increased lead time, driven cycle time in the wrong direction, and made the delivery process much more unpredictable.

Given the long-term nature of COVID-19's impact on the supply chain, GHSC-PSM continued the efforts started in FY 2020 to mitigate its impact into FY 2021. The project increased the level of communication with suppliers and required deeper visibility into our suppliers' supply chains, including where they acquire raw materials, key starting materials and key pharmaceutical ingredients, to ensure any potential disruptions are being tracked from material origin points. From a logistics standpoint, GHSC-PSM increased communication with our 3PL providers, testing shipment proposals and monitoring shipments to make sure that the project has a complete picture of what's happening on the ground.

Overall, GHSC-PSM sought alternatives and worked to diversify the supply chain to limit risk and increase fallback options. The project continues to use spot bids for freight lane sourcing to ensure pricing is competitive, but not locking logistics providers into long-term contracts in a volatile market,

which will increase costs. Unfortunately, the need to address supply chain impacts through creative solutions also means that managing orders has become more labor intensive. This also places greater emphasis on the need for longer-term visibility into upstream planning to monitor potential impacts downstream in terms of stockouts. The whole environment is much more difficult now and requires better communication, planning and monitoring of potential impacts on the ground.

Beyond logistical and sourcing challenges, the supply chain impacts extend to the human element and the project has been conscientious about allowing for flexibility in where and when people are working to ensure care for those involved in the project. With increasing strain on supply chain workers, it is important for GHSC-PSM to support them to reduce disruptions as a result of undue burden on those involved in warehousing and distribution of products.

Looking forward in FY 2022, GHSC-PSM will monitor its supply chain operations by collaborating with suppliers, logistics providers, and in-country teams to identify risks and develop mitigation plans as needed. This collaboration will take the form of interacting frequently with suppliers and 3PLs, coordinating deliveries with in-country teams, developing and/or generating new reports, creating analytics, and providing status reports to internal and external stakeholders. Depending on the severity of the effects of COVID-19 on its supply chain operations, GHSC-PSM may stand up the COVID-19 Management Taskforce, originally established in February 2020 and disbanded in January 2021, to monitor and manage the impact and to ensure a continuous flow of commodities to patients.

GHSC-PSM continues to monitor the health of its supply chain in the following areas:

- Procurement
  - Impact on GADs: Suppliers' ability to meet their committed GADs depends on several factors, including availability of raw materials, key starting materials, and product packaging; workforce availability; and availability of support staff such as QA. The global and unpredictable nature of the pandemic has impacted productivity.
  - Product pricing: Suppliers have indicated that the pricing of certain raw materials/KPIs are on an upward trend.
- Logistics
  - Logistics costs (air and ocean): Shipping costs have exponentially increased since the start of the pandemic. Actual costs could be drastically different than what was approved for the requisition order (RO).
  - Container shortages: Shortages that started in September 2020 are expected to continue well into FY 2022. These shortages impact not only delivery to customers but also delivery of raw materials for production.

#### **C1A. GLOBAL SUPPLY CHAIN: FOCUSED ON SAFE, RELIABLE, CONTINUOUS SUPPLY**

GHSC-PSM's procurement strategy focused on three primary objectives in Q4 to appropriately manage the impact of COVID-19 on global supply chains:

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

In Q4, 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 by focusing on performance and managing overall commodity and supply chain costs through the following initiatives:

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

GHSC-PSM works across project teams and external stakeholders to understand markets for the medicines and other 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. 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–B4 and Annex A for details.

#### ***Supplier relationship management***

In Q4, GHSC-PSM conducted business reviews with more than 24 key suppliers while proactively managing operations affected by the market, supply chain, and logistics factors, including the continuing impacts of COVID-19. Supplier meetings update the project on the impact of regional shutdowns, logistical challenges, and other issues on production and delivery schedules, while commodity and supplier risk profiles inform performance assessments and order allocation strategies.

#### ***Regional Distribution Center operations***

In FY 2021 GHSC-PSM used the three RDCs to deliver \$238M worth of commodities to 32 destination countries with 94 percent OTD (86 percent COVID-impacted). As the COVID-19 pandemic continued to disrupt the global supply chain, the project's strategy to use RDCs and pre-position key commodities across task orders ensured continued access to commodities with minimal/no disruption. The project used RDCs in FY 2021 to deliver more than 60 percent of TLD and 100 percent of SPAQ required to support SMC campaign needs, while enabling HIV MMD rollout.

In FY 2021 the RDCs received more than 17K inbound pallets and shipped 18K of outbound pallets, achieving over 95 percent compliance on the service-level agreement target both on inbound and outbound transactions. In Q4, the RDCs achieved more than 94 percent and 98 percent compliance on inbound and outbound transactions, respectively.

GHSC-PSM contracted 3PLs (these were external entities with no ties to the companies running the RDCs) to conduct a physical inventory count at the UAE and South Africa RDCs. The inventory audits reported an accuracy rate of over 99 percent. The inventory audit for the third RDC in Belgium is planned for early FY 2022.

In Q4, DSV, the operator of the South Africa RDC, moved to a new facility with dedicated bays for inbound outbound shipments and added a parking facility for containers that will provide the flexibility to increase product throughput as and when needed. The transition to the new facility was completed over a weekend with no downtime or impact on the operations.

## DECENTRALIZED PROCUREMENT

In Q4, GHSC-PSM managed a large volume of orders through decentralized procurement (DCP). The project achieved 90 percent OTD for the quarter excluding COVID-19 challenges (COVID-impacted OTD was 71 percent), which caused shortages and logistics constraints that ultimately affected DCP commodities throughout the global supply chain. Examples of issues and solutions include:

- **VL/EID supply:** GHSC-PSM held additional strategic supplier relationship management meetings with key VL and laboratory suppliers to understand, manage and communicate supply constraints that continued in FY 2021. These constraints lessened during Q4 for reagents and consumables, but GHSC-PSM continued to monitor production and delivery lead times for affected commodity categories and resulting impact on commodity security in supported countries.

## GLOBAL STANDARDS

GHSC-PSM operationalizes its procurement requirements for pharmaceutical, medical device, sterile kit, laboratory reagent, and LLIN suppliers to adopt standardized product identification, 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 GDSN.

FY 2021 saw tremendous progress in suppliers implementing these requirements, thus laying the groundwork to operationalize use of this data in global and national supply chain processes and systems. Advancing compliance requires regularly engaging with suppliers for existing and new items. In FY 2021, through this ongoing engagement, the project:

- Collected, validated and added GTINs for 538 items to the GHSC-PSM catalog.
- Collected master data for 698 new items through the GDSN, and maintained data on existing items. In Q4 alone, the project sent and received more than 1,600 messages in the GDSN.

To improve compliance with and capitalize on the growing maturity of these global standards requirements, the project pursued a series of strategic activities designed to target three goals:

1. **Standardize:** Maximize efficiency while addressing compliance gaps by refining data collection and validation processes. These activities included using new procurement-led data collection processes and collaborating with GHSC-QA to review labeling and identification information collected through QA processes. It also included creating reference documents, including instructional [videos to support compliance with GDSN requirements](#), [posters depicting identification and labeling requirements](#), refining terms and conditions for clarity, and enhancing the master data synchronization guide. These supplier resources can be found [here](#).
2. **Scale:** Expand use of standards-based data across GHSC-PSM activities by familiarizing audiences with existing standards-based data and identifying opportunities for further use. This included an activity to evaluate and document the impact of standards-based data on the global supply chain and a workshop to identify areas where GDSN data can be better leveraged.

3. **Share:** Disseminate lessons learned and benefits of standardized data for use by country programs, donors/procurers and other partners that may be implementing standards in their programs. These activities included a documented set of lessons learned from standards implementation and a reference note documenting the processes and logic used by GHSC-PSM to collect and monitor compliance with standards requirements.

Further information on the program's support for adopting GS1 healthcare standards can be found under Health System Strengthening Section C2.

### ***Quality assurance***

GHSC-PSM streamlines and optimizes quality assurance (QA) and quality control (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 Q4 include:

- Managed recall incidents by facilitating collaboration across internal and external teams to expedite activities, including product quarantines, to ensure patient safety and product replacement and avoid stockouts.
- Managed open quality incidents and continuously enforced and promoted prompt reporting of quality incidents and adherence to SOPs to ensure timely quality product distribution to the end-user.
- Worked with the Supplier Relationship Team to improve the QA scorecard matrix on the severity of quality incidents (i.e., OOS, Regulatory Body notices) used to assess supplier performance.
- Implemented an incident triaging checklist to ensure sufficient information is provided for expedited QA assessments and product disposition recommendations.
- Worked with GHSC-QA to provide input and support toward COVID-19–related commodity procurement.

### ***QA for malaria commodities***

In Q4, the project finalized the GHSC-PSM Malaria Task Order QA strategy that expands on the adjusted QA/QC processes implemented to address COVID-19–related restrictions. Implementation of the strategy began on September 1, 2021. Using this strategy, the project monitors the quality of all products, focusing resources and attention on products that are deemed as higher risk while decreasing the need to expend resources in inspection sampling and testing, thus contributing to lead-time reductions.

The project continued to innovate and implement more robust quality assurance and quality management systems (QMSs) within the LLIN market. This included incorporating the strength of LLIN suppliers' QMS into the allocation process.

The LQAG was made official in Q4. This collaborative global working group, chaired by GHSC-PSM, broadened the scope of the LLIN project from pre- and post-shipment quality-related activities to include the entire lifecycle of the LLINs.

The GHSC-PSM TO2 team also successfully led the collaboration with a receiving country and an LLIN supplier to proactively generate a quality agreement on the QC activities that would be executed before and after shipment of LLIN commodities.

The project performed QA reviews to ensure an additional four mRDTs ( Pf(HRP2/pLDH), Pf/Pan (HRP2/pLDH ), Pf (pLDH) and Pf(pLDH/pLDH) met the QA requirements for procurement eligibility. These products were added to the Restricted Commodity Waiver list governed by ADS 312.

The team expanded the pool of qualified laboratories with the technical capabilities and capacity to test products procured by the project.

In Q4, the project closed out an investigation of LLINs that were OOS for area weight. GHSC-PSM engaged with the supplier to determine the root cause, which was found to be the result of using fabrics with higher area weight to maintain bursting strength. Noting that this parameter is critical for the durability of the LLINs, PMI approved the order and the project continued to engage with the supplier on their CAPA progress for this OOS to ensure it is not a systemic issue.

For more detail, please see section B2: Malaria.

## IMPACTS OF COVID-19 ON FREIGHT AND LOGISTICS

### *Origin challenges*

Logistics challenges due to COVID-19 continued through Q4 and were exacerbated further by port closures and COVID-19 cases at Ningbo port in China, followed by major repercussions from the Yantian port closures, increased COVID-19 infections, and the Suez Canal blockage that compounded the negative impacts on global ocean shipping, resulting in significant port delays and congestion. Capacity constraints remained in effect for air freight, and pricing remained volatile—with rates held for a week or less, particularly in China where COVID-19 cases caused major delays to port operations. Adverse weather throughout Asia led to delays with the onset of the monsoon season. Carriers also saw cargo volumes impacted by shippers planning for the Golden Week period<sup>23</sup>. These disruptions forced more cargo to move from ocean to air and added pressure on an already volatile market.

### *Airfreight*

Reduced capacity along with across the board rate fluctuations heavily impacted airfreight in FY 2021. Airline scheduling remains ad hoc, resulting in reduced service on some lanes, backlogs, and price increases. The rise of COVID-19 cases in Q4, particularly in China, meant further delays to the return of passenger services from China and volatile pricing. Freight services increased on other major routes globally, but this did not improve pricing or lane scheduling. A volcanic eruption in DRC, monsoons and adverse weather in Asia, and cyclones in Latin America and the Caribbean impacted already constrained flight options from to destinations within these regions. Carriers continue to cancel flights or lanes, requiring 3PLs to rebook, which impacts the import duty waiver process. Pricing is valid on some lanes for no more than five to seven days, and 3PLs cannot secure rates until they hand the cargo over to the airlines, which seek to increase rates.

### *Cold chain*

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<sup>23</sup> This is a week-long national holiday period in China starting on October 1st each year when employees are given time off to spend time with family and/or travel.

Q4 brought little to no respite on cold chain shipments. Airlines' aversion to moving cold chain products due to liability concerns, significantly increased in the current market with ad hoc flight schedules, congested airport facilities and skeletal ground handling crews. This presented an enormous challenge for frozen reagents that must be stored -20C and re-iced every two days. GHSC-PSM works with the 3PLs to evaluate risks on a case-by-case basis, weighing the cost of flying cargo versus potentially incurring high storage costs and damaging temperature-sensitive commodities if a flight is canceled.

### ***Ocean freight***

Shortages of all container types persisted in Q4 and continue to be a severe hindrance to ocean freight. Global ocean shipping schedule reliability remains below 40 percent and the project is seeing an average of seven days being added to vessel schedules due to delays. Smaller Suez Canal blockages, COVID-19 impacts on port operations, and higher east/west shipping volumes, coupled with trucking, vessel scheduling and weather-related delays exacerbated the ability of 3PLs to source containers and required increased flexibility in booking with carriers. Ripple effects on rates, shipping schedules, and capacity from the Yantian port closure and then the Ningbo port closure continued to be felt in Q4. Ningbo port in China is the busiest port in the world in terms of cargo tonnage and this port's increased COVID-19 cases led to massive port congestion that will likely have a larger impact than both Suez and Yantian on vessel scheduling, container availability, and pricing in Q4. Ocean carriers (CMA) and ports (Durban) were impacted by cyber attacks. East/west shipping volumes were still imbalanced globally with US imports running 30 percent - 40 percent above average.

### ***Destination challenges***

Haiti experienced civil unrest after the Presidential assassination, adverse weather events, and an earthquake which affected inbound logistics. South Africa saw severe civil unrest which constricted imports and exports. Myanmar unrest continued through Q4. Insecurity and subsequent repercussions due to coup activity in Guinea and in Mali continued to hamper logistics. The change in Government in Afghanistan required a hold on all shipments to that destination. This is in addition to the challenges of subsequent COVID-19 waves where country offices and 3PL teams were directly affected by COVID-19 infections.

## **C1B. PROJECT PERFORMANCE**

In this section, we summarize findings on key indicators of global supply chain performance. More detail on these and other indicators in Annex A.

### **DELIVERY TIMELINESS**

GHSC-PSM measures on-time delivery 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 and in full deliveries as a percentage of all actual deliveries in the period

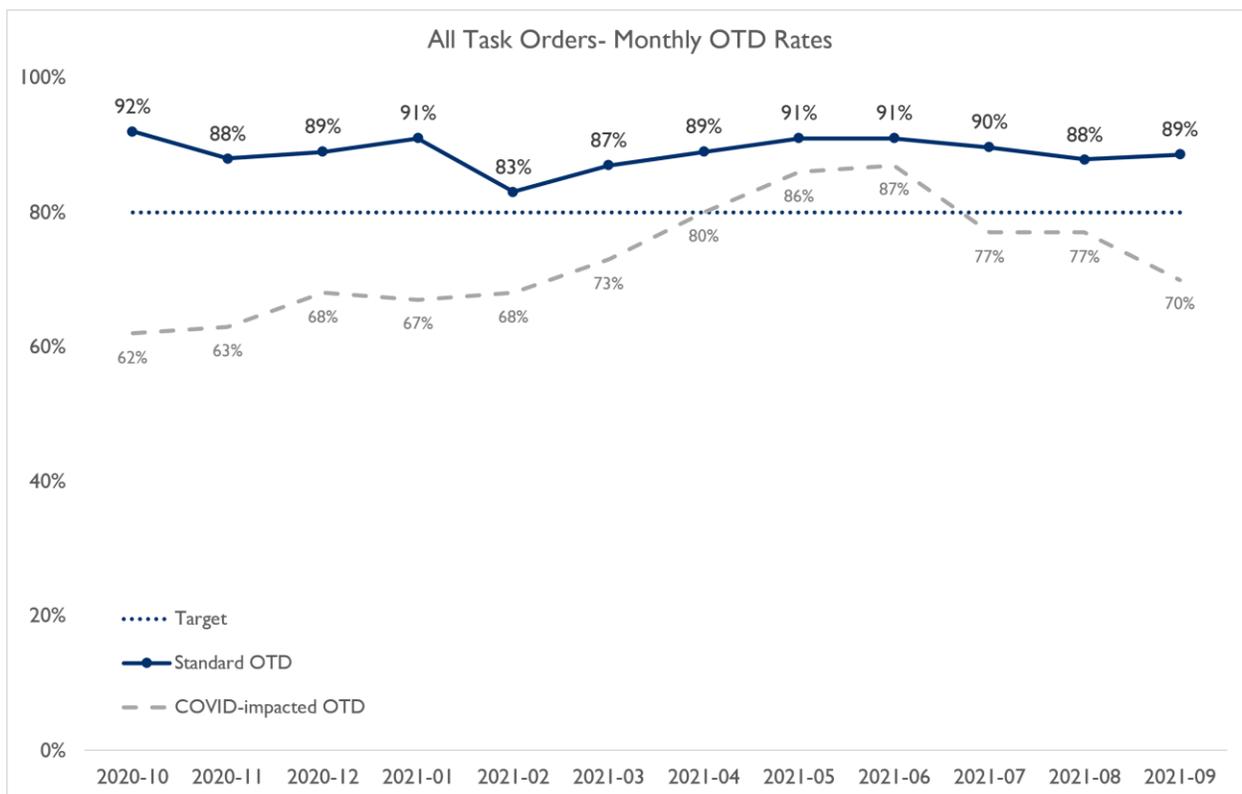
OTD is a more accurate reflection of recent performance, while OTIF is a lagging indicator as late orders due in prior periods get delivered.

In Q4, GHSC-PSM OTD was 89 percent (75 percent COVID-impacted) and OTIF 86 percent (78 percent COVID-impacted) for the quarter, the tenth successive quarter that OTD has been above 85 percent (see Exhibits 18 and 19).

