USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM
PROCUREMENT AND SUPPLY MANAGEMENT

FISCAL YEAR 2018 QUARTER 2 REPORT

January 1 to March 31, 2018

With Semi-Annual Indicators for October 1, 2017 through March 31, 2018

USAID FROM THE AMERICAN PEOPLE

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

USAID FROM THE AMERICAN PEOPLE CDC

U.S. President's Malaria Initiative

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

CONTENTS

ACRONYMS

3PL	third-party logistics
ACT	artemisinin-based combination therapy
ALu	artemether-lumefantrine
ART	antiretroviral therapy
ARTMIS	Automated Requisition Tracking Management Information System
ARV	antiretroviral
ASAQ	artesunate + amodiaquine
BI&A	Business Intelligence and Analytics
CAPeT	Commodity Accountability Performance Tracking
CARhs	Coordinated Assistance for Reproductive Health Supplies
CDC	U.S. Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
COP	Country Operational Plan
CYP	couple years of protection
DMPA IM	depot medroxyprogesterone acetate intramuscular
DRC	Democratic Republic of the Congo
DTG	dolutegravir
eLMIS	electronic logistics management information system
EPA	Environmental Protection Agency
EUV	end-use verification
FASP	forecasting and supply planning
FP/RH	family planning/reproductive health
FY	fiscal year
GDSN	Global Data Synchronization Network™
GHSC-PSM	Global Health Supply Chain Program-Procurement and Supply Management
HSCSS	health supply chain systems strengthening
IDIQ	indefinite delivery, indefinite quantity
LabEQIP	Laboratory Efficiency and Quality Improvement Planning
LLIN	long-lasting insecticide-treated net
M&E	monitoring and evaluation
MCH	maternal and child health
MNCH	maternal, newborn, and child health
MOP	Malaria Operational Plan
NMCP	National Malaria Control Program
OC	oral contraceptive
OGAC	Office of the U.S. Global AIDS Coordinator and Health Diplomacy
ORS	oral rehydration salt
OTD	on-time delivery
OTIF	on-time in-full delivery
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PMI	U.S. President's Malaria Initiative

PPMR	Procurement Planning and Monitoring Report
PPMR-HIV	Procurement Planning and Monitoring Report – HIV/AIDS
PPMRm	Procurement Planning and Monitoring Report – malaria
PSBI	possible severe bacterial infection
Q	quarter
QA	quality assurance
RDC	regional distribution center
RDT	rapid diagnostic test
RHSC	Reproductive Health Supplies Coalition
RTK	rapid test kit
SKU	stock-keeping unit
SP	sulphadoxine-pyrimethamine
TLD	tenofovir, lamivudine, dolutegravir
TO	task order
UMPP	unusable medical and pharmaceutical product
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNOPS	United Nations Office for Project Services
VAN	Visibility Analytics Network
VMMC	voluntary medical male circumcision
WAHO	West African Health Organization
WHO	World Health Organization

EXECUTIVE SUMMARY

The USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project is pleased to present this report summarizing our work and performance for Fiscal Year 2018 (FY18) Quarter 2 (Q2). We describe here our work to provide lifesaving commodities and to build efficient, reliable, and cost-effective health supply chains to deliver health products for the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), the U.S. President's Malaria Initiative (PMI), USAID's population and reproductive health (PRH) program, and USAID's maternal and child health (MCH) program.

GHSC-PSM Results

In this reporting period (January through March 2018), GHSC-PSM:

- Procured $301 million and delivered $187 million in health commodities, an increase of $43.8 million and $11.3 million, respectively, over Q1
- Achieved 73 percent on-time delivery (OTD) this quarter
- Improved our on-time in-full (OTIF) rate to 67 percent
- Reduced overall cycle time across health areas and fulfillment methods by 5 percent since last quarter
- Attained overall supply chain costs of 13.9 percent and logistics costs of 9.12 percent of the total U.S. dollar delivered for the last half year
- Expanded our country presence to 32 field offices, adding Mali to the countries we support