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

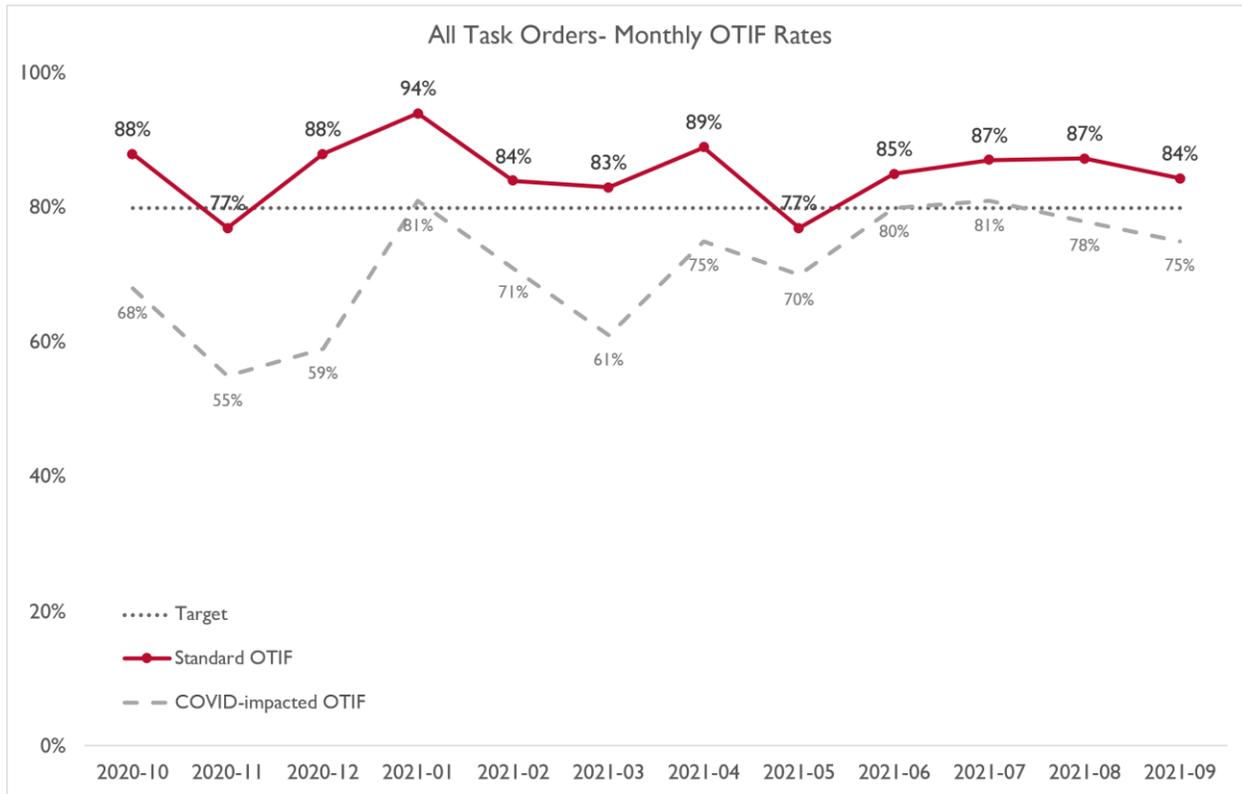
1. According to the indicator definition, the “standard” version is calculated as laid out in the [project’s monitoring and evaluation plan](#) and following all associated policies.
2. The “COVID-19-impacted” version follows the same rules and definitions as the standard indicator but removed the “control” for pandemic impacts to demonstrate the adverse effect of COVID-19 on OTD from Q3 FY 2020 to date on GHSC-PSM shipments.

Exhibit 19. October 2020 through September 2021 monthly OTD



COVID-19-impacted orders continued to adversely affect OTD throughout FY 2021. The high degree of uncertainty and the extreme volatility in global supply chains caused by the pandemic continued to affect a vast number of orders in Q4 FY 2021. This impact is expected to continue through FY 2022.

Exhibit 20. October 2020 through September 2021 monthly OTIF



## C2. SYSTEMS STRENGTHENING TECHNICAL ASSISTANCE



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



Provided **technical feedback on 178 supply plans in Q4 FY2021 and 711 throughout FY2021** to strengthen national supply planning capabilities.



As part of a new technical series, **published a landmark technical document on contracting transportation to the private sector.**

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. To support this goal, headquarters-based health supply chain systems strengthening technical specialists work with in-country teams to define systems strengthening strategies that are appropriate to the local context and that can be realistically achieved. Emphasis is placed on private-sector engagement, automated data capture and real-time end-to-end data visibility, pharmaceutical grade infrastructure, and efficient distribution across countries. The project works with country stakeholders to ensure their supply chains are managed by supply chain professionals dedicated to quality improvement, and, where possible, collaborates on strategies to outsource functions to accountable private sector providers.

### INTRODUCTION: REFLECTIONS ON FY 2021

Throughout the fiscal year, GHSC-PSM supported country governments to adapt to the COVID-19 pandemic to ensure a reliable supply of health commodities and, at times, directly support COVID-19 response. The project continued to provide most international technical support remotely to adhere to COVID-19 travel restrictions. Local technical support followed public health guidelines related to the pandemic.

GHSC-PSM continued to align its health systems strengthening programs with country government's and USAID's sustainable development goals, supporting each country to effectively manage its public health supply chain and outsource key functions to the private-sector whenever possible.

HSS Advanced Analytics introduced dynamic routing—a cloud-based open-source transportation management software that incorporates product volumetrics and GPS coordinates to maximize available truck resources and improve LMD performance.

Through forecasting and supply planning programs, the project's QAT now allows country governments to perform demand planning functions quickly and track inventory turnover at the national level, providing key information for decision making. The HSS Management Information Systems program

collaborated with local partners to leverage OpenLMIS strategies and empower decision-makers at all levels of the supply chain to leverage data visibility to ensure a reliable supply of public health commodities.

The project continued to promote global standards and traceability, including global trade identification numbers as essential enablers of data visibility and use. Uganda's Joint Medical Stores is a key example of effective adoption of barcode scanning and activity-based costing to make data-driven decisions that increase efficiency and lower costs.

By promoting performance-based logistics contracting, the project has built the capacity of countries to outsource key supply chain functions to 3PLs and manage their performance. Performance-based logistics contracting introduces commercial diagnostic KPIs and provides all stakeholders with a common set of indicators used across the entire program's supply chains to understand current status and share best practices. The move from transactional to performance-based 3PL contracting typically results in better performance, reduced costs, and increased inventory accuracy.

In FY 2021, GHSC-PSM prioritized communicating about these and other health systems strengthening activities, aiming to provide thought leadership to transform how public health supply chains work. The project produced several technical resources, including "[Supply Chain Considerations for Implementing Decentralized Drug Distribution](#)"--produced with TO1 funding--which documents the supply chain implications of decentralized drug distribution and provides a roadmap for both public and private sector models.

GHSC-PSM also produced two landmark documents with TO3 funding that focus on private sector concepts and add to [the Africa Resource Center's Outsourcing Toolkit](#), designed to support ministries of health to outsource selected elements of their public health supply chains:

- [Contracting for Transportation of Public Health Commodities to the Private Sector](#) serves as a guide for private sector contracting, examines the reasons for doing so, describes different options and explains the potential benefits and challenges of each option.
- [Implementing Activity-based Costing \(ABC\) and Activity-based Management \(ABM\) in Warehousing and Distribution](#) provides readers a guide to work toward a more efficient and well-performing supply chain by assessing public supply chain costs against private sector costs and informing decisions on outsourcing, including contract management and vendor accountability.

End-to-end data visibility and use was a key theme of these and other communication products, which will be used as advocacy tools to encourage MOHs to employ more private sector solutions as they aim to maximize performance and increase efficiencies across their public health supply chains. End-to-end data visibility is also a common thread linking many of the project's technical inventions.

In June, GHSC-PSM partnered with People that Deliver (PtD) to hold a [webinar](#) to launch the [PtD Supply Chain Management Professionalization Framework](#). GHSC-PSM staff facilitated the webinar, and a staff member from Rwanda presented on progress to date. The professionalization framework represents the next step in the evolution from the theory of change that describes how to improve human resources for health in the supply chain and the whole labor market analysis that assesses the availability of human resources.

In FY 2022, the project will aim to achieve key sustainable development results, including supporting 29 countries to lead FASP exercises across all task orders, but primarily focused on lab commodities, with little support from GHSC-PSM, to use data to maximize supply chain performance and to use the QAT tool to measure progress and results. The FASP team will partner with the Lab team to enable forecasting and supply planning in the QAT.

## ADVANCED ANALYTICS

Advanced Analytics support aims to enable countries to expand use of data to facilitate decision making from day-to-day operations to strategy. Whenever possible, GHSC-PSM uses existing data resources, leveraging previous investments in management information systems to make data available in real time. Moreover, advanced analytics automates processes to be repeatable to create a positive feedback loop for rapid data use.

GHSC-PSM is implementing a repeatable data science strategy across multiple countries, providing data analytics tools to meet country-specific needs, and then making these tools available to other countries that may benefit from their use. The project develops advanced analytics tools that leverage open-source platforms (such as Python) or use readily available tools like MS Excel. This design approach allows local institutions to easily adopt, use and maintain the tools with limited ongoing technical support.

In FY 2021, the project implemented a strategy to leverage several highly effective and proven tools beyond the pilot country and make them available to others. For example, the anomaly detection tool—developed for Zambia—was used in Ethiopia to detect anomalies in dispatches from hub warehouses to facilities and target them for review. Adapting tools for multiple countries requires a process known as “refactoring” the code, removing all of the original country-specific aspects, and redesigning the data from another country to support the same analysis; as such, adapting a tool to a new country becomes a matter of rapid configuration instead of time-intensive customization.

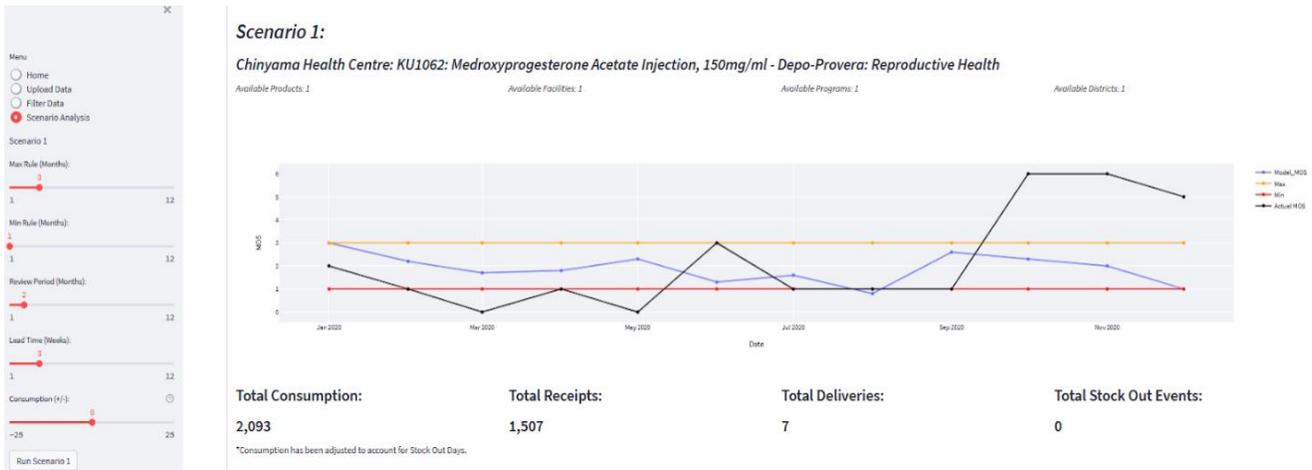
In Q4, GHSC-PSM provided remote support for advanced analytics to countries including Angola, Burundi, Eswatini, Ethiopia, Haiti, Liberia, Malawi, Mozambique, Uganda, Zambia and Zimbabwe.

- In **Malawi**, GHSC-PSM implemented an interactive inventory analysis tool that gathers data from the LMIS and allows users to interactively adjust some key parameters—such as minimum and maximum stock levels, and delivery lead times—to compare simulated results with what actually occurred. The simulations show whether adjustments to key parameters provide better or worse results, helping users to hone processes and procedures. Malawi represents a unique opportunity for using this tool because the country’s LMIS has been gathering data for more than three years and provides a wealth of data to understand the functioning of the supply chain and to test scenarios based on different approaches. The tool is being used to update the

Malawi Health Commodities Logistics Management System – Standard Operating Procedures Manual to improve health supply chain management practices at various levels.

*GHSC-PSM's interactive inventory analysis tool implemented in Malawi.*

- **In Zambia**, GHSC-PSM developed and began testing a dispatch optimization tool for the Zambia Medicines and Medical Supplies Agency (ZAMMSA). The tool helps supply chain professionals



plan and map deliveries to health facilities and other warehouses. From a set of orders placed by health facilities, the tool is being used to determine delivery vehicle utilization (i.e., volumetric data orders for each route to determine the number of delivery vehicles needed based on the selected truck sizes) and the number of stops per each route. GHSC-PSM mapped seven regional hubs, district health offices and some high-volume health centers to the ZAMMSA central warehouse. The tool will eventually be used to determine distances between destination points using GPS coordinates of health facilities, estimate vehicle fuel usage and the total cost for each delivery route. The tool can be integrated with a warehouse management system to leverage existing data on orders and volumetrics to in turn inform the picking and packing process.

# ZAMMSA Dispatch Optimizer

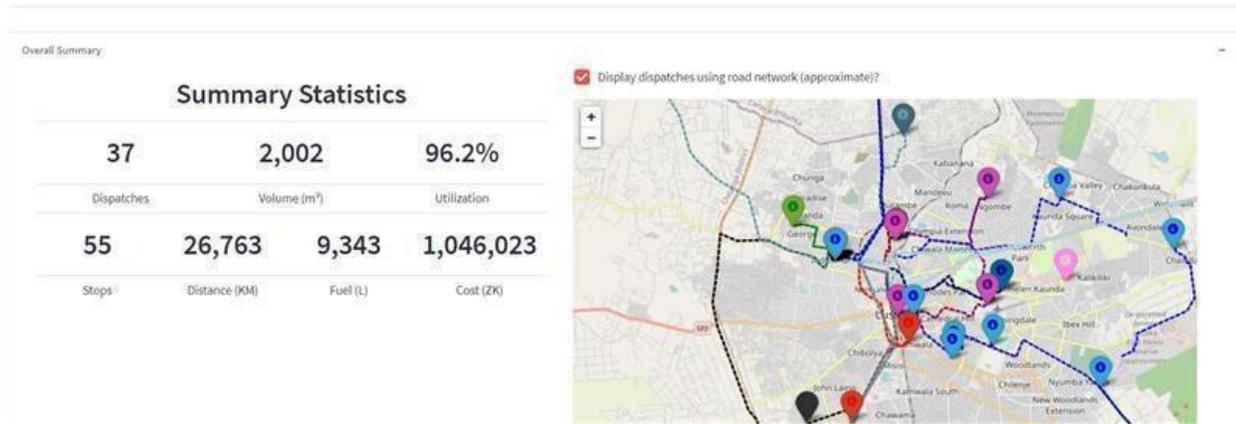


## Dispatch Optimization

Scenario 01QUWL

Download scenario

Review Dispatch Solution to Scenario (01QUWL) 🌟



Screenshot of the Zambia Medicines and Medical Supplies Agency (ZAMMSA) dispatch optimization tool.

## ENVIRONMENTAL COMPLIANCE

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

In Q4, GHSC-PSM continued to clarify types of waste management support that could be offered to partner governments to manage increased waste production due to mass COVID-19 vaccination campaigns. GHSC-PSM also provided technical guidance to field-based teams and partner governments on healthcare waste management operations and compliance in preparation for project closeout. After a request from USAID in Q4, GHSC-PSM began the collection and destruction of one million expired COVID-19 RDTs at Travis Air Force Base in California. The project facilitated the collection and transport of 196 pallets into temporary storage where waste segregation and handling occurred to sort recyclable items into separate waste streams. The project will complete this work in Q1 FY 2022.

## FORECASTING AND SUPPLY PLANNING

GHSC-PSM supported FASP assistance for 37 countries to help institutionalize processes so that countries move from relying on external technical support to developing their own fully integrated FASP capabilities. This included remote quantification assistance, training, and supply plan monitoring support. In FY 2021, GHSC-PSM reviewed 711 supply plans. This included 143 USAID high-priority supply plans from 37 countries in the fourth quarter alone. The purpose of these reviews is to ensure that plans comply with data quality, supply planning and procurement scheduling standards, thereby enhancing

program managers' ability to maintain adequate inventory to meet disease prevention and treatment targets.

GHSC-PSM continued the rollout of the QAT supply planning module through fiscal year 2021. QAT's supply planning module is a modernized solution for country-led quantification that leverages new technologies. It has enhanced features over the existing supply planning tool, PipeLine, and will eventually replace it. With an enhanced user interface and usability, greater analytical capabilities, and automated data exchange, this new 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.

In Q4, **Eswatini** reported that CMS staff responsible for reviewing and updating the country's supply plans remarked that QAT's user interface, offline and online features, enhanced analytical capabilities and automated data exchange with legacy systems greatly improved usability and satisfaction with the supply planning process compared to the legacy tool.

The project supported automated transfer of FP/RH supply plans from QAT to the VAN in Q2 and integration with GHSC-PSM's enterprise resource planning (ERP) platform in Q4 so that program managers can link USAID-funded shipments in their supply plans to shipments in the ERP for automated shipment updates.

Exhibit 21 shows the schedule of QAT trainings held with country offices. Most staff trained in FY 2021 were GHSC-PSM country office staff and GHSC-Technical Assistance staff in Benin and Tanzania.

Exhibit 21. Schedule of QAT trainings held with country offices.

	Country	Training
Pilot	Benin	Nov/Dec 2020
	Zimbabwe	Nov/Dec 2020
	Ethiopia	Nov/Dec 2020
	Botswana	Nov/Dec 2020
Cohort 1	Nigeria	Jan/Feb 2021
	Zambia	Jan/Feb 2021
	Burundi	Jan/Feb 2021
	Laos	Jan/Feb 2021
Cohort 2	Haiti	April 2021
	Burkina Faso	April 2021
	Cameroon	April 2021
	Mali	April 2021
Cohort 3	eSwatini	May 2021
	Malawi	May 2021
	Sierra Leone	May 2021
	Angola	May 2021
	Ghana	May 2021
Cohort 4	Rwanda	Aug 2021
	Ghana	Aug 2021
	Tanzania	Aug 2021
	Uganda	Aug 2021
	Lesotho	Aug 2021

In Q4, the project conducted training for Cohort 4 which included participants from Ghana, Lesotho, Rwanda, Tanzania, and Uganda.

Following each training workshop, GHSC-PSM provided targeted, program-specific technical support to help countries transition their PipeLine supply plans to QAT. By the end of Q4, twenty countries submitted 87 supply plans through QAT, with 23 additional supply plans in process and more countries and supply plans to be added in FY 2022. See more about supply planning submissions in C2a. Project Performance.