To date, GHSC-PSM has delivered:

Antiretroviral therapy (ART) to provide more than **2.5 million person-years of HIV treatment**

Antimalarials to treat nearly **74 million infections**

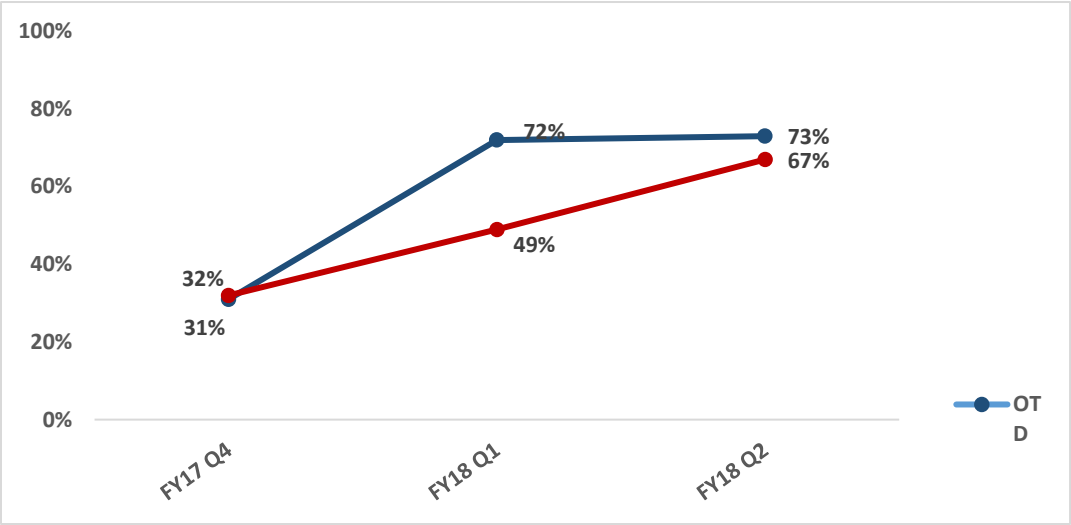
Contraceptives to provide **28 million couple years of protection (CYP)**

(See Annex A for an explanation of the methodology used to calculate these numbers.)

Over the life of the project, we have procured more than $1 billion in health commodities. The scale of just a subset of our deliveries is summarized in the box above.

Our OTD averaged 73 percent for Q2 (versus 72 percent for Q1), which represents steady performance but not yet achievement of our FY18 target of 80 percent (see Exhibit 1 on the next page). Our backlog of late orders is down 14 percent from Q1, and now comprises 4.3 percent of annual volume. Our OTIF rate increased significantly in Q2, reflecting the reduction in our backlog, and, at 67 percent, is converging on our OTD rate. Our OTD and OTIF rates and reduced backlog provide evidence of the overall sustained success of our process improvements. We note, however, that our performance with regard to malaria deliveries (46 percent OTD) is lagging, and improving the timeliness of our delivery of malaria products is a major focus of ongoing process assessment and improvement.

Exhibit 1. OTD and OTIF Over the Last Three Quarters



Other major performance indicators are also improving, including overall landed cost, or the total cost of freight, warehousing, insurance, and headquarters associated with delivering one U.S. dollar of product. These decreased 34 percent from 21.02 percent in FY17 to 13.94 percent for the first half of FY18. These are now $0.14 per U.S. dollar of commodity delivered. Logistics costs are 9.12 percent of the total U.S. dollar delivered for the last half year.

Meeting Global Health Objectives. GHSC-PSM continued to contribute meaningfully to our clients' global health objectives this quarter.

HIV. We supported 22 countries that offer treatment to millions of patients in transitioning to the new fixed-dose combination tenofovir/lamivudine/dolutegravir (TLD) as their first-line regimen for people living with HIV/AIDS. The transition fulfills the World Health Organization's (WHO's) latest clinical recommendations and reflects an urgent priority of PEPFAR under Ambassador Deborah Birx. GHSC-PSM supported USAID's involvement in the ST3, an interagency group tasked with ensuring U.S. government support for a rapid transition to TLD. Given the limited number of approved suppliers and unpredicted challenges in their ability to produce promised stock, GHSC-PSM's timely placement, at USAID's request, of TLD orders well in advance of the rapid increase in country demand was well advised. We maintained excellent supplier relations to help ensure supply and helped countries incorporate planning for the TLD transition in their work plans to decrease risk and manage demand.

GHSC-PSM also worked to help improve availability of HIV rapid test kits (RTKs), which are procured under the separate GHSC-RTK contract. In addition to helping countries forecast and quantify the number of RTKs they need, we conducted a survey of countries to identify issues influencing RTK availability. Major actionable findings from the survey are the need for improved stock management planning practices and for close coordination of service delivery activities with the procurement process. These findings, coupled with PEPFAR's emphasis on index testing[1] and the yield of HIV testing, will inform strategies and technical support activities to strengthen country RTK forecasting and quantification and overall supply chain performance.

[1] Index testing is the practice of testing family members and partners of people diagnosed with HIV.

Malaria. Substantiated by evidence provided by GHSC-PSM, PMI is standardizing its long-lasting insecticide-treated net (LLIN) procurements through SKU rationalization and discouraging customization. This will produce opportunities for improved supply chain performance and flexibility, leading to savings in lead time and costs.

PRH. GHSC-PSM began implementing a five-year sourcing strategy for family planning and reproductive health (FP/RH) commodity procurements, including contracting a new oral contraceptives supplier.

MNCH. GHSC-PSM continued its work on improving the appropriate management of oxytocin. We participated in finalizing and disseminating the oxytocin advocacy messaging framework in collaboration with PATH and the Reproductive Health Supplies Coalition (RHSC). We worked with the group of experts that participated in the oxytocin evidence review meeting last quarter to draft a journal article on the evidence around management of oxytocin and quality.

Increasing Data Visibility. Across health areas, GHSC-PSM continues to collect, manage, and share data on commodity availability as a global good. Most notably, we are working to bring visibility to hidden portions of country supply chains. For example, in addition to continuing to provide valuable information on the availability and use of malaria commodities, the new version of the End Use Verification (EUV) survey will provide information on maternal, newborn, and child health (MNCH) commodities in many facilities for the first time. GHSC-PSM also made progress in getting information on stock levels and distribution patterns in countries like South Sudan, which does not have a functioning logistics management information system (LMIS).

Innovating in Procurement. GHSC-PSM continues to implement new ways to use competitive, commercial approaches to supplier contracting to maximize value to the U.S. Government and supported countries. This quarter, we incorporated trade packaging services into a contract, a first for a USAID contract and a boon to social marketing programs. We concluded a demanding competition for transport that selected best value options for more than 2,500 lanes. We concluded long-term agreements for male condoms, personal lubricant, and oral contraceptives, and evaluated best-and-final offers for malaria rapid diagnostic tests. GHSC-PSM also released solicitations for long-term agreements for ARVs, VMMC kits, 218 standard essential medicines, one- and two-rod implants, and IUDs.

Collaborating Globally. The scale, scope, and complexity of managing a global supply chain require our collaboration with many global and local partners to ensure the availability of health commodities. We contributed evidence to inform development of global guidelines and data to support global efforts to allocate product to meet countries' needs. We worked to achieve common standards with other donors (e.g., in packaging, in service requirements) to enable more rational, efficient, and large-scale contracting for supplies and services. In all these initiatives, we provided critical information on supply chain considerations that can make the difference between success and failure of global health programs. By integrating our work across health sectors and sharing information, resources, activities, and capabilities, we can achieve together what we could never achieve alone.