In addition, GHSC-PSM:

- Provided QAT viewer training for project staff and system users at USAID
- Implemented change requests to enhance the QAT user experience
- Conducted QAT enhancements training for all Cohort 0-3 users to orient them to changes made to the software between December 2020 and June 2021.
- Designed QAT forecasting module (module 2) specifications and user interface requirements in coordination with the software developer
- Developed initial online, self-directed training for supply plan viewers to be launched in early FY 2022

As GHSC-PSM QAT users became more skilled, they began rollout to local stakeholders in Q3, with the Zimbabwe country office training staff at the Ministry of Health and Child Care, UNDP and UNFPA. The

project also trained staff from the Burundi's HIV/AIDS, malaria, and reproductive health programs, central medical stores (CAMEBU) and the drug regulatory agency (ABREMA) to serve as QAT data and report viewers as a first step to familiarize them with the new application ahead of a full training in the next fiscal year. Continuing the rollout to local stakeholders in Q4, the project trained staff from the Benin MOH as QAT users, and the curriculum from this training was shared with the country office in Cameroon as they plan to conduct their own local stakeholder training in early FY 2022. At the end of FY 2021, there were some 220 QAT users worldwide.

In fiscal year 2022, the QAT supply planning module should be rolled out to an additional 13 project-supported countries, covering roughly 32 additional supply plans. The QAT forecasting module is scheduled to be launched in March 2022 with an initial 3-country pilot cohort training scheduled for May and training for an additional 11 countries scheduled for July and August 2022.

Due to the COVID-19 pandemic, the FASP team continued to provide technical support remotely, including quantification support for several countries, including Burundi, Cambodia, Liberia, Niger, and South Sudan; Quantimed training for Lesotho; and the first Russian-language trainings on Quantimed for Tajikistan and Uzbekistan.

In **El Salvador** in Q4, GHSC-PSM led several sessions to complete a national FASP exercise for HIV RTKs that accounted for a new algorithm for HIV diagnosis that uses two tests for high HIV prevalence populations and three tests for low prevalence. A total of 137 people participated in the workshops, including laboratory professionals, epidemiologists, and supply advisors from the five health regions and 30 hospitals. During the workshops, participants learned ways to prevent expiry of HIV RTKs; the risk of expiry grew due to decreased testing as a result of constrained supply related to COVID-19. This exercise will help all HIV labs in the country maintain enough inventory coverage for RTKs with a minimum risk of expiring.

In **Honduras** in Q4, GHSC-PSM led the 2021–2022 VL FASP exercise in partnership with the MOH HIV coordination team and the National HIV Laboratory. Participants analyzed VL stock status and updated the supply plan for 2021, including adjusting the delivery dates for two USAID-funded deliveries scheduled for September 2021 and February 2022. With the first delivery, the laboratory will have 5.8 months of stock availability, providing enough buffer stock for the MOH to finalize the administrative process to confirm the first Honduras government-funded procurement of VL commodities, with an estimated investment of \$326,000.

## GLOBAL STANDARDS AND TRACEABILITY

GHSC-PSM provided technical support to nine countries in FY 2021—Botswana, Burundi, 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 adoption can be found in Section C1: Global Supply Chain and the Management Information Systems section below.

GHSC-PSM's support for implementation of GS1 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.

In FY 2021, GHSC-PSM continued to develop its [Traceability Planning Framework Toolkit](#) as a resource for country programs by publishing or revising the following resources:

- Global Standards for Supply Chain Data Visibility Reference Deck
- Guideline for Identification and Labelling Specification Template and Guidance
- Guideline for Pharmaceutical Product & Location Master Data Template and Guidance
- Model Regulation for Pharmaceutical Traceability
- National Pharmaceutical Traceability Vision and Strategy Development Reference Note
- Traceability Governance Terms of Reference Guidance and Template

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

- In **Botswana** in FY 2021, GHSC-PSM supported development of the *Botswana National Pharmaceutical 2021/2022–2026/2027 Traceability Vision and Strategy* and provided ongoing guidance to the Botswana Medicines Regulatory Authority (BoMRA) on instituting a governance body to oversee traceability implementation. In Q4, a BoMRA task force endorsed draft terms of reference developed in Q3.
- In **Burundi** in Q4, the project conducted activities aimed at raising awareness and education on the use of GS1 to enable traceability in the health sector, including supporting the MOH and Burundi Food Regulatory Authority (ABREMA) to conduct an advocacy and awareness workshop with 28 participants from key donors and partners from the public and private sectors. Partners agreed on key priorities for standards adoption:
  - Strengthen product recall systems
  - Provide global visibility of pharmaceuticals at all levels of the private and public sector supply chain
  - Optimize the management of expiry dates
  - Improve quality assurance of pharmaceutical products
  - Support the management of pharmacovigilance through better tracking of products
  - Improve efficiency of logistics processes
- In **Ghana**, the project worked with the MOH/Ghana Health Service to hold a series of workshops throughout FY 2021 to develop and review a national pharmaceutical traceability strategy. Following a strategy review workshop in Q3, partners finalized the draft strategy and submitted it to the MOH for final endorsement in Q4. As prioritized by the multi-sector stakeholders through this process, the implementation of pharmaceutical traceability policies, processes, and systems and adoption of global standards aim to create an environment to address substandard and falsified product detected in the legitimate supply chain, improve efficiency of inventory management and distribution, and enable product visibility. GHSC-PSM continued to engage with local partners to strengthen Ghana’s master data management program.
- In **Nigeria**, the project supported the National Agency for Food & Drug Administration (NAFDAC) to advance its national traceability strategy, including implementation of an NPC. Phase 1 of implementation focuses on donor-procured health commodities and Phase 2 and 3 on private-sector commodities. In Q4, the project completed an initial product master data files review for donor-procured commodities from donor-supported partners (Akesis, GHSC-PSM, and MDS Logistics).
- In **Rwanda**, the project supported the Food and Drug Administration (FDA) and MOH in advancing the Rwanda National Vision & Strategy for Pharmaceutical Traceability Leveraging GS1 Global Standards throughout FY 2021. In addition to enabling use of GS1 standards through continued support for implementation of an NPC, the project played a key role in drafting regulations and guidelines that are currently under review by the FDA to enable the appropriate

labeling and exchange of product identification data for product verification. The project also continued to support stakeholder understanding of global standards through a series of educational sessions on various topics related to GS1.

- In **Zambia**, GHSC-PSM supported the MOH to bolster national traceability objectives through implementing an NPC and identified a service provider to lead the configuration and deployment of the NPC technical solution that will be hosted on the MOH/information and communication technology platform. In Q4, the project co-led a three-day workshop to officially launch the NPC, with 33 in-person and virtual participants across different Zambian government institutions, USAID, GS1 and implementing partners. Workshop participants agreed to the following aspects of the NPC:
  - The minimum dataset attributes to be captured. ZAMMSA established a team to conduct a physical inspection and collect data on key data attributes, such as global trade identification number and manufacturer information.
  - A distributed data governance model for managing Zambia’s product catalog. The governance model designates the MOH as the central authority, Zambia Medicines Regulatory Authority as data custodian, ZAMMSA as data steward, and the MOH’s information and communications technology unit as the system administrator.
- In **Zimbabwe**, GHSC-PSM helped establish a master data task team within NatPharm (central medical store) in FY 2021 to support a standardized master data program leveraging GS1. The project began reviewing Medical Aid Society of Central Africa regulations to propose strategic considerations to standardize product labeling and identification that are with the Medicines Control Authority of Zimbabwe for review.

## 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. The use of modern software applications like OptiDx—developed by GHSC-PSM and [FIND](#) in collaboration with USAID—can increase coverage and reduce costs by providing visibility into network performance, increasing equipment efficiency, and optimizing laboratory equipment placement.

GHSC-PSM worked with PEPFAR-supported countries to use ForLab and ForLab+ desktop and web-based tools for laboratory forecasting. During FY 2021, Burkina Faso, Burundi, Haiti and Malawi received training on ForLab. GHSC-PSM provides laboratory forecasting support and supply plan reviews for consistency between forecasts and actual procurements.

**Suivi d'activités du laboratoire -Virologie/CV 'J'**

Supply Chain Level	Chaîne de Niveau
Nom du Laboratoire	CHUP
Type de l'appareil	Autisme
Truc	0%
Année	2021
Date de Transmission	ZAMMSA-AAA
Transmis par ( Nom et Prénoms)	
Tel	

	Janvier	Février	Mars	Avril	Mai	Juin	Juillet	Sept
<b>Récapitulatif CY</b>								
Nb d'archivages reçus au laboratoire+ Nb d'archivages en stock pour le mois précédent	1,865	1,674	1,023	2,883	2,883	2,883	2,883	2,883
Nb d'archivages non archivés (prélevés)	0	0	0	0	0	0	0	0
Nb d'archivages confirmés reçus	1,865	1,674	1,023	2,883	2,883	2,883	2,883	2,883
Nb tests CV réalisés	1,865	1,674	1,023	2,883	2,883	2,883	2,883	2,883
Nb de tests CV réalisés	1,865	1,674	1,023	2,883	2,883	2,883	2,883	2,883
Nb d'archivages en stock	483	274	274	483	274	274	483	274
Archivages reçus dans les délais (mois)	1,382	1,392	783	2,212	2,212	2,212	2,212	2,212

	Janvier	Février	Mars	Avril	Mai	Juin	Juillet	Sept
<b>En Rupture de Stock /Posee</b>								
Laboratoire à court de réapprovisionnement (j/n)	Non	Non	Non	Non	Non	Non	Non	Non
Tous les équipements sont fonctionnels (j/n)	Non	Non	Non	Non	Non	Non	Non	Non
Commentaires et Observations (par rapport aux états de rupture de stock ou panne)								

	Janvier	Février	Mars
<b>Si en rupture de stock ou Equipement</b>			
<b>En Rupture de Stock</b>			
Matériel	Non	Non	Non
Reçu (NBA/MSA, eg. IVD/IVD)	Non	Non	Non
Nombre de jour en rupture (c. défaut Actif)	0	0	0
Nombre de jour (j/n)	0	0	0
Commentaires et Observations (par rapport aux états de rupture de stock)			

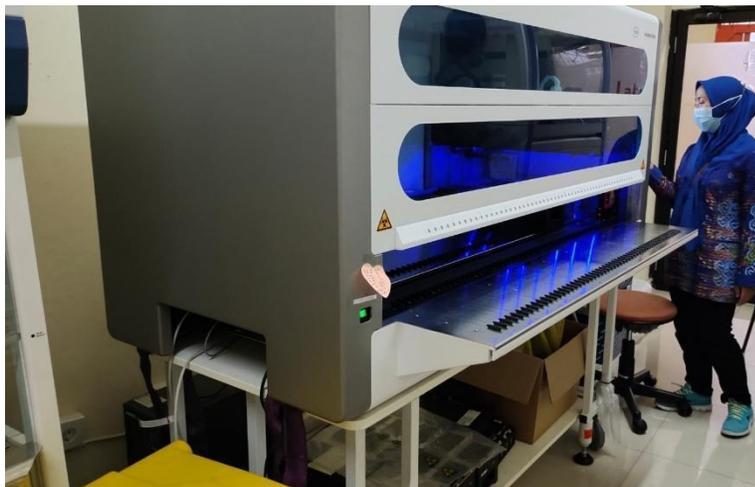
	Janvier	Février	Mars
<b>En Posee</b>			
Matériel	Non	Non	Non
Reçu (NBA/MSA, eg. IVD/IVD)	Non	Non	Non
Nombre de jour en Posee (c. défaut Actif)	0	0	0
Nombre de jour (j/n)	0	0	0
Commentaires et Observations (par rapport à l'équipement en panne)			

In **Burundi** in FY 2021, GHSC-PSM developed a dashboard to support decision making that incorporates data from all VL and EID diagnostic

*VL/EID diagnostic data dashboard for Burundi.*

platforms used in the country. Implemented in partnership with the MOH, laboratory staff, clinical implementing partners, UNDP, and USAID, the dashboard collects data related to VL and EID samples, commodity stockout and stock status, and machine functionality. GHSC-PSM supported the national HIV/AIDS program (PNLS/IST) in rolling out the dashboard to all EID labs in June. PNLS/IST and GHSC-PSM collect and analyze commodity consumption, stock status and lab performance activity data from the dashboard monthly and share this information with the VL technical working group for decision making. For the first time, central-level decision makers have data visibility on peripheral stock levels used to develop commodity distribution plans based on actual consumption. These data will also be used in the next annual forecast for laboratory commodities.

In FY 2021, GHSC-PSM began diagnostic network optimization (DNO) support to **Eswatini** and **Uganda** using Supply Chain Guru and OptiDx , respectively, for the analysis. DNO is an activity in which multiple stakeholders—including MoH, GHSC-PSM, USAID, other implementing partners and donors— review models and proposed scenarios of the laboratory network to determine potential changes that would improve a key objective. Examples of objectives are 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, appropriate locations 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 the implementation of the proposed changes to the lab network affect the program’s budget, operations, human resources, and logistics. GHSC-PSM supports cost-efficient and sustainable procurement and placement of laboratory instruments.



*Viral load (VL) testing at a private sector laboratory in Indonesia.*

In **Indonesia**, GHSC-PSM entered into an agreement with an accredited private sector laboratory to expand VL testing services in Jakarta and Greater Jakarta. Under the agreement, up to 4,000 samples collected at public health institutions may be tested by the private laboratory by mid-November. The agreement aims to reduce average turnaround time for VL testing services and began with 528 VL samples from 62 health facilities that were selected in consultation with the Jakarta Provincial Health Office. The health facilities reported turnaround times typically less than

seven days and as little as three days. The company confirmed receipt and testing of every sample, and included details on sample quality.

In **Mozambique**, GHSC-PSM has been supporting the National HIV and AIDS Program (NHAP) and PEPFAR goals of expanding VL testing by implementing DNO reforms, including placement of high-throughput testing platforms to meet demand. GHSC-PSM supported adding new instruments in the cities of Matola (General Hospital of Machava), Nampula City (Central Hospital of Nampula), and City of Quelimane (General Hospital of Quelimane). In Q4, installation of two new instruments was in process in

Xai-Xai. The completed and pending installations will increase the VL testing capacity by 65 percent, from about 1.3 million to around two million tests per year.

## LEADERSHIP AND GOVERNANCE

Leadership and governance activities in FY 2021 focused on strategy, policy, coordination and procurement. Due to the COVID-19 pandemic, some technical assistance activities initiated in FY 2021 were not completed, as countries were unable to pursue the follow-up actions. For example, **Botswana** put on hold technical support in contract management and development of a supply chain strategic plan that may resume in FY 2022.

However, many activities occurred despite challenges related to COVID-19, including:

- In **Angola**, trained MOH (MISAU) staff in pharmacovigilance.
- In **Ethiopia**, worked to implement the strategic process for sales and operations planning at the Ethiopia Pharmaceuticals Supply Agency, resulting in the decision to pursue a 3PL strategy in early FY 2022.

GHSC-PSM documented the application of two private sector concepts—[contracting for transportation services and ABC](#)—as part of TO3-funded support for the Africa Resource Center’s outsourcing toolkit (OSTK). (For more, see section B3: Family Planning and Reproductive Health.)

In **Lesotho**, GHSC-PSM proposed a process to the MOH for improving the flow of funding for ARVs to the National Drug Service Organization (NDSO) from the Treasury by establishing a bank account to hold funds for the NDSO to later submit to the Treasury to pay suppliers. Currently, payments from the MOH take prohibitively long to process, making vendors hesitant to work with the NDSO. The new account would help shorten the time for payment to suppliers after commodity deliveries. The proposal will be finalized in FY 2022.

## MANAGEMENT INFORMATION SYSTEMS

Data accuracy and quality are essential for data analysis for decision making. Establishing methods and plans for managing master datasets (products, facilities, etc.) across information systems helps avoid redundant data entry and enforces data accuracy and quality. GHSC-PSM supports countries in evaluating the data captured in information systems (e.g., eLMISs and warehouse management systems) for standardization.

In FY 2021, GHSC-PSM conducted webinars, presented to various working groups, and made recommendations to ensure system interoperability and to introduce standardized approaches to achieve data visualization through innovative tools and improve process and efficiency. The project promotes operational uniformity through NPCs, the Supply Chain Information System Maturity Model (SCISMM) and other approaches. GHSC-PSM also invites external and country office experts to present new technologies and lessons learned for knowledge sharing.

In **Colombia**, GHSC-PSM conducted an assessment of the Colombia national information system “PAI Web,” focusing on the supply chain operation LMIS nationwide. GHSC-PSM continues providing support to address the challenges and issues with the system.

Immediate support is being deployed to mitigate the current backlog in registering COVID-19 vaccinations with a combination of activities covering: 1) improving software by hiring a team of local technical experts; 2) supporting the MOH in optimizing its database management; and 3) hiring and training data entry personnel where appropriate.

In **Malawi**, GHSC-PSM supported expansion of the number of health facilities using the OpenLMIS from 160 to 260 as part of an ongoing effort to improve facility-level health commodity tracking and accountability. Also, the project will continue supporting the integration and rollout of lab commodities in OpenLMIS to all 83 sites offering VL and EID. GHSC-PSM configured and deployed OpenLMIS to track COVID-19 vaccines at central, regional and district-level vaccine stores. Finally, GHSC-PSM configured and tested the COVAX vaccine tracking system using OpenLMIS, trained 66 Expanded Programme on Immunization (EPI) system users on the COVAX tracking system, and completed deployment of the COVAX tracking system into a production server.

In **Mozambique**, GHSC-PSM significantly improved the use of data for informed decision making and end-to-end visibility by expanding the eLMIS, SIGLUS (Sistema de Informação e Gestão de Logística para Unidades Sanitárias). SIGLUS coverage now extends to all 11 provinces in the country. As of July 2021, 83 percent of health facilities (1,322 out of 1,580) nationwide reported data through SIGLUS, providing visibility to HIV, malaria, FP/RH, MNCH and nutrition commodities. Also, GHSC-PSM developed and piloted a new module on SIGLUS (v2) for the management of dispensing of ARVs at private pharmacies (SIGFP).

## WAREHOUSING AND DISTRIBUTION

GHSC-PSM improves warehousing and distribution systems in more than 25 countries. As part of this work, the project aims to move countries from a warehousing to a distribution center model that promotes more frequent stock turnover and requires changes in infrastructure and processes. Interventions include improving data-driven decision making across the supply chain, optimizing distribution networks, and increasing efficiencies in warehousing and distribution operations.

- **3PL subcontracting.** GHSC-PSM develops SOPs and helps modify requests for quotes and 3PL subcontracts for various country programs, aiming to improve distribution and storage practices. Several countries are following Angola's contract mechanism for pharmaceutical and LLIN distribution, where a multi-award indefinite quantity service contract is intended to pre-qualify suppliers, who then compete for each distribution action through requests for task order proposals (RFTOPs). By including KPIs in each RFTOP, the mechanism is projected to produce higher and more measurable performance improvements. This approach has already generated cost savings of about 30 percent in Angola.
- **Draft contract template.** The project produced a draft generic template based on the Angola model for potential use in any USAID-supported country, with an emphasis on transitioning from transaction-based contracting to performance-based logistics. The draft contract template includes commercial supply chain KPIs to measure and monitor 3PL performance. Countries that included KPIs in their RFPs for upcoming contract modifications or renewals are Ghana, Kenya, Mali, Niger, and Uganda. GHSC-PSM revised the contractual language to ensure the project is measuring appropriate activities to reduce or eliminate risk. In Q4, the draft contract was under review for finalization. GHSC-PSM is also developing a KPI tool and dashboard for each country, with the goal of establishing a robust mechanism and record of 3PL performance in each country that will allow comparison of KPI results across countries.