SECTION A

INTRODUCTION

A1. Background

The USAID GHSC-PSM project works to ensure uninterrupted supplies of health commodities to save lives and to create a healthier future for all. The project directly supports five global health areas of importance to the U.S. government:

- The U.S. President's Emergency Plan for AIDS Relief to help reach the Joint United Nations Programme on HIV/AIDS (UNAIDS) global 90-90-90 HIV/AIDS testing, treatment, and viral load suppression targets
- The U.S. President's Malaria Initiative to reduce malaria deaths and substantially decrease malaria morbidity, towards the long-term goal of elimination
- USAID's Population and Reproductive Health program to ensure that key reproductive health commodities are available for safe and reliable family planning
- USAID's maternal and child health program to prevent child and maternal deaths
- Other public health threats as they emerge, with support for Zika at this time

The project purchases and delivers health commodities, offers comprehensive technical assistance to strengthen national supply chain systems, and provides global supply chain leadership to ensure that lifesaving health supplies reach those most in need.

A2. About This Report

We are pleased to present our performance report for FY18 Q2 (January 1 through March 31). This report includes calculations of all required quarterly and semiannual metrics from the project's monitoring and evaluation (M&E) plan.

GHSC-PSM is a matrixed project that integrates work across two axes: health areas and technical objectives. To reflect our work in each of these areas, the report is organized as follows:

- Section B summarizes major activities in each of the **five health areas** (HIV/AIDS, malaria, PRH, MNCH, and other public health threats).
- Section C describes activities under each of the **three main technical objectives** (global commodity procurement and logistics, systems strengthening, and global collaboration). Because our M&E indicators are structured around our objectives, in Section C we also discuss key indicator results.
- Annex A provides **performance and context indicators** for January 1 through March 31, 2018 (quarterly indicators) and for October 1, 2017 through March 31, 2018 (semi-annual indicators).

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

SECTION B

PROGRESS BY HEALTH AREA

In this section, we summarize GHSC-PSM's support for each of the five health areas (HIV/AIDS, malaria, PRH, MNCH, and other public health threats) over the last quarter.

B1. HIV/AIDS

In Brief

26 countries procured HIV/AIDS commodities and **30 countries received systems strengthening support** with HIV/AIDS funding under the contract this quarter.

GHSC-PSM **continues to support the achievement of PEPFAR goals** by ensuring that country supply chains support the transition of patients on antiretrovirals (ARVs) to the preferred drug, TLD. The project has also supported USAID Missions as they develop country operational plans (COPs) for 2018.

We concluded a **study on challenges in maintaining continuous supply** of rapid test kits (RTKs) and continued supporting viral load testing scale-up.

Procurement of HIV/AIDS Commodities

FY18 Q2:
- $200 million
- including $123 million in ARVs

Life of Project:
- $836 million
- including $534 million in ARVs

We have delivered enough ARVs to provide **2.5 million person-years of HIV treatment.**

We undertook **sourcing activities** for ARVs, lab equipment and supplies, voluntary medical male circumcision (VMMC) kits, essential medicines, and male condoms and lubricants.

We expanded efforts to **enhance visibility into country stocks of HIV commodities** through the Procurement Planning and Monitoring Report-HIV (PPMR-HIV). We are exploring ways to extend visibility into lower levels of the supply chain.

GHSC-PSM supports the PEPFAR goal of controlling the HIV/AIDS epidemic. With PEPFAR funding, we work to help countries achieve epidemic control under the UNAIDS 90-90-90 framework — so that 90 percent of people living with HIV know their status, 90 percent of people who know their status are on treatment, and 90 percent of people on treatment have suppressed viral loads.

The project provided technical assistance to 30 countries to strengthen national supply chains and improve health commodity availability. GHSC-PSM is actively supporting PEPFAR's strategy for 2017 to 2020, which focuses on 13 priority high-burden countries. These countries are indicated by an asterisk in Exhibit 2.