- **Temperature and humidity monitoring.** GHSC-PSM collects data from temperature and humidity data loggers installed in Burkina Faso, Cameroon, Ghana, Guinea, Haiti, Mozambique and Zimbabwe.
- **Transportation information tool (TransIT).** TransIT is an electronic tool that transmits real-time proof of delivery from receiving locations to the main database for easy access. In Lesotho, GHSC-PSM implemented completely remote training sessions for drivers, dispatch staff and other warehouse personnel. The project finalized the interface between the warehouse management system (WMS) and TransIT database and continued to work to align the master data to improve effective use of the tool. In Q4, the project completed TransIT implementation in the DRC.

In **El Salvador** in Q4, GHSC-PSM led a workshop to update inventory management topics and measure progress implementing inventory SOPs for HIV program labs at hospitals, with 17 labs participating. The workshop incorporated a participatory final evaluation among participants in which they assessed all hospitals except their own. At the end of the exercise, six of 17 hospitals scored 80 percent, with an average score of 59 percent. GHSC-PSM will follow up on identified corrective actions and will carry out a new evaluation in FY 2022 to monitor performance improvement.

In **Guatemala** in Q4, the Guatemalan Social Security Institute (IGSS) held its first award ceremony of the warehouse quality accreditation program. Four of nine units received awards for implementing best practices in storage management. GHSC-PSM trained the IGSS assessment committee and developed the evaluation tool to support the evaluation and selection of awardees. The warehouse accreditation program began in 2018 with technical support from GHSC-PSM, and the project later conducted a program assessment in Q1 FY 2021.

In **Mozambique**, GHSC-PSM supported the national scale-up of DDD of ARVs through private sector pharmacies, which expanded from four pilot sites in Maputo City to 67 across the country. Currently, over 8,000 clients are enrolled, 67 private pharmacy teams trained, 23 pharmacies have ARV stocks visible in the OpenLMIS and ready to receive patients, and four pharmacies are dispensing ARVs. GHSC-PSM helped adapt OpenLMIS to ensure proper ARV dispensing, management and visibility through the supply chain. The project engaged key government stakeholders—central medical stores (CMAMs), NAHP, and the National Drug Regulatory Authority—in system design for dispensing and distribution, developed training materials, trained the provincial support teams and pharmacy teams, supported demand creation at health facilities, deployed monitoring and evaluation supervision tools and systems, led the implementation process at pharmacies, and is supporting a helpdesk. DDD implementation is a collaborative effort involving EPIC project, Friends of Global Health (Vanderbilt University), MOH, PEPFAR implementing partners, PEPFAR and CDC and aims to establish a functional, secure, resilient and scalable system to ensure future expansion to more DDD pick-up points.

In **Zambia**, GHSC-PSM implemented a new WMS, which is key to strengthening ZAMMSA's order processing, information management, inventory management, data visibility, and customer service. The project also supported ZAMMSA to roll out the WMS to the seven regional hubs for implementing an uninterrupted downstream supply, including quick order processing and improved order turnaround time. All regional hubs are now linked to the central warehouse WMS, providing greater data visibility and enhanced reporting to the central warehouse.

## 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 Q4 to Angola, Botswana, Burkina Faso, Ethiopia, Liberia, Rwanda, Zambia and Zimbabwe.

In **Rwanda**, GHSC-PSM began the phased implementation of the People that Deliver (PtD) [Supply Chain Management Professionalization Framework](#), with the MOH serving as sponsor, the Regional Centre of Excellence for Vaccines Immunization and Health Supply Chain Management serving as in-country representative, and GHSC-PSM serving as coach. Partners implemented Phases 1 and 2 and drafted a project charter. While the charter was under review by the MOH, USAID and other partners, the team started developing the components of Phases 3, 4 and 5.

Also in **Rwanda**, in collaboration with GHSC-PSM and the Regional Centre of Excellence for Vaccines, Immunisation and Health Supply Chain Management (RCE-VIHSCM), the MOH launched two eLearning courses that are hosted on the MOH and RCE-VIHSCM e-learning platforms. These courses are divided into two, one targeting staff at district hospitals and health centers and another targeting Rwanda Medical Supply branches and central-level staff. The courses were designed to be self-learning, with pre- and post-evaluation included. The courses will be available through the Regional Centre of Excellence e-learning platform to the estimated 2,000 health professionals in need of training at the time of its development, as well as to new staff as they are hired, providing consistency in skills development across the entire health supply chain system.

**“These online courses launched today will equip our health supply chain workforce with advanced supply chain management knowledge and improve supply chain management competencies of the workforce to manage the entire supply chain cycle for health commodities more effectively.” – Dr. Corneille Killy Ntihabose, Head of Clinical and Public Services, Rwanda Ministry of Health**

In **Zambia** in Q4, GHSC-PSM and PtD piloted workload optimization analysis using the PtD workload optimization tool to align resources within receiving, replenishment, delivery and picking resources across ZAMMSA regional hubs. With increased data availability and granularity, the tool can support ZAMMSA in optimizing the performance of its supply chain at all levels.

Also in **Zambia**, GHSC-PSM and the MOH's school of nursing began developing a virtual learning platform for a health supply chain management course to complement the school's in-person teaching program. The project conducted a curriculum conversion and used a learning management system to enroll a small number of students in two sessions for soliciting feedback to refine the approach. Once completed, the platform will support training at minimal cost to hundreds of nursing students from all 102 nursing institutions.

## C2A. PROJECT PERFORMANCE

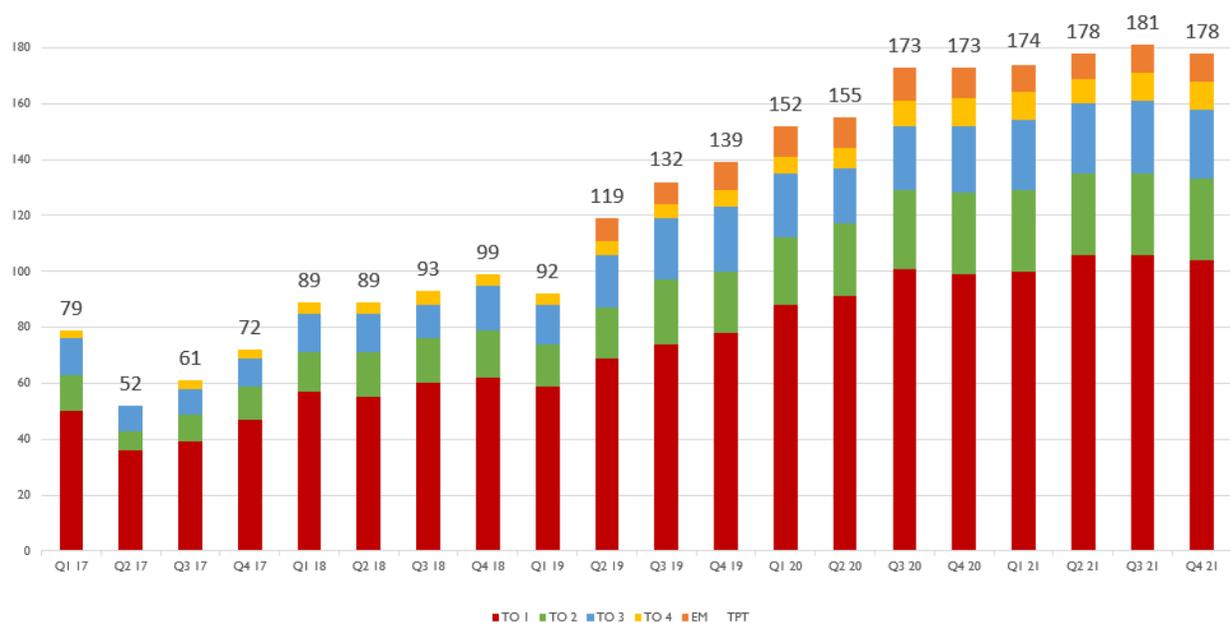
GHSC-PSM collects and analyzes data on a variety of indicators of national supply chain system health to understand the environments in which the project operates and to help calibrate our work. These indicators also help establish priorities for the project's health systems strengthening support and, 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 adoption of the quarterly supply planning paradigm. In Q4, the project received 178 supply plans from 37 different countries. Of those, 143 were Priority 1 (required by USAID) supply plans, keeping the submission rate for this category around 96 percent (143 out of 149 submitted). Exhibit 22 shows the number of supply plans received by quarter and task order since Q1 FY 2017. In Q4 FY 2021, 82 of the 178 supply plans were submitted through QAT, which is 46 percent of all supply plans submitted to GHSC-PSM HQ.

Exhibit 22. GHSC-PSM supply plan submissions over time



Under the quantification paradigm supported by GHSC-PSM, supply plans provide a regularly updated, forward-looking view of demand for 18 months. This comprehensive, systematic, and long-term approach to supply planning provides visibility into monthly demand, even if a single quarterly update is not submitted.

GHSC-PSM monitors supply plans quarterly to identify common errors and omissions across countries or commodity categories, to assess results from earlier improvement efforts, and to identify areas for additional guidance and mentoring. The quality of the plans is assessed against 16 criteria, with the reviews generating actionable recommendations for improvement. The supply plan reviews identify issues with future orders, enabling country offices to take pre-emptive actions to minimize impact.

## 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 16,273 individuals in FY 2021 (7,300 women and 8,973 men).

Most trainings were cross-cutting and addressed topics relevant to multiple health areas. By funding source, 45 percent were trained with HIV/AIDS funding; 22 percent with malaria funding; 16 percent with FP/RH funding; and 17 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



In FY 2021, GHSC-PSM made 15 presentations at five conferences.

In Q4, the **LQAG for monitoring LLIN quality concerns** was made official. GHSC-PSM chairs the group that includes participants from the Global Fund and UNICEF.

GHSC-PSM staff in FY 2021 completed the transition of 30 PPMR programs in 22 countries to the VAN. Users include members of ministries of health, USAID Mission staff, UNFPA staff, and implementing partners. The onboarding was the result of a coordinated effort to raise awareness about the VAN through webinars and inter-donor collaboration.

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

## STRATEGIC ENGAGEMENT

As described throughout this report, GHSC-PSM engages 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.

- GHSC-PSM hosts monthly **ProStock** meetings with USAID as a forum to build on the project's HIV/AIDS data collection and analysis and discuss gaps in HIV commodity access and implement action plans to address them. (For additional details, see section B1.)

- The **KSM/API sub-working group**<sup>24</sup> of the **Malaria Pharma Task Force**<sup>25</sup>: GHSC-PSM is leading the development of a tool for collective data capture and sharing, and is liaising with external stakeholders to drive analysis and investigation into specific drugs, molecules and associated risks. The project also initiated a collaborative deep-dive assessment of artesunate suppositories in response to market challenges, and in Q4 collaborated with Taskforce partners to track market dynamics in the production of API, especially in Africa. (For additional details, see section B2.)
- The **mRDT Task Force**<sup>26</sup> and **IRS/ITN Task Force**<sup>27</sup>, which provide a valuable forum for information exchange on market risks and promote better collaboration across the global malaria community. (For additional details, see section B2.)
- The **Global Donor Technical Working Group** meets bi-weekly to coordinate actions and resolve problems with malaria commodity suppliers who cannot fulfill demands because of capacity constraints due to COVID-19.
- In Q4, the **LQAG** was made official. Participants include the Global Fund, UNICEF and WHO PQ. GHSC-PSM chairs this working group, whose objective is to provide a forum for monitoring and communicating LLIN quality-related concerns and trends to facilitate and/or implement activities for mitigating identified quality issues and potential risks. (For additional details, see section B2.)
- GHSC-PSM also works with the Global Fund, UNICEF and the Malaria Consortium to share demand information and to coordinate procurement planning for SPAQ for FY 2022 SMC campaigns. (For additional details, see section B2.)
- The **RHSC SSWG** meets throughout the year. Several project staff have since volunteered to lead or support work streams identified in the FY 2022 work plan. (For additional details, see section B3.)
- The project participates in ongoing meetings of the **Maternal Health Supplies Caucus**. (For additional 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. Below are some highlights:

- GHSC-PSM produced two landmark documents—[Contracting for Transportation of Public Health Commodities to the Private Sector](#) and [Implementing Activity-based Costing \(ABC\) and Activity-based Management \(ABM\) in Warehousing and Distribution](#)—with TO3 funding that focus on

<sup>24</sup> KSM/API Working Group members include the Clinton Health Access Initiative (CHAI), Gates Foundation, GHSC-PSM, the Global Fund, Medicines for All Institute (M4ALL), Medicines for Malaria Venture (MMV), Maisha Meds, PATH, Unitaid, PMI, and the World Health Organization (WHO).

<sup>25</sup> Pharma Task Force members include the Asia Pacific Leaders Malaria Alliance Secretariat, CHAI, the Gates Foundation, GHSC-PSM, the Global Fund, Impact Malaria, the Malaria Consortium, MMV, Médecins Sans Frontières (MSF), Pan-American Health Organization, PATH, PMI, UNICEF and WHO.

<sup>26</sup> mRDT Task Force members include CHAI, Foundation for Innovative New Diagnostics, the Gates Foundation, the Global Fund, Médecins Sans Frontières, PATH, PMI, GHSC-PSM, United Nations Children's Fund (UNICEF), United Nations Development Program, Unitaid and WHO.

<sup>27</sup> ITN/IRS Task Force members include the Against Malaria Foundation (AMF), CHAI, the Gates Foundation, GHSC-PSM, the Global Fund, Innovative Vector Control Consortium (IVCC), International Federation Red Cross (IFRC), MMV, MSF, PMI, Population Services International (PSI), Results In Health, UNICEF, Unitaid and WHO.

private sector concepts and add to the **Africa Resource Center's** Outsourcing Toolkit, designed to support MOHs in outsourcing selected elements of their public health supply chains. (For additional details, see section B3.)

- GHSC-PSM published a four-part series on the way GHSC-PSM adapted technical assistance during the pandemic, including case studies from several countries to align with the increased focus on technical assistance as a USAID priority. The series examined [advanced analytics and how COVID-19 is accelerating trends toward the use of analytical tools](#), the shift to remote online activities for [forecasting and supply planning](#), as well as [training and workforce development](#) and [supportive supervision](#).
- To promote the Black Swan field guide, the project created highly visible content to break down the research for a general audience. This content included a short, [three-part podcast](#) and the op-ed [How to forge supply chain resilience](#) through Devex.
- With increased focus on cold chain and UCC due to the COVID-19 vaccine, GHSC-PSM developed a podcast series examining cold chain in-depth and published the [first three episodes](#).
- GHSC-PSM partnered with People that Deliver (PtD) to hold a webinar to launch the PtD Supply Chain Management Professionalization Framework. GHSC-PSM staff facilitated the webinar, and another from Rwanda presented on progress to date.
- GHSC-PSM launched the new [Harmonized Contraceptive Security Indicators Dataset, 2010–2019](#), which consolidates eight rounds of surveys into a single dataset.
- GHSC-PSM and USAID developed the Active Site Rule, a business rule that uses available logistics data to better understand the stock status of FP methods at health facilities. (For additional details, see section B3.)
- To share resources from over a decade of global supply chain standards, the project developed a [Global Standards Toolkit](#). (For additional details, see section C2.)
- GHSC-PSM participated in the **2021 Co-Creation Workshop: Sharing Product Master Data** with Digital Square, GS1 and Village Reach and presented on the NPC initiative implemented across Malawi and Rwanda. (For additional details, see section C2.)
- GHSC-PSM, in coordination with UNFPA, developed and finalized a joint green packaging scope of work exploring opportunities for greener, more environmentally friendly packaging of priority FP products. (For additional details, see section B3.)

## SUPPLY CHAIN COLLABORATION IN GLOBAL FORA

GHSC-PSM represents the supply chain point of view in key global meetings and conferences to ensure that donors and governments consider the supply chain in program planning. Participation helps GHSC-PSM exchange information and stay current with emerging trends, market risks, and requirements to respond to global health commodity needs. By sharing project success stories and innovations in these collaborative spaces, the project promotes USAID's global leadership in supply chain commodities. In FY 2021, GHSC-PSM presented at the following conferences:

- **American Society of Tropical Medicine and Hygiene 2020 Annual Meeting:** four presentations on the project's malaria and child health work
- **Global Health Supply Chain Summit 2020:** Six presentations; three GHSC-PSM initiatives were finalists for the Global Health Supply Chain Summit grand prize
- **2020 Annual ARV Buyer Seller Summit:** three presentations on supply chain data, COVID-19 impact and GS1
- **Global Digital Health Forum 2020:** Presented the Quantification Analytics Tool

- **Association for Supply Chain Management leadership conference:** Presented on the project-supported Ethiopia Center of Excellence

The project also submitted abstracts to each of the conferences listed above for 2021 and to the International Conference on AIDS and STIs in Africa and the Pan African Health Informatics Conference. **Of 24 abstracts, 12 were accepted for presentations** to take place in FY 2022. The project's proposal for a satellite session on Diagnostic Network Optimization was also accepted for presentation at the African Society for Laboratory Medicine 2021 conference.

#### **COLLABORATION WITH OTHER USAID GHSC PROJECTS**

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

In FY 2021, the project worked with GHSC-QA to create a new compliance validation/audit process and pilot activities to collect more standards-based data as a part of existing procurement processes and resources documenting the impact of standards-based identification, labeling, and master data on the GHSC-PSM program to date. GHSC-PSM also worked with GHSC-QA to provide input and support toward COVID-19–related commodity procurement. GHSC-PSM implemented the updated recall SOPs and trained all appropriate parties involved in the recall process, emphasizing collaboration across teams.

## ANNEX A. COVID-19 RESPONSE



Delivered a total of 480,706 COVID-19 lab commodity items (357 individual line items), including diagnostic sample collection items, diagnostic tests, general patient care, laboratory consumables, PPE, pharmaceutical treatments, and sanitation items valued at over \$7.8 million to 16 countries by the end of FY 2021.



In Q4, GHSC-PSM managed emergency orders and delivered 2.1 million COVID-19 rapid diagnostic test kits to Maldives, Nepal, Pakistan and Sri Lanka.



Ordered a total of 287 oxygen commodity items, including pressure swing and vacuum swing adsorption (PSA/VSA) units, oxygen concentrators and cylinders, durable spare parts and consumables, and delivered approximately 110 line items by the end of FY 2021, including:

- 28 high-flow, high-pressure concentrators and spare parts kits and installed four PSA oxygen units in Ghana.
- 310 h-type oxygen cylinders to Haiti (250) and Tajikistan (60) and 18 orders for consumable and durable oxygen commodities (delivered across five countries) valued at approximately \$448,000.

Throughout FY 2021, the project continued to work on the following global supply chain workstreams to manage and respond to COVID-19, including:

- COVID-specific country support for procurement from a list of 332 USAID and GHSC-QA-approved products
- Respiratory and cardiac supply procurement for Italy
- Ventilator support
- Oxygen procurement and technical assistance

GHSC-PSM also worked across several country offices to secure funding for COVID-19 vaccination-related technical assistance. Efforts to ensure the supply chain can support large-scale vaccine distribution are underway 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. More on these activities is provided below.

### INTRODUCTION: REFLECTIONS ON FY 2021

COVID-19 continued to impact supply chains significantly throughout FY 2021. To mitigate these impacts GHSC-PSM supported countries with COVID-19 commodities and ramped up technical assistance. Notably, the project completed procurement and deliveries of COVID-19 diagnostic sample collection items, diagnostic tests, laboratory consumables, general patient care items, PPE, pharmaceutical treatments, and sanitation items such as hand soap and disinfectant sprayers to 16 countries. While diagnostic commodity support wound down, in Q4, the project made several emergency procurements

of COVID-19 rapid test kits and delivered them to countries in South Asia via charter flights. GHSC-PSM also completed emergency procurements of syringes for COVID-19 vaccines to Guatemala. As part of these emergency procurements, the project identified and onboarded several new suppliers that can be used for future procurements.

GHSC-PSM's oxygen work made significant strides in FY 2021 in establishing relationships with oxygen equipment manufacturers, bringing them under contract with approved requisition orders, delivering oxygen commodities and equipment, and operationalizing oxygen technical assistance work plans in seven countries. GHSC-PSM also continued its ventilator support, helping to track where USG-funded ventilators were deployed and monitoring annual service contracts.

**Looking forward to FY 2022.** As the development community's response to the pandemic evolves, the project continues to learn from its work on these activities and the GHSC-PSM response continues to mature and become more proactive. In FY 2022 the project will reorganize its COVID-19 response teams to move from individual dedicated teams organized around COVID-funding streams into one cross-functional and flexible team. This will be reflected in GHSC-PSM's evolving procurement approach. The project proposed solutions for shifting the COVID-19 procurement response to a more proactive approach, which has the potential to use resources more wisely and allow for more rapid response during emergencies. Once the final approach is approved by USAID this will roll out early in FY 2022.

## COVID-19 COUNTRY SUPPORT

### *Assuring commodity quality*

In collaboration with GHSC-QA, GHSC-PSM provides QA support for COVID-19 activities.

### *Lab consumables procurement*

GHSC-PSM received \$12 million in USG funding to procure diagnostic sample collection items, diagnostic tests, general patient care commodities, laboratory consumables, pharmaceutical treatments (essential medicines) and PPE. By the end of FY 2021, USAID approved 71 requisition orders (ROs) that enabled GHSC-PSM to execute 133 purchase orders (POs) and deliver 480,706 items to 16 countries. During Q4 FY 2021, the project delivered 4,586 items with a value of over \$7.8 M.

## PROCUREMENT OF COVID-19 EQUIPMENT FOR ITALY

Over the course of FY 2021, GHSC-PSM delivered 360 syringe pumps, 120 defibrillators, 10,472 CPAP helmets, 505 patient vital sign monitors along with two central stations for hospital staff, and 30 fully functioning intensive care unit (ICU) beds to assist in combating COVID-19 in Italy. Deliveries were made directly to Bambino Gesù Hospital and Policlinico Hospital in Rome, Meyer Children's Hospital in Florence, and Istituto Giannina Gaslini in Genoa, along with shipments to the Government of Italy's central warehouse in Pomezia.

Most deliveries were completed in the first half of FY 2021. In Q4, GHSC-PSM continued to work on the two remaining, re-specified, orders for imaging equipment to be shipped direct to Policlinico Hospital and several thousand non-invasive ventilation (NIV) helmets that will be delivered to the Pomezia warehouse for further distribution across Italy by the Italian Government. The project anticipates completion of both deliveries in the first half of FY 2022.

## VENTILATOR SUPPORT

Although all ventilator deliveries were completed in Q1 of FY 2021, GHSC-PSM continued work on the program through Q4 by providing price estimates for supplementary purchases, new consumable procurements, and coordinating with ventilator manufacturers and local service providers on service agreements for recipient countries.

## OXYGEN

### *Procurement*

As part of the global COVID-19 response, USAID is funding supplies of portable medical oxygen concentrators (low flow, low pressure and high flow, high pressure) and oxygen generation plants to provide a highly reliable and economic solution for oxygen requirements. These units deliver medical-grade oxygen (93 percent +/-3 percent) for use in hospital systems and disaster situations. Oxygen generation plants, in addition to direct supply to the hospital supply line (if available), are capable of filling cylinders to meet backup, peak and remote oxygen requirements.

By the end of Q4, GHSC-PSM had ordered a total of 287 oxygen commodity items, including PSA/VSA plants, oxygen concentrators and cylinders, durable spare parts and consumables. By the end of Q4 approximately 110 line items had been delivered or were being readied for delivery including:

- One major achievement for GHSC-PSM's oxygen team was delivering and installing four PSA units at the Ghana Infectious Disease Center and sites in Cape Coast.
- One unit earmarked for Mozambique is en route to the country with an estimated delivery date in early November.
- Three PSA units for Tajikistan were being fabricated, with the first two units scheduled to ship on October 19.
- Two VSA units for Haiti were being manufactured with an estimated ship readiness date of October 8. GHSC-PSM also placed an order for five containerized PSA units for Kenya. These units are scheduled to be ready to ship in Q2 FY 2022.
- 310 h-type oxygen cylinders were delivered to Haiti (250) and Tajikistan (60) in Q4.

## TECHNICAL ASSISTANCE

In Q4, GHSC-PSM continued its clinical and non-clinical technical assistance work to improve the oxygen ecosystem for the COVID-19 response in Ghana, Guatemala, Haiti, Honduras, Kenya, Mozambique and Tajikistan.

All seven countries developed full clinical and non-clinical technical assistance work plans that built upon the groundwork laid in the startup work plan. The work plans are in various stages of review, approval and implementation. In **Guatemala**, GHSC-PSM's clinical partner held a webinar in September 2021 to orient health workers on using and maintaining oxygen concentrators. The webinar was attended by 74 hospital and MOH staff from the 22 hospitals slated to receive equipment procured by the project. By the end of Q4, each hospital received its respective donation of concentrators and oximeters, and all shipments of oxygen consumables and durables were delivered to the MOH's central warehouse.

In **Mozambique**, GHSC-PSM delivered 15 concentrators and spare parts kits to designated health facilities and conducted trainings on the safe use and maintenance of the concentrators for operators, maintenance staff and select engineers.

In **Haiti**, GHSC-PSM delivered 7,930 consumables/durables, 250 oxygen cylinders, 96,000 cubic feet of oxygen, and four spare parts kits in Q4. The project's clinical partner began an oxygen bootcamp in September; some sessions were conducted in person while others were virtual.

The project's clinical partner in **Tajikistan** completed the first round of clinical training at three select hospital sites. GHSC-PSM began developing a training-of-trainers curriculum and connected with the MOH to provide a progress update and coordinate plans for capacity-building activities scheduled to take place in FY 2022 at the time of the PSA installations.

Clinical trainings were also in progress in **Kenya** by the end of Q4. With an uptick in COVID-19 cases, GHSC-PSM's clinical partner shifted the training modules to online platforms with great success and positive feedback from participants.

The clinical work in **Honduras** continues to progress with implementing partners preparing and developing training materials for personnel designated by hospitals. Palladium International began the procurement process for equipment that will be used in a skills lab as part of the planned trainings that will take place in Q1 FY 2022. GHSC-PSM is also finalizing the oxygen sector evaluation and the central-level training assessment and plan, which will inform development of the training-of-trainers program to be held in FY 2022.

Clinical work in **Ghana** was also at the training preparation phase. Practical training for the operations and maintenance of the four delivered PSA units, is ongoing and GHSC-PSM is planning a larger, non-clinical training for November.

In **Mozambique**, GHSC-PSM began work on a high-level landscape report and the course materials for concentrator and VSA trainings in Q4.

## **HEALTH SYSTEMS STRENGTHENING: COVID-19 AND EMERGENCY PREPAREDNESS AND RESPONSE**

In addition to global support, country teams engaged with national government stakeholders in Q4 to assist them in responding to the COVID-19 pandemic.

**Addressing medical oxygen needs in Botswana.** GHSC-PSM conducted a rapid baseline assessment of medical oxygen consumption at the request of the Botswana Ministry of Health and Wellness (MOHW). This request followed a national surge in COVID-19 cases that placed enormous pressure on existing health services. COVID-19 patient care centers and health facilities were overstretched, and medical oxygen services were in short supply compared to demand.

In consultation with the MOHW and stakeholders, GHSC-PSM designed an online survey tool for all district health management teams. The tool is a structured questionnaire gathering both quantitative and qualitative data on the availability and consumption of medical oxygen in each district. Of 18 teams, 15 responded to the questionnaire (response rate of 83 percent). The data was analyzed, presented, and shared with the MOHW, Central Medical Stores, and all relevant stakeholders. The analysis is being used for planning and distributing resources such as oxygen concentrators and cylinders, liquid oxygen tanks, and other supplies needed for medical oxygen services. The MOHW began site monitoring visits in Q4 in

response to the baseline findings and is gathering additional data from COVID-19 patient care facilities using the project-developed tool. As more data become available on medical oxygen utilization, the MOHW and stakeholders will be able to make informed decisions on optimized resource planning addressing the gaps in medical oxygen demands in the country.

### SUPPORTING THE GLOBAL COVID-19 VACCINE ROLLOUT

In Q3 FY 2021, GHSC-PSM received \$6.11M to implement technical assistance activities to support COVAX and other COVID-19 vaccine rollouts in 13 countries: Angola, Botswana, Colombia, El Salvador, Ethiopia, Ghana, Guatemala, Guinea, Malawi, Namibia, Pakistan, Panama and Rwanda. Technical support varies from country to country and includes 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. In Q4 these countries made major progress in their planned technical assistance activities.

Additionally, in Q4 GHSC-PSM received \$11.875M under the new American Rescue Plan Act (ARPA) for COVID-19 related technical assistance and commodity procurement in 18 countries. The countries who received funding include Angola, Benin, Botswana, Burkina Faso, Colombia, El Salvador, Ethiopia, Ghana, Guatemala, Guinea, Lesotho, Malawi, Mozambique, Namibia, Rwanda, Tajikistan and Uzbekistan. This ARPA funding has two primary objectives:

1. Accelerate widespread and equitable access to and delivery of safe and effective COVID-19 vaccinations
2. Reduce morbidity and mortality from COVID-19, mitigate transmission, and strengthen health systems, including to prevent, detect, and respond to pandemic threats

Nearly all work plans have been approved and many countries have begun implementation of activities.

In Q4, the USG donated 1.1 million COVID-19 vaccines to **Angola**. GHSC-PSM collaborated with UNICEF to establish storage and distribution plans for all incoming approved vaccines at the central and provincial level. The project assisted the MOH in the installation and programming of UCC freezers across 18 provinces. GHSC-PSM collaborated with UNICEF to ensure incoming approved vaccines are all handled in compliance with WHO regulations. This was accomplished through the training of logisticians which covered the SOPs for handling vaccines.



GHSC-PSM staff in Angola assist the MOH to appropriately manage and distribute 1.1 million COVID-19 vaccines donated by the USG. Credit: GHSC-PSM

**In Malawi,** GHSC-PSM supported the MOH's Expanded Program on Immunizations (EPI) to configure the recently developed COVID-19 vaccine tracking program within the existing logistics management information system, OpenLMIS. The project conducted a full system test before going live and trained 66 EPI vaccination staff from central and district vaccine stores on data capturing, reporting, and ordering of commodities.

**In Rwanda,** the project is supporting the MOH to achieve its target of vaccinating 30 percent of the country's population before the end of 2021. GHSC-PSM handed over glucometers and blood glucose strips to Rwanda Biomedical Center (RBC) in Q4 to support screening activities of non-communicable diseases and easily identify and prioritize high-risk population groups eligible for COVID-19 vaccination. "These glucometers and blood glucose strips come at a critical time when we are scaling up vaccination countrywide. They will help us identify the vulnerable population who will be given priority during this exercise," said Dr. Uwinkindi Franco, RBC's Manager of the Non-Communicable Diseases Division. USAID donated 489,000 Pfizer vaccines to the government of Rwanda and in Q4 the country became the first in Africa to receive the vaccine doses pledged by the U.S. government. The vaccines were stored at the central vaccine store, with MOH and GHSC-PSM staff working closely to ensure safe storage and transportation to various vaccination sites.

**Assessing cold chain capacity.** As the pace of COVID-19 vaccine deliveries increases, information about each country's capacity to manage cold chain and ultra-cold chain supply chains is essential. In June 2021, GHSC-PSM supported USAID to plan for distribution of COVID-19 vaccines with:

- Research into existing information regarding cold chain and ultra-cold chain capabilities in the public and private sectors for COVAX-supported 92 countries
- Assessment of cold chain and ultra-cold chain capabilities in 36 GHSC-PSM-supported countries
- A request for proposal with 3PL providers to support vaccine delivery and distribution after COVAX vaccines arrive at destination ports

With the rise of COVAX technical assistance support in Q3, GHSC-PSM prepared a **COVAX Waste Management technical brief** to answer frequently asked questions and clarify the type of waste management technical support that the project can offer partner governments to manage the increased levels of waste generated by mass COVID-19 vaccination campaigns.

# GLOBAL HEALTH SUPPLY CHAIN PROGRAM

## Procurement and Supply Management

### Global Supply Chain M&E Indicator Performance

FY2021 Quarter 4, July-September 2021

#### Delivery Impact to Date



Number of ACT treatments delivered

387,493,009



Number of Couple Years Protection delivered

90,109,839



Person-years of ARV treatment delivered

15,600,480

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)



# Delivery Performance

Current Reporting Period

2021-Q4

## A1a. On-time, In-Full Delivery

Task Order	Total # of Line Items Delivered	OTIF	OTIF Target
TO1 - COVID19	113	90%	80%
TO1 - HIV	1,024	85%	80%
TO2 - Malaria	227	85%	80%
TO3 - FP/RH	59	97%	80%
TO4 - MNCH	45	93%	80%
<b>Total</b>	<b>1,468</b>	<b>86%</b>	<b>80%</b>

## A1b. On-time Delivery

Task Order	Total # of Line Items with ADDs in the quarter	OTD	OTD Target
TO1 - COVID19	116	75%	80%
TO1 - HIV	1,020	88%	80%
TO2 - Malaria	212	96%	80%
TO3 - FP/RH	63	87%	80%
TO4 - MNCH	42	100%	80%
<b>Total</b>	<b>1,453</b>	<b>89%</b>	<b>80%</b>

## A16. Backlog Percentage

Task Order	Total # of line items with ADDs in the last 12 months	Backlog	Backlog target
TO1 - COVID19	691	9.7%	5%
TO1 - HIV	4,172	3.7%	5%
TO2 - Malaria	999	1.3%	5%
TO3 - FP/RH	217	1.4%	5%
TO4 - MNCH	176	29.5%	5%
<b>Total</b>	<b>6,255</b>	<b>4.6%</b>	<b>5%</b>

### TO Analysis

**Crosscutting** Overall delivery performance has remained strong and generally consistent with the previous quarter. OTIF results were 86 percent, and OTD reached 89 percent for the quarter. The backlog rose to its highest point this year, to 4.6 percent of line items. This was driven primarily by an increase in the MNCH and COVID-19 backlog percentages. Overall delivery volume has also decreased slightly from last 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 79 percent, and COVID-impacted OTIF was 78 percent. In the case of the OTIF, the gap between the standard result and the COVID-impacted result has narrowed, however the gap between the standard result for OTD and the COVID-impacted result has widened, suggesting that many items that were originally planned for delivery in Q4 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 and generally consistent with the previous quarter. OTIF results were 85 percent, and OTD reached 88 percent for the quarter. The backlog increased slightly, to 3.7 percent of line items. Overall delivery volume has decreased slightly this quarter, as well. 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 79 percent, and COVID-impacted OTIF was 77 percent. In the case of OTIF, the gap between the standard result and the COVID-impacted result has narrowed, indicating that the line items actually delivered this quarter had fewer COVID-related delays. At the same time, for OTD, there is still a difference of nine percentage points, suggesting that COVID impacts continue to be a significant factor for items that were originally planned for delivery in Q4. 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 but varies slightly from the previous quarter. OTIF and OTD results were at 85 and 96 percent, respectively, for the quarter. The backlog decreased to 1.3 percent. Overall delivery volume has also decreased this quarter, with 227 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 93 percent, and COVID-impacted OTIF was 81 percent. In both cases, the gap between the standard result and the COVID-impacted result has narrowed, indicating fewer 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 very strong for the period, reaching 97 percent OTIF and 87 percent OTD. While this OTD performance is still above the 80 percent target, there were more delays due to supplier and logistics issues than in previous periods this year. The backlog stood at just 1.4 percent. Delivery volume overall was higher this period, with 59 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 80 percent this quarter, and OTIF was 83 percent, indicating that COVID-related delays were still prevalent 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 was strong for the period, at 93 percent OTIF and 100 percent OTD. Overall delivery volume was higher this quarter, with 42 line items delivered to DRC, two to Mozambique, and one to Liberia. Backlogged items increased significantly this quarter, with 52 line items undelivered and late at the time of reporting. All were en route to DRC and were late largely due to pandemic-related factors. Most are on track for delivery early in FY2022 Q1. COVID-impacted OTD for the quarter was 19 percent, indicating the COVID-related factors impacted most line items initially promised for this period. COVID-impacted OTIF was 42 percent, suggesting that several lines delivered this period originally had agreed delivery dates in earlier periods, but were delayed due to COVID. For further discussion of global supply chain dynamics during the pandemic, please see the main narrative of this report.