Exhibit 2. Countries Receiving Support from GHSC-PSM with HIV/AIDS Funding in FY18

Country	Procure-ment	Technical Assistance	Country	Procure-ment	Technical Assistance
AFRICA			**ASIA**		
Angola	✓	✓	Burma		✓
Benin	✓		Cambodia		✓
Botswana*	✓	✓	Indonesia		✓
Burundi	✓	✓	Laos	✓	
Cameroon	✓	✓	Papua New Guinea	✓	
Côte d'Ivoire*	✓		Thailand	✓	
Dem. Rep. of Congo	✓		Vietnam	✓	✓
Ethiopia	✓	✓			
Ghana	✓	✓			
Kenya* ^		✓	**CARRIBEAN/CENTRAL AMERICA**		
Lesotho*		✓	Bahamas	✓	
Malawi*	✓	✓	Barbados	✓	✓
Mali	✓	✓	Dominican Republic	✓	
Mozambique	✓	✓	El Salvador	✓	✓
Namibia*	✓	✓	Guatemala		✓
Nigeria	✓	✓	Haiti*	✓	✓
Rwanda*	✓	✓	Honduras		✓
Senegal	✓		Jamaica	✓	✓
South Sudan	✓	✓	Panama		✓
South Africa	✓		Suriname	✓	✓
Swaziland*	✓		Trinidad and Tobago	✓	
Tanzania*	✓				
Togo	✓				
Uganda*	✓	✓			
Zambia*	✓	✓	**EUROPE/EURASIA**		
Zimbabwe*	✓	✓	Ukraine	✓	

** High HIV burden PEPFAR focus country*

^ GHSC-PSM provides technical assistance in Kenya under a unique task order (Task Order 5) overseen by USAID/Kenya.

Working to Achieve the First 90: Diagnosis

GHSC-PSM is actively involved in supporting RTK availability to reach the first 90, HIV diagnosis. We meet regularly with the GHSC-RTK project (implemented by Remote Medical International, RMI) to get updates on its RTK procurements, to ensure a smooth transfer of country orders to GHSC-RTK, and to identify where our support is needed at the field office level. GHSC-PSM helped countries forecast and quantify the number of RTKs they need. We supported development and review of RTK supply plans for nine countries this quarter. We also assisted countries in distributing RTKs or in resolving logistics issues to optimize RTK distribution.

Commodities Procured for HIV/AIDS Programs

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

GHSC-PSM continued to share planned orders for RTKs with the GHSC-RTK team and to ensure these orders meet RMI's specifications. Also, we **provided projections of RTK needs 18 months into the future** for the nine countries that develop RTK supply plans. (These nine countries are a

major source of demand for RTKs, accounting for 70 percent of RTKs delivered to date by GHSC-RTK). This helps GHSC-RTK plan its procurements with manufacturers and helps ensure test kit availability.

A blood sample is taken from Bridgette for testing at a health center in Zambia. *Photo credit: GHSC-PSM*

In Q1, GHSC-PSM conducted a 47 question, open-ended, multiple-choice country program survey to better understand GHSC-PSM's role in supporting the supply chain for RTKs and to identify issues hindering countries' ability to provide testing services. The survey had an 85 percent response rate (22 out of 26 countries completed the survey). This quarter, we analyzed and presented the survey results to USAID. Findings noted correlations, not causality. Two key findings of the survey were:

- In those countries experiencing RTK stockouts, reasons included delayed shipments and inefficient distribution as well as a **need for improved stock management planning practices**.
- There is a **need to coordinate service delivery activities more closely with the procurement process**. Fifty-eight percent of responding countries test through unplanned campaigns, and 43 percent of those countries that responded reported stockouts at all levels in the last two years. Most countries hold campaigns to promote HIV testing, but information on campaigns is not always shared with the entities responsible for providing the RTKs.

These findings and PEPFAR's emphasis on index testing[2] will inform strategies and technical support activities to strengthen RTK forecasting and quantification and overall supply chain performance in several key GHSC-PSM countries. We will start planning this technical support for countries in May 2018.

Working to Achieve the Second 90: Treatment

To help achieve treatment goals, this quarter, GHSC-PSM was heavily engaged in supporting the planned transition to TLD. We also advanced long-term contracts for other ARVs (as described in the strategic sourcing section below).

[2] Index testing is the practice of testing family members and partners of people diagnosed with HIV.

Transitioning to TLD

The World Health Organization (WHO) recommends TLD as an alternative first-line regimen due to its clinical benefits, which include improved tolerability, higher antiretroviral efficacy, lower rates of treatment discontinuation, a higher genetic barrier to resistance, and fewer drug interactions than other ARVs. PEPFAR aims to transition all its funded countries to using TLD as the preferred first-line regimen over the next 18 months. GHSC-PSM is **actively supporting 22 countries**, which offer treatment to millions of patients, in transitioning to TLD.

Honing the Strategy

GHSC-PSM worked in close collaboration with USAID in developing a TLD strategy to anticipate and mitigate challenges that emerge with the large-scale rollout of any new product, including TLD. The strategy for TLD comprises:

- Engaging with TLD manufacturers to continually update our information on their production capacity
- Conducting updated country demand forecasts and mapping these against supplier capacity to ensure forward planning for more than a dozen countries
- Continuously monitoring market health through updates on supplier approvals to produce TLD, country registrations, and supplier production capacity
- Preparing for rapid order fulfillment
- Conducting periodic inventory analytics to support TLD ramp-up
- Conducting inventory analytics to support the drawdown of legacy ARV products to prevent wastage
- Engaging directly with each GHSC-PSM-supported country regarding its TLD transition plan and supporting use of the quantification tool
- Communicating actively with other major buyers through USAID (e.g., the Global Fund and countries like Kenya and South Africa that do not procure commodities through GHSC-PSM) to gain as much visibility as possible into the timing and quantity of their planned orders
- Placing orders with suppliers, in consultation with USAID and other U.S. government agencies, to reflect country prioritization of the Office of the U.S. Global AIDS Coordinator and Health Diplomacy (OGAC)

An important aspect of the strategy, at USAID's request, was **to place orders for TLD well in advance** of the rapid increase in country demand (see box). Given the limited number of approved suppliers, supplier delays, and unpredicted challenges in their ability to produce promised stock, this critical part of the strategy has paid off over the quarter. The TLD transition has had and will continue to require excellent supplier relations and frequent

Early USAID TLD Orders Through GHSC-PSM Stimulate Supplier Production

"The 'early' orders placed by GHSC-PSM have been essential and instrumental in jump-starting production of DTG active pharmaceutical ingredient and TLD finished packs. We very much appreciate your efforts to place and follow through on these essential early stocking orders."

Alan Staple
Clinton Health Access Initiative (CHAI)

communication with countries to decrease risk and ensure supply.

GHSC-PSM brought these considerations to an interagency TLD Global Strategy meeting on March 9. Attendees included U.S. government agency staff working on the TLD transition from the USAID Office of HIV/AIDS and its Supply Chain for Health division, the U.S. Centers for Disease Control and Prevention (CDC), and OGAC. The project shared data on TLD demand in relation to global supply, the dates when countries plan to start their transitions to TLD, and quantities of legacy ARVs (i.e., existing ARV stock) that need to be used before shifting patients to TLD. Attendees developed scenarios for meeting demand based on projected global supply, allocating various quantities of TLD to countries by projected transition dates. The projected start of each country's transition depended on how advanced the country's TLD transition plan is, the quantity of its legacy stock, and whether TLD is already included in the country's national treatment guidelines.

Based on the data provided at the meeting, OGAC developed and communicated a strategy for transitioning countries to TLD, including the dates when TLD will be provided to each country, and the quantities to be provided. GHSC-PSM is following up with countries to help them revise their transition plans and will review those plans in early April. In the meantime, GHSC-PSM is helping countries ensure an adequate stock of legacy first-line ARVs to avoid treatment interruption until the new TLD is in stock. We are working closely with USAID and suppliers, where possible, to cancel previous orders for ARVs that are being replaced by orders for TLD. We also are **helping countries comply with the PEPFAR policy** to decrease the use of nevirapine-containing adult ARVs as expeditiously as possible.