# Delivery Performance

Current Reporting Period

2021-Q4 ▼

Task Order	A1a. OTIF rate			A1b. OTD rate		A16. Backlog percentage	
	OTIF	Total # of Line Items Delivered	OTD	Total # of Line Items with ADDs in the quarter	Backlog	Total # of line items with ADDs in the last 12 months	
<b>TO1 - COVID19</b>	<b>90%</b>	<b>113</b>	<b>75%</b>	<b>116</b>	<b>9.7%</b>	<b>691</b>	
COVID19	90%	113	75%	116	9.7%	691	
<b>TO1 - HIV</b>	<b>85%</b>	<b>1,024</b>	<b>88%</b>	<b>1,020</b>	<b>3.7%</b>	<b>4,172</b>	
Adult ARV	81%	73	91%	76	1.3%	463	
Condoms	86%	43	87%	45	1.2%	166	
Laboratory	86%	700	88%	699	4.4%	2,688	
Other Non-Pharma	60%	43	65%	46	3.7%	191	
Other Pharma	94%	65	97%	63	2.9%	239	
Other RTK	60%	10	75%	8	35.7%	28	
Pediatric ARV	85%	60	96%	52	0.5%	201	
TB HIV	100%	12	100%	13	0.0%	102	
Vehicles and Other Equipment					0.0%	1	
VMMC	100%	18	100%	18	1.1%	93	
<b>TO2 - Malaria</b>	<b>85%</b>	<b>227</b>	<b>96%</b>	<b>212</b>	<b>1.3%</b>	<b>999</b>	
ACTs	83%	103	94%	95	0.5%	441	
Laboratory	100%	6	86%	7	6.4%	94	
LLINs	97%	34	100%	34	1.3%	149	
mRDTs	77%	43	97%	37	0.0%	120	
Other Non-Pharma	100%	5	100%	5	7.4%	27	
Other Pharma	100%	1	100%	1	0.0%	6	
Other RTK					0.0%	1	
Severe Malaria Meds	93%	30	97%	30	0.9%	108	
SMC					0.0%	29	
SP	60%	5	100%	3	0.0%	24	

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	
<b>TO3 - FP/RH</b>	<b>97%</b>	<b>59</b>	<b>87%</b>	<b>63</b>	<b>1.4%</b>	<b>217</b>	
Combined Oral Contraceptives	91%	11	83%	12	2.1%	48	
Copper-Bearing Intrauterine Devices	100%	2	100%	2	0.0%	11	
Emergency Oral Contraceptives					0.0%	4	
Implantable Contraceptives	100%	18	95%	19	3.4%	58	
Injectable Contraceptives	95%	19	82%	22	0.0%	56	
Other Non-Pharma	100%	5	75%	4	0.0%	13	
Other RTK					0.0%	1	
Progestin Only Pills	100%	3	100%	3	0.0%	23	
Standard Days Method	100%	1	100%	1	0.0%	3	
<b>TO4 - MNCH</b>	<b>93%</b>	<b>45</b>	<b>100%</b>	<b>42</b>	<b>29.5%</b>	<b>176</b>	
Other Non-Pharma					0.0%	6	
Other Pharma	93%	45	100%	42	30.6%	170	

## 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

2021-Q4 ▼

## A3. Average overall cycle time

Task Order	# of line items delivered	Average Cycle Time	Cycle time target	Average dwell-adjusted cycle time
TO1 - COVID19	113	186		185
TO1 - HIV	1024	257	250	242
TO2 - Malaria	227	357	340	303
TO3 - FP/RH	59	284		268
TO4 - MNCH	45	344	350	344
<b>Total</b>	<b>1468</b>	<b>270</b>		<b>251</b>

## 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
<b>TO3 - FP/RH</b>	<b>59</b>	<b>284</b>		<b>268</b>
Direct drop fulfillment	27	370	275	355
Warehouse fulfillment	32	211	250	195

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 reduced from 271 to 257 days this quarter, barely exceeding the target of 250. The dwell-adjusted result was 242 days, with an average dwell time of 14 days per hold instance. This quarter, HIV saw delivery of a lower number of line items that had been placed on hold at some stage in their processing. Sixteen percent of delivered line items had been placed on hold at some point, most often taking place in the pre-RFx/pre-allocation stage, pending funding. Average cycle times decreased in earlier process segments, especially in processing the PO/DO. There was also a slight increase in average times for manufacturing (PO release to actual goods available date).

**TO2 - Malaria** End-to-end cycle time for malaria commodities rose slightly to 357 days this quarter, up from 355 last quarter, slightly above the target of 340 days. Average cycle times decreased in the clarifications and sourcing and planning segments, but increased for manufacturing, pick up, and delivery. The dwell-adjusted result was 303 days, with an average dwell time of 112 days per hold instance. This quarter, almost half (48 percent) of line items had been placed on hold at some point, most often in the Pre-RFx/Pre-Allocation stage or tech packaging stage due to funding holds.

**TO3 - FP/RH** End-to-end cycle times for warehouse fulfillments for family planning decreased dramatically this quarter, down to 211 days from last quarter's 346, with a dwell-adjusted result of 195 days. Last quarter's cycle time for RDC fulfillments was unusually long because of orders for Mozambique that were entered very early. This quarter has returned to a similar cycle time as Q2. This quarter, the time spent on pick up was more than double the amount of time for previous quarters this year. This is because of one COVID-impacted order for Nepal that took over 100 days for pick up. Holds line items delivered this quarter included supply planning and funding holds.

Cycle times for direct drop fulfillments rose to an average of 370 days, with a dwell-adjusted result of 355 days. The increase was due to long cycle times for a number of orders, including: ten line items of one-rod implants to the DRC that had almost 500 days of cycle time due to long validation and manufacturing times; one line item to Mozambique that had been placed nearly two years in advance; and several other early-placed orders and outliers. Only four holds were placed on these lines, including a supply planning hold exceeding 300 days for the Mozambique order. Other holds were placed on orders for Tanzania, Uganda, and Haiti, with all hold instances averaging 128 days in duration.

**TO4 - MNCH** Cycle times for maternal and child health rose slightly to an average of 344 days, just below the target of 350 days. Manufacturing time this quarter was especially long for the products being delivered to the DRC, mostly due to COVID delays. The dwell-adjusted result for the quarter was the same, as no items had been placed at hold during their processing. The project delivered 35 line items this quarter for TO4, an increase from last quarter's 14.

### 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 definition.

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

2021-Q4

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

Fulfillment Channel Task Order	Direct Drop Fulfillment				Warehouse Fulfillment			Total
	Air	Land	Multiple	Sea	Air	Land	Sea	
<b>TO1 - COVID19</b>	<b>188</b>	<b>67</b>		<b>200</b>				<b>186</b>
COVID19	188	67		200				186
<b>TO1 - HIV</b>	<b>253</b>	<b>226</b>	<b>334</b>	<b>344</b>	<b>250</b>	<b>419</b>	<b>289</b>	<b>257</b>
Adult ARV	322	281	334	384	214	419	280	325
Condoms				337	317		360	337
Laboratory	244	223		364				238
Other Non-Pharma	318	271		304				299
Other Pharma	253	203		389				281
Other RTK	291							291
Pediatric ARV	259	283		326	263		320	278
TB HIV	354						93	332
VMMC	167			229				188
<b>TO2 - Malaria</b>	<b>306</b>	<b>349</b>		<b>369</b>	<b>82</b>			<b>357</b>
ACTs	202			370	82			346
Laboratory	312							312
LLINs		349		341				343
mRDTs	511			375				388
Other Non-Pharma				369				369
Other Pharma	497							497
Severe Malaria Meds	318			378				364
SP				390				390
<b>TO3 - FP/RH</b>	<b>293</b>	<b>198</b>		<b>482</b>	<b>212</b>		<b>211</b>	<b>284</b>
Combined Oral Contraceptives							238	238
Copper-Bearing Intrauterine Devices					168		135	152
Implantable Contraceptives	330			458	303			411
Injectable Contraceptives		177		579	49		175	232
Other Non-Pharma		211						211
Progestin Only Pills					145		319	261
Standard Days Method	183							183

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

Fulfillment Channel Product Category	Direct Drop Fulfillment			Total
	Air	Land	Sea	
Other Pharma	266	339	348	344
<b>Total</b>	<b>266</b>	<b>339</b>	<b>348</b>	<b>344</b>

### 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 measureable 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
<b>Direct drop fulfillment</b>	<b>89</b>	<b>3</b>	<b>48</b>		<b>84</b>	<b>39</b>	<b>38</b>
TO1 - COVID19	48	0	40		49	32	21
TO1 - HIV	81	2	53		88	36	27
TO2 - Malaria		3	27		66	51	72
TO3 - FP/RH		10	45		149	27	60
TO4 - MNCH	76	5	76		176	51	37
<b>Warehouse fulfillment</b>	<b>70</b>	<b>12</b>	<b>69</b>	<b>49</b>	<b>12</b>	<b>51</b>	<b>43</b>
TO1 - HIV	86	8	101	47	8	40	44
TO2 - Malaria		0	2	20	13	7	18
TO3 - FP/RH		18	27	58	18	69	42
<b>Total</b>	<b>88</b>	<b>3</b>	<b>49</b>	<b>102</b>			<b>38</b>

# Quality Assurance Performance (TO2 only)

Current Reporting Period

2021-Q4

## A2. QA processes completed within required lead times

Task Order	Total # of QA processes completed	% QA Processes On Time	A2 Target
<b>TO2 - Malaria</b>	<b>88</b>	<b>85%</b>	<b>80%</b>
ACTs	31	84%	80%
LLINs	16	100%	80%
mRDTs	16	75%	80%
Other Pharma	4	100%	80%
Severe Malaria Meds	14	79%	80%
SMC	1	100%	80%
SP	6	83%	80%

## A13. Out-of-specification percentage

Task Order	Total # of batches tested	Out-of-specification percentage	A13 Target
<b>TO2 - Malaria</b>	<b>366</b>	<b>0.0%</b>	<b>1%</b>
ACTs	152	0.0%	1%
LLINs	19	0.0%	1%
mRDTs	69	0.0%	1%
Other Pharma	2	0.0%	1%
Severe Malaria Meds	90	0.0%	1%
SMC	18	0.0%	1%
SP	16	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 aoods.

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
<b>TO2 - Malaria</b>	<b>2</b>	<b>50%</b>	<b>90%</b>
ACTs	0		90%
LLINs	1	0%	90%
mRDTs	0		90%
Other Non-Pharma			
Other Pharma	0		90%
Severe Malaria Meds	0		90%
SMC	0		90%
SP	1	100%	90%

### Ref Analysis

A02 Excluding delays due to COVID-19, 85 percent of QA processes were completed within the required lead times. Some incidental delays occurred in the technical testing process for one severe malaria medicines order, which required a test to be repeated. There were also two instances of delays in dispatching RDT samples, one due to a vendor delay and another due to a customs hold. Six orders during this quarter were delayed due to peak volume (82 batches) of pharmaceutical samples delivered during the months of June and July 2021. GHSC-PSM QA has been monitoring the process, liaising with procurement on priorities and switching to alternate labs where possible.

A13 There were no out-of-specification findings this quarter.

A14b Performance for QA lab vendors decreased slightly to 85 percent, driven primarily by a decrease in score in the reliability component (75 percent this quarter compared to 100 percent in Q3). However, there was an improvement by 26 percentage points in responsiveness of labs this quarter to provide prompt responses to requests for testing, an improvement of 4 percentage points in completeness of documentation, and an improvement of 8 percentage points in the service component. As with last quarter, pandemic delay codes were applied to lab transactions that were delayed due to impacts from COVID-19. This allowed these transactions to be excluded from the reliability component, in acknowledgement that these delays are outside of the labs' control and in alignment with other measures of project and vendor on-time performance.

A15 Two QA investigation reports were due to USAID in FY21 Qs 3 and 4, one of which was submitted three days late, resulting in a 50 percent on-time submission rate. The team continues to diligently investigate nonconformities and seek PMI concurrence on investigation outcomes.

# Warehouse Performance and Product Losses

## 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	Expiry	Adult ARV, Condoms	\$42,797	\$34,577,275	0.12%
TO2 - Malaria	RDC	Expiry	NA	\$0	\$931,424	0.00%
TO3 - FP/RH	RDC	Expiry	NA	\$0	\$7,555,352	0.00%
TO1 - HIV	RDC	Missing product	ARVs	\$7,559	\$30,898,821	0.02%

## A8. Shelf life remaining

Task Order	Inventory Balance	% Shelf Life Remaining	Shelf life target
TO1 - HIV	\$104,788,078	82%	78%
TO2 - Malaria	\$21,697,296	69%	70%
TO3 - FP/RH	\$58,668,600	84%	77%
<b>Total</b>	<b>\$185,153,973</b>	<b>78%</b>	

### Ref Analysis

A08	Shelf life performance for family planning commodities remained consistent with previous quarters, with 79 percent shelf life remaining. Shelf life exceeded 80 percent for injectables, combined oral contraceptives, and copper-bearing IUDs, but was slightly short for implants (77 percent). A reduction in demand, driven primarily by one large country, has led to the project holding a cumulative buffer stock of \$5.6 million in implants, resulting in a lower weighted shelf life percentage. In FY22, GHSC-PSM is expecting additional demand and does not anticipate any expiry risk.
A08	The malaria task order ended the quarter with ALu inventory in the RDC for the second time this fiscal year, with the average shelf life remaining for these products falling slightly to 74 percent, from 81 percent last quarter. Emergency distributions have been limited in the latter half of the year, with only two line items distributed from the RDC during FY21 Q3 and Q4.
A08	The weighted average shelf life remaining for HIV/AIDS commodities rose this quarter to 88 percent, with adult ARVs, condoms, VMMCs, and other pharmaceuticals all at or above 80 percent. Pediatric ARVs stood at 67 percent of shelf life remaining overall at the end of the quarter. The product arrived in May 2020 and since then has had little to no demand.
C07a	The RDC saw expiries of adult ARVs and condoms this quarter. Expired ARVs accounted for \$42,731 of the expiries, while condoms accounted for the remaining \$66. The expired ARV product is EFV600, a legacy ARV regimen that was replaced by TLD. The stock in the RDC was a result of cancellation of a country order, which was accepted by GHSC-PSM and USAID to support an expedited TLD transition in that country. Lack of demand for the product from other countries due to TLD as a preferred regimen resulted in expiry of the product. The expiries represented less than 1 percent of overall HIV inventory.
C07a	There were no expiries of family planning products in GHSC-PSM's RDC inventory this quarter.
C07a	There were no expiries of malaria products in GHSC-PSM's RDC inventory this quarter.
C07b	There was one instance of product loss reported this quarter, stemming from a short shipment and minor damage to an order of ARVs delivered to the RDC. The loss represents less than one percent of the value of HIV shipments delivered to the RDC this quarter. The supplier offered a credit note to make up for the missing and damaged items.

### 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

2021-Q4

## A10. Framework contract percentage

Task Order	Procurement total	Framework contract percentage	Framework contract target
TO1 - COVID19	\$1,484,743	91%	85%
TO1 - HIV	\$99,381,749	86%	85%
TO2 - Malaria	\$42,181,696	89%	85%
TO3 - FP/RH	\$11,881,384	100%	95%
TO4 - MNCH	\$1,261,174	13%	85%
<b>Total</b>	<b>\$156,190,745</b>	<b>88%</b>	<b>NA</b>

## A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
<b>TO1 - COVID19</b>	<b>91%</b>	<b>\$1,484,743</b>
COVID19	91%	\$1,484,743
<b>TO1 - HIV</b>	<b>86%</b>	<b>\$99,381,749</b>
Adult ARV	100%	\$25,568,838
Condoms	100%	\$7,183,226
Laboratory	77%	\$56,882,870
Other Non-Pharma	70%	\$253,905
Other Pharma	100%	\$839,462
Other RTK	0%	\$304,712
Pediatric ARV	100%	\$4,321,869
TB HIV	100%	\$3,109,326
VMMC	100%	\$917,540
<b>TO2 - Malaria</b>	<b>89%</b>	<b>\$42,181,696</b>
ACTs	100%	\$3,733,942
Laboratory	100%	\$255,969
LLINs	70%	\$15,634,784
mRDTs	100%	\$8,870,621
Other Non-Pharma	100%	\$13,712
Other Pharma	100%	\$1,400
Severe Malaria Meds	100%	\$3,701,413
SMC	100%	\$8,712,559
SP	100%	\$1,257,297

## A10. Product-level detail

Task Order	Framework contract percentage	Procurement total
<b>TO3 - FP/RH</b>	<b>100%</b>	<b>\$11,881,384</b>
Combined Oral Contraceptives	100%	\$3,750,025
Copper-Bearing Intrauterine Devices	100%	\$95,445
Emergency Oral Contraceptives	100%	\$70,020
Implantable Contraceptives	100%	\$2,529,716
Injectable Contraceptives	100%	\$4,993,380
Other Non-Pharma	100%	\$52,702
Progestin Only Pills	100%	\$390,096
<b>TO4 - MNCH</b>	<b>13%</b>	<b>\$1,261,174</b>
Other Non-Pharma	0%	\$1,092,459
Other Pharma	100%	\$168,715

## Task Order Analysis

- TO1 - HIV** Use of framework contracts for HIV procurements was 86 percent this quarter. Laboratory framework procurement fell slightly, from 80 percent in Q3 to 77 percent of procurement value in Q4 making use of a long-term agreement. All other core HIV product categories were fully procured under framework agreements, with the exception of "Other RTKs" for hepatitis C, tuberculosis, and syphilis, as well as other non-pharmaceuticals.
- TO2 - Malaria** Use of framework contracts for malaria procurements remained consistent at 89 percent this quarter. All malaria products make full use of framework contracts, the only exception being LLINs, 70 percent of which were procured under framework contracts, rising from last quarter's 62 percent. Use of framework contracts for mRDTs now accounts for 100 percent of orders, rising from 90 percent in FY21 Q3.
- TO3 - FP/RH** Family planning continues to procure all items under framework contracts, per the sourcing strategy for these commodities.
- TO4 - MNCH** Task Order 4 procurements this quarter included both maternal, newborn, and child health (MNCH) and Zika commodities. For MNCH, the project procured essential medicines for Nigeria, which were ordered using the project's existing framework contracts. This accounted for 13 percent of the TO4 procurement total. The remainder included orders of biological larvicide cannisters for mosquito control for the prevention of Zika. These were procured for Honduras, the Dominican Republic, Jamaica, and Haiti using fixed unit price contracts, as these were one-time procurements of a specialized product.