Ramping Up: Ensuring Supply Meets Demand

GHSC-PSM serves as the interface between suppliers and countries to **ensure TLD supply and demand align**. Given that supplier capacity is less than previously projected, we are helping countries modify their TLD transitions plans. This will change over time, and we are in daily touch with USAID and the approved suppliers to match country demand with supply. A TLD transition working group of USAID and GHSC-PSM market dynamics, strategic sourcing, forecasting and supply planning, warehousing, commodity security, system strengthening, and procurement experts continues to meet weekly and on an ad hoc basis.

As noted, GHSC-PSM is in frequent discussion with the two U.S. Food and Drug Administration (FDA)-approved suppliers of TLD to monitor their available stock and production plans. GHSC-PSM developed and maintains a regularly updated tracker of TLD supply and demand, which is shared with USAID in real time. The project also monitors suppliers' efforts to obtain FDA approval of their products, following progress in their dossier submissions and other steps in the FDA approval process.

Preparing Countries

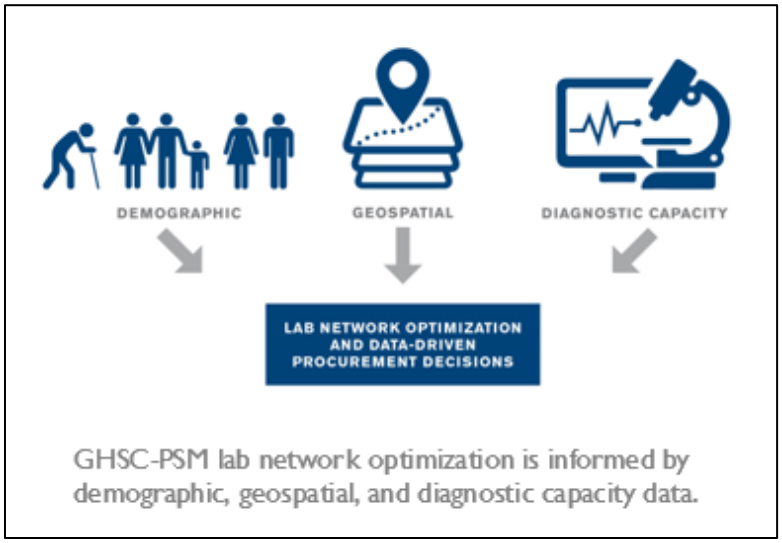
GHSC-PSM is supporting USAID/Washington and in-country Missions to manage TLD transition in PEPFAR countries. Complementing GHSC-PSM's work with suppliers and with USAID on country allocations, we have **kept our field offices fully informed about the TLD situation** through frequent communications. During this quarter, we sent field offices a TLD Country Program Guidance and Checklist; an updated note on TLD, including approved suppliers; and an update about the original list of OGAC-prioritized countries to begin the transition.

Working to Achieve the Third 90: Viral Load Suppression

Reaching the third 90 requires scaling up viral load monitoring of patients on ART. Viral load monitoring indicates whether a patient's treatment is effective. A suppressed viral load decreases the likelihood of transmitting HIV to a partner, which is critical to decreasing new HIV infections and ultimately stemming the HIV epidemic.

GHSC-PSM continues to support countries with the challenges that can occur when scaling up viral load testing. Challenges can range from low utilization and breakdowns of instruments (with limited servicing and maintenance available) to breaks in the cold chain during reagent delivery. In Q2, the project continued to work closely with USAID, the CDC, and the Global Fund to pursue a viral load scale-up strategy that is rooted in laboratory optimization, ensures consistency in prices paid by countries for lab commodities to the extent possible, improves the consistency of the products provided, and improves on-time delivery.

GHSC-PSM advocates for a network as opposed to a traditional approach to lab procurement. Using reagent rental and all-inclusive procurement, this approach translates into a **lower and predictable price per test,** easier budgeting, higher supplier performance, greater coordination, transfer of risk to the manufacturer/distributor, and other benefits.