## 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
<b>TO2 - Malaria</b>	<b>11.9%</b>	<b>227</b>
ACTs	6.8%	103
mRDTs	18.6%	43
LLINs	8.8%	34
Severe Malaria Meds	23.3%	30
Laboratory	0.0%	6
Other Non-Pharma	0.0%	5
SP	20.0%	5
Other Pharma	100.0%	1
<b>TO3 - FP/RH</b>	<b>11.9%</b>	<b>59</b>
Injectable Contraceptives	10.5%	19
Implantable Contraceptives	5.6%	18
Combined Oral Contraceptives	36.4%	11
Other Non-Pharma	0.0%	5
Progestin Only Pills	0.0%	3
Copper-Bearing Intrauterine Devices	0.0%	2
Standard Days Method	0.0%	1
<b>Total</b>	<b>11.9%</b>	<b>286</b>

### Task Order Analysis

- TO2 - Malaria** Use of registration waivers for malaria products rose to 11.9 percent this quarter, just above the 10 percent target. This represents 27 out of 227 line items. The increase was primarily driven by rapid diagnostic tests and artesunate suppositories. The project added several new RDT suppliers in 2020, several of which were still processing product registrations in some GHSC-PSM destination countries at the time of Q4 shipments. One supplier of artesunate suppositories has also submitted registration for processing.
- TO3 - FP/RH** Use of registration waivers for family planning products fell to 11.8 percent of delivered line items this quarter, representing seven out of 59 deliveries. This includes four items for Haiti, which does not have a registration authority at present. Other unregistered products included DMPA-IM and combined oral contraceptives for Burundi, and combined oral contraceptives for Mozambique.

# Supply Plan Submissions

Current Reporting Period

2021-Q4



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

Product Group	# of supply plans required	Supply plan submission rate	Submission target
ARVs	19	100%	90%
Condoms	21	95%	90%
FP commodities	21	100%	95%
Lab (HIV diagnostics)	15	93%	90%
Malaria commodities	28	100%	90%
RTKs	18	94%	90%
TPT	14	93%	85%
VMMC	6	67%	80%
<b>Total</b>	<b>142</b>		

### Analysis

Supply plan submissions for key HIV/AIDS commodity groups remained strong in FY2021 Q4, maintaining at 100 percent for ARVs, and over 90 percent for RTKs, lab commodities, TPT, and condoms. VMMC was missing two submissions.

All required family planning supply plans were submitted as expected this quarter. One condoms supply plan was missing this quarter.

All but one required malaria supply plans were submitted as expected this quarter.

# Supply Plan and Forecast Performance

Current Reporting Period

2021-Q4

## A6a. Supply plan error - HIV Products

Product Category	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	Annual APE Target	4-quarter bias
Adult ARV	19%	-19%	19%	25%	-19%
Condoms	17%	17%	30%	25%	30%
Laboratory	29%	-29%	35%	25%	-35%
Pediatric ARV	10%	10%	18%	35%	-18%

## 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	8%	-8%	23%	35%	-23%
mRDTs	26%	-26%	13%	35%	-13%

## 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	1%	-1%	52%	25%	52%
Copper-bearing Intrauterine Devices	0%	0%	24%	25%	-24%
Implantable Contraceptives	7%	7%	12%	25%	12%
Injectable Contraceptives	6%	6%	5%	25%	5%
Progestin Only Pills	0%	0%	0%	25%	0%

### Task Order Analysis

TO1 - HIV	Single-quarter supply plan error for adult ARVs rose slightly this quarter, to 19 percent. Adult ARVs have been consistently underordered for several quarters, which has caused the rolling four-quarter measure of supply plan error to widen over time. This quarter, however, the four-quarter error began to recover slightly, reaching 19 percent, and the quarter with the most significant underordering (FY2020 Q4) is now outside the frame of reference of the indicator. For pediatric ARVs, the single-quarter supply plan error also rose slightly this quarter, from 4 percent to 10 percent. However, the four-quarter error has decreased to 18 percent, as low-error mid-year quarters and slight overordering in Q4 began to counteract underordering earlier in this year.
TO1 - HIV	Supply plan error for condoms rose slightly this quarter, from 14 percent to 17 percent. Female condoms performed particularly well, having a less than 3 percent absolute error. On the four-quarter metric, several quarters of overordering have pushed the results outside the targeted range. Although the gap between forecasted and ordered quantities has narrowed, significant underordering in Q2 has had a lingering effect on the four-quarter metric, which rose slightly to 30 percent in Q4. This quarter had a strong performance with female condoms and lubricants, but one instance of a country ordering male condoms with a short order lead time pushed overall ordering above the forecast.
TO1 - HIV	Supply plan error for laboratory commodities rose this quarter, from 8 percent to 29 percent. Orders exceeded supply plans for CD4 and viral load commodities due to some countries placing unplanned orders or increasing their order quantities. Orders were lower than planned for EID and other molecular and other lab commodities, with some countries ordering far less than expected. Four-quarter error remains greater in the current period due to underordering in Q1 and Q2, and now in Q4, pushing the error to 35 percent.
TO2 - Malaria	Supply plan error for ACTs has continued to see improved results overall, achieving 8 percent error for the quarter. The four-quarter supply plan error has decreased drastically to 23 percent. Both of these improvements are partially a result of major improvements to supply plans this quarter, particularly with AL. This may be attributed to conversations held in Country Director forums, which discuss uses of the data. There are still some issues with how countries may be quantifying their ASAQ needs, but this is to be expected as countries transition away from the product. GHSC-PSM's TO2 team will continue to emphasize to countries that it is important to ensure accurate and timely reporting for their supply plans. The TO2 team is also setting up meetings with country teams to understand how countries are quantifying their needs, as well as offering additional support especially when placing orders.
TO3 - FP/RH	Forecast error for implants remained at 7 percent this quarter. Error for injectables was 6 percent, a decrease from 12 percent in Q3. Injectables remained consistently within the targeted range on the four-quarters metric, achieving a 5 percent error. Combined oral contraceptives (COCs) saw a drastic decrease in forecast error this quarter with 1 percent error, down from 69 percent last quarter. This is due to no order changes for oral contraceptives this quarter. However, the rolling metric continued to rise just slightly due to the previous quarter's errors. Copper IUDs and progestin-only pills both saw little to no error this quarter.

# Total Landed Cost

Current Reporting Period

2021-Q4

## A5. Total Landed Costs

Task Order	Total Landed Cost (Freight and Logistics)	TLC Target	Delivery Total	Total Landed Cost (Freight, Logistics, and HQ Operations)
TO1 - HIV	7.4%		\$630,008,752	11.2%
TO2 - Malaria	13.4%		\$237,890,159	16.8%
TO3 - FP/RH	16.5%		\$32,124,830	32.5%
TO4 - MNCH	10.9%		\$7,121,252	21.9%
<b>Total</b>	<b>9.3%</b>		<b>\$907,144,992</b>	<b>13.5%</b>

## A5. Cost Breakdown

Cost Type	TO1 - HIV	TO2 - Malaria	TO3 - FP/RH	TO4 - MNCH	Total
<b>Freight and Logistics</b>	<b>\$46,497,518</b>	<b>\$31,996,032</b>	<b>\$5,287,940</b>	<b>\$774,335</b>	<b>\$84,555,825</b>
Country-specific Logistics	\$1,535,622	\$459,366	\$127,846	\$3,037	\$2,125,871
Demurrage	\$32,638	\$326,416	\$39,967	\$9,480	\$408,501
Drop Ship Freight	\$29,800,765	\$28,920,013	\$3,416,789	\$761,818	\$62,899,385
Inbound Freight	\$3,745,627	\$303,771	\$90,635		\$4,140,033
Insurance	\$766,717	\$341,601	\$117,963		\$1,226,282
Loss	\$603	\$0	\$1,714		\$2,317
Outbound Freight	\$8,741,857	\$1,379,846	\$1,317,066		\$11,438,769
Security	\$535,484	\$116,614	\$5,344		\$657,442
Warehousing	\$1,338,205	\$148,406	\$170,616		\$1,657,226
<b>HQ Operations</b>	<b>\$24,284,647</b>	<b>\$7,900,771</b>	<b>\$5,138,733</b>	<b>\$781,776</b>	<b>\$38,105,928</b>
Forecasting and Supply Planning	\$1,775,196	\$700,513	\$591,459	\$6,498	\$3,073,667
GS1	\$975,387	\$401,972	\$50,114	\$37,708	\$1,465,180
MIS	\$3,715,348	\$799,657	\$1,819,840	\$91,063	\$6,425,908
Monitoring and Evaluation	\$4,889,688	\$2,078,140	\$601,819	\$90,895	\$7,660,542
Procurement	\$11,395,345	\$3,762,825	\$2,014,726	\$539,949	\$17,712,845
Warehousing and Distribution	\$1,533,683	\$157,664	\$60,775	\$15,664	\$1,767,786
<b>Total</b>	<b>\$70,782,165</b>	<b>\$39,896,804</b>	<b>\$10,426,673</b>	<b>\$1,556,111</b>	<b>\$122,661,753</b>

### Analysis

**HIV:** This period, freight and logistics costs as a percentage of dollar value delivered for HIV and COVID-19 commodities rose to 7.4 percent. Cost across freight and logistics categories remained essentially flat, but the total value of commodities delivered declined by 9.5 percent, effectively increasing the freight and logistics rate. The global freight market has remained strained due to the ongoing impacts of the pandemic, with reduced capacity and high costs observed across supply chains globally. When headquarters supply chain operations cost are factored in, the total landed cost result has increased from 10.5 percent to 11.2 percent. Headquarters expenditures have fallen this period, as strategic projects for FASP and Procurement were concluded.

**Malaria:** Data for the current period shows that freight and logistics costs as a percentage of malaria commodities delivered continued to fall, reaching 13.4 percent. Expenditures in freight and logistics categories remained essentially flat from the previous period, but the total value of commodities delivered increased by 29.5 percent. It should be noted that this surge in deliveries fell primarily in the second half of FY2021, representing a 66 percent increase in delivery value over the same period in FY2020. Invoices and payments for deliveries at the end of the year may still be pending at the time of reporting, which may mean costs associated with these higher volumes are underrepresented in this data. It should be noted that costs for these deliveries may be high, as freight rates have continued to increase significantly across the global market, particularly as the Delta variant of the COVID-19 virus has surged this year. Per agreement with USAID, quality assurance costs are not included in this indicator, since GHSC-PSM does not manage QA across all TOs. For TO2, where QA is managed by the project, the total landed cost (freight and logistics) with QA included increases to 14.2 percent. Total landed cost including HQ operations is 18.0 percent with QA included.

**FP/RH:** This period, freight and logistics costs as a percentage of family planning commodities delivered increased, reaching 16.5 percent. This was driven by a significant increases in drop ship freight expenditures, which is in line with rising freight costs observed worldwide due to impacts from the COVID-19 pandemic. Costs have risen particularly in the second half of this fiscal year as the Delta variant of the virus has surged. When headquarters supply chain operations cost are factored in, the total landed cost result has increased to 32.5 percent. Headquarters expenditures have fallen this period, as strategic projects for FASP and MIS.

**MNCH:** Data for the current period shows that freight and logistics costs as a percentage of MNCH commodities delivered has fallen, reaching 10.9 percent. Expenditures in freight and logistics categories have fallen by roughly half, but the total value of commodities delivered increased by 37.5 percent. It should be noted that this surge in deliveries fell primarily in the second half of FY2021, representing a 51 percent increase in delivery value over the same period in FY2020. Invoices and payments for deliveries at the end of the year may still be pending at the time of reporting, which may mean costs associated with these higher volumes are underrepresented in this data. Costs for these deliveries may be high, as freight rates have continued to increase significantly across the global market, particularly as the Delta variant of the COVID-19 virus has surged this year.

### Data notes

GHSC-PSM's total landed cost indicator is equal to the sum of all costs associated with commodity delivery, divided by the total value of commodities delivered. It is reported semiannually, for a rolling 12-month period. It provides a high-level sense of the project's relative operations and direct logistics costs, but it may lack precision for several reasons: 1) Commodity cost savings may cause the denominator to decrease, even if volume stays the same. This may have the effect of increasing total landed cost as percentage, even if costs in the numerator remain the same. 2) Logistics costs for items shipped under C and D Incoterms are built into the commodity cost charged by the supplier. They cannot be separated out and assigned to the numerator. 3) Costs in the numerator represent invoices paid, per the project monthly financial statement, while commodity costs are based on items delivered. Numerator costs may therefore be delayed compared to delivery activity represented by the denominator.

# Vendor Performance

Current Reporting Period

2021-Q4

## A14a-c. Average vendor rating score

Vendor Type	Average vendor rating
Commodity Supplier	74%
Freight Forwarder	76%
QA Lab	85%

## 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?	75%	48%	36%
2 - Responsiveness	Does the lab provide prompt response after receipt of GHSC-PSM request for testing	96%	15%	14%
3 - Completeness of Documentation	Frequency of modification to Certificates of Analysis (CoA)	97%	18%	17%
4 - Invoice Accuracy	Submitted invoices for routing testing adhere to set IDIQ pricing	100%	10%	10%
5 - Service	Adherence to other terms and conditions, not related to reliability, responsiveness, completeness, and cost (Qualitative)	76%	10%	8%
<b>Total</b>			<b>100%</b>	<b>85%</b>

### Analysis

Supplier on-time performance slightly decreased this quarter from 75 to 74 percent. Suppliers are still recovering from COVID-19 and managing rolling shutdowns, causing delays in shipments. Because of a slowing freight market, it has become increasingly difficult for suppliers to meet set goals, especially with HIV/AIDS lab commodities. Malaria commodities also had a drop in supplier on-time performance due to delays in shipping documents and supply shortages. As in recent quarters, late orders affected by COVID-19 are counted as on-time through an acceptable supplier delay code.

Performance for QA lab vendors decreased slightly to 85 percent, driven primarily by a decrease in score in the reliability component (75 percent this quarter compared to 100 percent in Q3). However, there was an improvement by 26 percentage points in responsiveness of labs this quarter to provide prompt responses to requests for testing, an improvement of 4 percentage points in completeness of documentation, and an improvement of 8 percentage points in the service component. As with last quarter, pandemic delay codes were applied to lab transactions that were delayed due to impacts from COVID-19. This allowed these transactions to be excluded from the reliability component, in acknowledgment that these delays are outside of the labs' control and in alignment with other measures of project and vendor on-time performance.

An overall freight forwarder vendor rating score again cannot be reported this quarter, due to the absence of the customer service assessment. This has been on hold due to the increased demands on both the GHSC-PSM Deliver/Return team and the 3PLs during the pandemic. The team aims to conduct the survey in November 2021. Without this data, performance cannot be fully assessed. However, data from other aspects of the scorecard is available. In the categories of EDI status performance, on-time performance, on-time spot quote turnaround, booking timeliness, and rate of deliveries without non-compliance reports (NCRs), freight forwarder performance has remained strong, with achievement greater than 80 percent on each criterion. On-time performance scores have increased this quarter, from 81 percent to 90 percent.

### Data notes

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

# Global Advocacy Engagements

Current Reporting Period

2021-Q4



## HIV/AIDS

3

Name of Engagement	Description
Annual ARV Buyer Seller Summit	In Q4, GHSC-PSM participated and presented at the 2021 Summit hosted by PEPFAR, USAID, and Global Fund. The objective of the summit was to engage with industry on improving future demand visibility and working to improve the way buyers and sellers interact and work together to improve performance and efficiency.
Supply Chain Shelflife Project (Roche, GHSC-PSM, PFSCM)	In Q3 and Q4, GHSC-PSM continued to participate in the meetings with Roche and PFSCM to encourage governments and other parties to implement WHO guidelines around remaining shelf life (in months versus percentage).
Advanced HIV Procurement Working Group (APWG)	In Q3 and Q4, GHSC-PSM continued to participate in the APWG meetings and coordination forum, in particular for the TB-HIV allocations of Rifapentine and Rifapentine/Isoniazid Fixed Dose Combination tablets for the 3HP transition. This forum was set up to coordinate the fair allocation of the "limited" supply of available commodities for all donors/buyers, including PEFRRAR.



## Malaria

5

Name of Engagement	Description
Procurement coordination with global partners - RA	GHSC-PSM worked with the Global Fund to share demand information and coordinate planning of procurement of rectal artesunate to ensure supply availability in light of extreme market constraints.
Procurement coordination with global partners - ALU	GHSC-PSM worked with the Global Fund to share information regarding semi-synthetic artemisinin to collaborate on a strategy for market shaping in light of ongoing global uncertainty around this key starting material.
Procurement coordination with global partners - SPAQ	GHSC-PSM worked with the Global Fund, UNICEF, and Malaria Consortium to share demand information and coordinate planning of procurement of sulphadoxine-pyrimethamine + amodiaquine (SPAQ) for FY22 seasonal malaria chemoprevention (SMC) campaigns.
Malaria Pharma Task Force, mRDT Task Force, and IRS/ITN Task Force	In Q2, GHSC-PSM continued to participate in the Malaria Pharma Task Force, mRDT Task Force, and IRS/ITN Task Force and to meet bi-monthly with malaria partners, including the United Nations Children's Fund (UNICEF) and Global Fund, to align priorities for strengthening supplier capacity and response. These task forces continue to provide a valuable forum for information exchange on market risks and promote better collaboration across the global malaria community. They are supplemented by one-off working sessions and communications to discuss acute risks, issues, and opportunities (like offering available stock to one another).
RDTs Global Donor Monthly TWG	The monthly Global Donor TWG continues to meet regularly to coordinate actions and resolve problems with mRDT suppliers who are unable to fulfill demands because of capacity constraints due to COVID-19 and other global market challenges.

# Global Advocacy Engagements

Current Reporting Period

2021-Q4



## Family Planning and Reproductive Health

8

Name of Engagement	Description
CPG Global Market	GHSC-PSM participates in the CPG Global Market group to prioritize constrained products within available supply; support a healthy FP market and new FP product introduction in alignment with GFPVAN ToUs; and review and discuss market-level demand forecasts produced by the CPG/GFPVAN to align on outputs and methodology.
Global Family Planning Visibility and Analytics Network	GHSC-PSM regularly participates in a variety of task forces organized by the RHSC associated with the implementation of the GFPVAN. This includes the Data-sharing Task Force, Steering Committee, and Information Management Task Force, among others. Detailed updates on the outcomes of work on the GFPVAN can be found in the TO3 section of the report.
HELINA 2021 Conference	The 2021 Edition of the Pan African Health Informatics (HELINA-2021) conference was held in Kampala, Uganda from October 18-20, 2021 as fully virtual due to COVID-19. The online conference was conducted by the Uganda Health Informatics Association (UghIA – <a href="https://ughia.org">https://ughia.org</a> ) in partnership with the Makerere University School of Public Health (MakSPH) and the Uganda Ministry of Health (MOH) with the theme, "Leveraging Digital Health Interventions to Enhance Prevention, Response and Control of Public Health Emergencies in Low and Middle-Income Countries" GHSC-PSM moderated a panel discussion on the topic, "Preparing Health Supply Chains to Respond to Emergencies by Bridging the Silos of Information Systems." This panel had participants from USAID, Malawi Ministry of Health, Pakistan Ministry of National Health Services, Regulations and Coordination, and Rwanda Ministry of Health. Panelists presented on key supply chain information system initiatives such as adoption of global standards and assessing SCIS holistically to invest meaningfully in MIS improvements. In line with these topics, GHSC-PSM presented on the SCISMM tool, developed under USAID guidance and used by these countries for SCIS assessments. GHSC-PSM also shared information about the National Product Catalog initiative, and presented on a panel organized by the USAID-funded MEASURE Evaluation project. This last panel also included participants from USAID, World Bank, and Carolina Population Center and the Gillings School of Global Public Health, University of North Carolina. GHSC-PSM's presentation was on the topic, "Advancing Digital Health Capability of Healthcare Organizations—How to Navigate the Maze of Capability Model-Based Tools."
Hormonal Intrauterine Device (IUD) Steering Committee and Hormonal IUD Access Group	GHSC-PSM actively participates in the Hormonal IUD Steering Committee and Hormonal IUD Access Group. Globally, the Hormonal IUD Access Group, a consortium of governments, donors, manufacturers, procurement agencies, researchers, and service delivery groups, supports introduction of the hormonal IUD, taking a comprehensive approach to facilitating method introduction and scale-up. This includes ensuring availability of affordable, quality-assured products to facilitate sustainable markets and supporting countries that are ready and willing to introduce and scale up the method through a phased approach.
Market Development Approaches Working Group	GHSC-PSM regularly participates in the MDAWG meetings held by the RHSC. The working group provides a forum for those in the RH community working on market dynamics to convene and discuss common challenges and issues. In Q3 and Q4, discussions focused on reviewing the new RHSC work plan and providing input in anticipation of developing a working group-specific work plan.
Packaging Harmonization	In Q3, the project onboarded a green packaging consultant to investigate best practices in green packaging, assess the environmental impact of logo usage across all FP products, and assess the environmental impact of various DMPA-IM packaging options. The project will present the results of this green packaging to USAID in Q1 FY22, and these results will inform the timeline for implementing recommendations for harmonization and optimization of packaging of FP products that have been developed over the course of this multi-year exercise.
Systems Strengthening Working Group	GHSC-PSM regularly participates in SSWG meetings held by the Reproductive Health Supplies Coalition. The working group provides a forum for those working in systems strengthening to convene and discuss common issues and challenges. In Q3 and Q4, discussions focused on reviewing the new RHSC work plan, providing input in anticipation of developing a working group-specific work plan, and soliciting support within GHSC-PSM for proposed workstreams.
Total Market Approach Working Group (TMAWG)	GHSC-PSM participates in the monthly Total Market Approach Working Group (TMAWG), engaging with the broader stakeholder community to support and disseminate key core-funded activities that focus on the role of the private sector in the supply of family planning products.

# Global Advocacy Engagements

Current Reporting Period

2021-Q4



## Maternal, Newborn, and Child Health

3

Name of Engagement	Description
Annual Postpartum Hemorrhage Community of Practice (PPH COP)	In Q4, GHSC-PSM participated in the PPH COP, sharing program achievements in advocacy-related work on oxytocin quality.
Every Newborn Action Plan (ENAP) Partners Meeting	GHSC-PSM participated in a meeting with various partners to discuss next steps in the Every Newborn Action Plan Commodities Group, focusing on newborn medical devices. The global Every Newborn Action Plan (ENAP) provides a road map of strategic actions for preventing newborn mortality and stillbirth and reducing maternal mortality and morbidity.
Maternal Health Supplies Caucus (MHSC)	GHSC-PSM regularly participates in the MHSC meetings. The caucus provides a forum for maternal health communities to develop an understanding of maternal health supply-related challenges and to devise solutions.



## Crosscutting

2

Name of Engagement	Description
Association for Supply Chain Management (ASCM) Leadership Forum 2021	In May, GHSC-PSM in Ethiopia Country Director Tesfaye Seifu presented on Ethiopia's Center of Excellence for Inventory Management and Warehouse Management at the 2-day ASCM Leadership Forum, which brings together global supply chain leaders. This year's forum focused on building resiliency and workforce professionalization in the supply chain.
RHSC Virtual General Management Meeting - a "minka" to bring our vision to life	In April, a number of GHSC-PSM staff attended the RHSC virtual general management meeting, termed a "minka," in the Andean tradition of communal work. The two-day meeting focused on developing inputs for the next four-year RHSC work plan. Staff attended several of the breakout sessions on work planning for the individual working groups.

# Complete Quarterly Results (TO1)

Reporting Period

2021-Q4

## A1a. OTIF rate    A1b. OTD rate    A16. Backlog percentage    A10. Framework contracting

Task Order	A1a. OTIF rate		A1b. OTD rate		A16. Backlog percentage		A10. Framework contracting	
	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
<b>TO1 - COVID19</b>	<b>90%</b>	<b>113</b>	<b>75%</b>	<b>116</b>	<b>9.7%</b>	<b>691</b>	<b>91%</b>	<b>\$1,484,743</b>
COVID19	90%	113	75%	116	9.7%	691	91%	\$1,484,743
<b>TO1 - HIV</b>	<b>85%</b>	<b>1,024</b>	<b>88%</b>	<b>1,020</b>	<b>3.7%</b>	<b>4,172</b>	<b>86%</b>	<b>\$99,381,749</b>
Adult ARV	81%	73	91%	76	1.3%	463	100%	\$25,568,838
Condoms	86%	43	87%	45	1.2%	166	100%	\$7,183,226
Laboratory	86%	700	88%	699	4.4%	2,688	77%	\$56,882,870
Other Non-Pharma	60%	43	65%	46	3.7%	191	70%	\$253,905
Other Pharma	94%	65	97%	63	2.9%	239	100%	\$839,462
Other RTK	60%	10	75%	8	35.7%	28	0%	\$304,712
Pediatric ARV	85%	60	96%	52	0.5%	201	100%	\$4,321,869
TB HIV	100%	12	100%	13	0.0%	102	100%	\$3,109,326
Vehicles and Other Equipment					0.0%	1		
VMMC	100%	18	100%	18	1.1%	93	100%	\$917,540
<b>Total</b>	<b>85%</b>	<b>1,137</b>	<b>87%</b>	<b>1,136</b>	<b>4.5%</b>	<b>4,863</b>	<b>87%</b>	<b>\$100,866,492</b>

## A6a and A6b. Absolute percent supply plan or forecast error

A6 Indicator	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	4-quarter bias
<b>A6a - Supply plan error</b>				
Adult ARV	19%	-19%	19%	-19%
Pediatric ARV	10%	10%	18%	-18%
<b>A6b - Forecast Error</b>				
Condoms	17%	17%	30%	30%
Laboratory	29%	-29%	35%	-35%

## B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
ARVs	100%	19
Condoms	95%	21
Lab (HIV diagnostics)	93%	15
RTKs	94%	18
VMMC	67%	6

## A3. Cycle time (average)

Fulfillment Channel Task Order	Direct Drop Fulfillment			Warehouse Fulfillment			Total	
	Air	Land	Multiple Sea	Air	Land	Sea		
<b>TO1 - COVID19</b>	<b>188</b>	<b>67</b>	<b>200</b>					<b>186</b>
COVID19	188	67	200					186
<b>TO1 - HIV</b>	<b>253</b>	<b>226</b>	<b>334</b>	<b>344</b>	<b>250</b>	<b>419</b>	<b>289</b>	<b>257</b>
Adult ARV	322	281	334	384	214	419	280	325
Condoms				337	317		360	337
Laboratory	244	223		364				238
Other Non-Pharma	318	271		304				299
Other Pharma	253	203		389				281
Other RTK	291							291
Pediatric ARV	259	283		326	263		320	278
TB HIV	354						93	332
VMMC	167			229				188
<b>Total</b>	<b>246</b>	<b>223</b>	<b>334</b>	<b>312</b>	<b>250</b>	<b>419</b>	<b>289</b>	<b>250</b>

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

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
RDC	Expiry	Adult ARV, Condoms	\$42,797	\$34,577,275	0.12%
RDC	Missing product	ARVs	\$7,559	\$30,898,821	0.02%

## A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
88%	\$32,795,670

## Crosscutting indicators

### A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	74%
Freight Forwarder	76%

# Complete Quarterly Results (TO2)

Reporting Period

2021-Q4

Task Order	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	
	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
<b>TO2 - Malaria</b>	<b>85%</b>	<b>227</b>	<b>96%</b>	<b>212</b>	<b>1.3%</b>	<b>999</b>	<b>11.9%</b>	<b>227</b>	<b>89%</b>	<b>\$42,181,696</b>	<b>85%</b>	<b>88</b>	<b>0.0%</b>	<b>366</b>	<b>50%</b>	<b>2</b>
ACTs	83%	103	94%	95	0.5%	441	6.8%	103	100%	\$3,733,942	84%	31	0.0%	152		0
Laboratory	100%	6	86%	7	6.4%	94	0.0%	6	100%	\$255,969						
LLINs	97%	34	100%	34	1.3%	149	8.8%	34	70%	\$15,634,784	100%	16	0.0%	19	0%	1
mRDTs	77%	43	97%	37	0.0%	120	18.6%	43	100%	\$8,870,621	75%	16	0.0%	69		0
Other Non-Pharma	100%	5	100%	5	7.4%	27	0.0%	5	100%	\$13,712						
Other Pharma	100%	1	100%	1	0.0%	6	100.0%	1	100%	\$1,400	100%	4	0.0%	2		0
Other RTK					0.0%	1										
Severe Malaria Meds	93%	30	97%	30	0.9%	108	23.3%	30	100%	\$3,701,413	79%	14	0.0%	90		0
SMC					0.0%	29			100%	\$8,712,559	100%	1	0.0%	18		0
SP	60%	5	100%	3	0.0%	24	20.0%	5	100%	\$1,257,297	83%	6	0.0%	16	100%	1
<b>Total</b>	<b>85%</b>	<b>227</b>	<b>96%</b>	<b>212</b>	<b>1.3%</b>	<b>999</b>	<b>11.9%</b>	<b>227</b>	<b>89%</b>	<b>\$42,181,696</b>	<b>85%</b>	<b>88</b>	<b>0.0%</b>	<b>366</b>	<b>50%</b>	<b>2</b>

## A3. Cycle time (average)

Fulfillment Channel Task Order	Direct Drop Fulfillment			Warehouse Fulfillment	Total
	Air	Land	Sea	Air	
<b>TO2 - Malaria</b>	<b>306</b>	<b>349</b>	<b>369</b>	<b>82</b>	<b>357</b>
ACTs	202		370	82	346
Laboratory	312				312
LLINs		349	341		343
mRDTs	511		375		388
Other Non-Pharma			369		369
Other Pharma	497				497
Severe Malaria Meds	318		378		364
SP			390		390
<b>Total</b>	<b>306</b>	<b>349</b>	<b>369</b>	<b>82</b>	<b>357</b>

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

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
RDC	Expiry	NA	\$0	\$931,424	0.00%

## B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Malaria commodities	100%	28

## A8. Shelf life remaining

% Shelf Life Remaining	Inventory Balance
74%	\$918,325

## A14. Average vendor rating - QA labs

Average vendor rating
85%

### Crosscutting indicators

## A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	74%
Freight Forwarder	76%

## A6a. Absolute percent supply plan error

A6 Indicator	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	4-quarter bias
<b>A6a - Supply plan error</b>				
ACTs	8%	-8%	23%	-23%
mRDTs	26%	-26%	13%	-13%

# Complete Quarterly Results (TO3)

Reporting Period

2021-Q4

## A1a. OTIF rate

## A1b. OTD rate

## A16. Backlog percentage

## A10. Framework contracting

Task Order	A1a. OTIF rate		A1b. OTD rate		A16. Backlog percentage		A10. Framework contracting	
	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
<b>TO3 - FP/RH</b>	<b>97%</b>	<b>59</b>	<b>87%</b>	<b>63</b>	<b>1.4%</b>	<b>217</b>	<b>100%</b>	<b>\$11,881,384</b>
Combined Oral Contraceptives	91%	11	83%	12	2.1%	48	100%	\$3,750,025
Copper-Bearing Intrauterine Devices	100%	2	100%	2	0.0%	11	100%	\$95,445
Emergency Oral Contraceptives					0.0%	4	100%	\$70,020
Implantable Contraceptives	100%	18	95%	19	3.4%	58	100%	\$2,529,716
Injectable Contraceptives	95%	19	82%	22	0.0%	56	100%	\$4,993,380
Other Non-Pharma	100%	5	75%	4	0.0%	13	100%	\$52,702
Other RTK					0.0%	1		
Progestin Only Pills	100%	3	100%	3	0.0%	23	100%	\$390,096
Standard Days Method	100%	1	100%	1	0.0%	3		
<b>Total</b>	<b>97%</b>	<b>59</b>	<b>87%</b>	<b>63</b>	<b>1.4%</b>	<b>217</b>	<b>100%</b>	<b>\$11,881,384</b>

## A7. Temporary Waiver Percentage

Task Order	Temporary registration waiver percentage	Total # of line items delivered
<b>TO3 - FP/RH</b>	<b>11.9%</b>	<b>59</b>
Combined Oral Contraceptives	36.4%	11
Injectable Contraceptives	10.5%	19
Implantable Contraceptives	5.6%	18
Copper-Bearing Intrauterine Devices	0.0%	2
Other Non-Pharma	0.0%	5
Progestin Only Pills	0.0%	3
Standard Days Method	0.0%	1
<b>Total</b>	<b>11.9%</b>	<b>59</b>

## A3. Cycle time (average)

Fulfillment Channel Task Order	Direct Drop Fulfillment			Warehouse Fulfillment		Total
	Air	Land	Sea	Air	Sea	
<b>TO3 - FP/RH</b>	<b>293</b>	<b>198</b>	<b>482</b>	<b>212</b>	<b>211</b>	<b>284</b>
Combined Oral Contraceptives					238	<b>238</b>
Copper-Bearing Intrauterine Devices				168	135	<b>152</b>
Implantable Contraceptives	330		458	303		<b>411</b>
Injectable Contraceptives		177	579	49	175	<b>232</b>
Other Non-Pharma		211				<b>211</b>
Progestin Only Pills				145	319	<b>261</b>
Standard Days Method	183					<b>183</b>
<b>Total</b>	<b>293</b>	<b>198</b>	<b>482</b>	<b>212</b>	<b>211</b>	<b>284</b>

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

Country	Type of Loss	Product Group	Loss Value	Loss Denominator	% Loss
RDC	Expiry	NA	\$0	\$7,555,352	0.00%

## B6. Quarterly supply plan submissions

Product Group	Supply plan submission rate	# of supply plans required
Condoms	95%	21
FP commodities	100%	21

## A6b. Absolute percent forecast error

A6 Indicator	Supply plan/ forecast error	Supply plan/ forecast bias	4-quarter error	4-quarter bias
<b>A6b - Forecast Error</b>				
Combined Oral Contraceptives	1%	-1%	52%	52%
Condoms	17%	17%	30%	30%
Copper-bearing Intrauterine Devices	0%	0%	24%	-24%
Implantable Contraceptives	7%	7%	12%	12%
Injectable Contraceptives	6%	6%	5%	5%

## A8. Shelf life remaining

% Shelf Life Remaining      Inventory Balance

Crosscutting indicators	A14. Average vendor ratings	
	Vendor Type	Average vendor rating
Commodity Supplier		74%
Freight Forwarder		76%

# Complete Quarterly Results (TO4)

Reporting Period

2021-Q4

Task Order	A1a. OTIF rate			A1b. OTD rate		A16. Backlog percentage		A10. Framework contracting	
	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	
<b>TO4 - MNCH</b>	<b>93%</b>	<b>45</b>	<b>100%</b>	<b>42</b>	<b>29.5%</b>	<b>176</b>	<b>13%</b>	<b>\$1,261,174</b>	
Other Non-Pharma					0.0%	6	0%	\$1,092,459	
Other Pharma	93%	45	100%	42	30.6%	170	100%	\$168,715	
<b>Total</b>	<b>93%</b>	<b>45</b>	<b>100%</b>	<b>42</b>	<b>29.5%</b>	<b>176</b>	<b>13%</b>	<b>\$1,261,174</b>	

## Crosscutting indicators

### A14. Average vendor ratings

Vendor Type	Average vendor rating
Commodity Supplier	74%
Freight Forwarder	76%

### A3. Cycle time (average)

Task Order	Direct Drop Fulfillment	Total
<b>TO4 - MNCH</b>	<b>344</b>	<b>344</b>
Other Pharma	344	344
<b>Total</b>	<b>344</b>	<b>344</b>

# 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 (RDSCS) are presented in the GSC section of this report. Expiries that occur in warehouses that GHSC-PSM manages in countries are reported in the country-specific sections of this report.
C07b	Percentage of product lost due to theft, damage, or other causes, while under GHSC-PSM control (product loss percentage)	Total value of product lost due to theft, damage, or other causes during the quarter	For losses in transit: Total value (in USD) of product delivered during the quarter For losses in storage: Average inventory balance (in USD) during the quarter	GHSC-PSM Continual Improvement system reports	Quarterly	Product losses due to incidents are reported only after the actual value of the loss has been determined, which may be later than the quarter in which the incident took place or was first reported to GHSC-PSM Continual Improvement.

# Indicator Details

Check out the [GHSC-PSM IDIQ M&E Plan](#) for complete details on all our indicators.

## Total Landed Cost

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
A05	Total Landed Cost (as a percentage of total value of commodities delivered to recipients)	Sum of all freight and logistics costs (in USD) paid by GHSC-PSM during the reporting period	Sum of the value of all commodities delivered to recipients during the reporting period	ARTMIS, Monthly Financial Statement	Semiannual	The project will also report a variant of this indicator that includes all HQ supply chain operations costs in the numerator. Quality assurance costs will be excluded from all task orders, as QA costs are not paid by GHSC-PSM for all task orders. A version of the indicator including QA costs will be reported for Task Order 2 only.

## Global Advocacy Engagements

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
C08	Number of global advocacy engagements in support of improved availability of essential health commodities	Number of global advocacy engagements in support of improved availability of essential health commodities	NA	Project work plans, narrative reports	Semiannual	

# Indicator Details

Check out the [GHSC-PSM IDIQ M&E Plan](#) for complete details on all our indicators.

## Delivery Impact Indicators

Indicator Code	Name	Numerator	Denominator	Data Source(s)	Reporting frequency	Other Info
NA	Number of ACT treatments delivered	Sum of ACT treatments delivered to countries, where a treatment is equal to one blister strip		ARTMIS	Quarterly	Includes malaria treatments delivered over the life of the project, with “full dose” based on WHO-recommended treatment guidelines. Specific medicines counted are limited to those used only for treatments, and not primarily as prophylaxis. Specifically, it includes Artemether/Lumefantrine, Artesunate/Amodiaquine, and Arteminol/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 <a href="https://www.usaid.gov/what-we-do/global-health/family-planning/couple-years-protection-cyp">https://www.usaid.gov/what-we-do/global-health/family-planning/couple-years-protection-cyp</a> 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.