GHSC-PSM lab network optimization is informed by demographic, geospatial, and diagnostic capacity data.

With global demand for viral load tests projected to more than double over the next five years, GHSC-PSM is substantially scaling up our procurement. To support this, USAID with GHSC-PSM, Opian, and Llamasoft **developed tools to assist countries in viral load scale-up** and have continued to train country teams on their use. We help countries use LabEQIP to plan for optimal placement of laboratory instruments based on HIV/AIDS patient location and sample transport network design. Our support starts with baseline mapping of the lab network and systems, along with identification of functional instruments, current utilization rates, and patient demand. Countries also use our viral load reagent and commodity calculators, which help countries estimate numbers of tests needed and provide price information on a "cost per test" basis. This process facilitates **more accurate ordering and budgeting as countries plan testing to meet patient demand.**

In addition, in countries like Nigeria and Mozambique, the project worked to **address service- and maintenance-related issues for viral load testing platforms** that were resulting in failure rates and testing service interruptions. GHSC-PSM updated service and maintenance requirements in all service-level agreements to **ensure continuous instrument performance**. The project shared these contract terms with other global laboratory stakeholders, including CHAI, WHO, and UNITAID.

Collaborating to Achieve Voluntary Medical Male Circumcision Targets

GHSC-PSM provides procurement support to PEPFAR's VMMC program. On January 24, GHSC-PSM hosted the USAID Office of HIV/AIDS VMMC biannual headquarters partner meeting. This meeting brought together staff from USAID and implementing partners who support VMMC service delivery with PEPFAR funding. Participants discussed key programmatic challenges to achieving VMMC program goals, including the need for procurement standardization, and identified potential solutions and next steps. GHSC-PSM presented data on countries' procurement of anesthetics and of VMMC kits by type, supply plan coverage, product prices, and lead times to inform partners' supply planning. We also highlighted the gap in information on demand for VMMC kits in many countries that limits our ability to optimally stock kits, develop sourcing strategies, avoid emergency orders, and avoid service disruptions that hinder achieving VMMC targets. In order to mitigate the risk of having poor demand data, GHSC-PSM provides technical assistance to countries to conduct VMMC quantification and supply planning exercises. Sensitization of implementing partners to the need for demand data with sufficient lead time for procurement was part of GHSC-PSM's message at the partners' meeting.

In Q2, GHSC-PSM also **published a VMMC Reference Guide** (http://www.ghsupplychain.org/resources/) that provides an overview of PEPFAR-approved kit types and components, as well as guidance for ordering, prices, and lead times.

Strategic Sourcing of HIV Commodities

In Q2, GHSC-PSM released solicitations and started evaluating bids for a broad range of commodities used in HIV programs. The new contracts will expand the supplier base and reduce procurement lead times by three to four weeks. Several of these solicitations require vendor-managed inventory, by which vendors maintain an inventory of products purchased by the project that can be picked up when needed. This reduces order fulfillment time because suppliers distribute this inventory rather than manufacturing product for each individual order. Vendor-managed inventory also reduces the need for (and costs of) GHSC-PSM to manage inventory of these products in our regional distribution centers (RDCs).

Below we summarize the range of HIV products for which we conducted strategic sourcing activities in Q2. For each, we defined product requirements, developed strategies to address any challenges associated with that commodity group, released a solicitation, and started evaluating offers:

- ***ARVs.*** While PEPFAR is encouraging all countries to transition to TLD, other ARVs are still needed to meet demand until TLD is available. They are needed also for those who require alternative second- and third-line regimens because they cannot tolerate one of the drugs in the TLD fixed combination. GHSC-PSM also continues to procure pediatric ARVs and is working to ensure that countries are using the optimal regimens depending on the weight and/or age of the child. Availability of several pediatric products is an ongoing global challenge.
- ***VMMC kits.*** These contracts will expand the VMMC supplier base and will include tiered fixed pricing that establishes firm prices based on volumes.
- ***Essential medicines.*** The solicitation covers 218 standard essential medicines included in our catalog.

Negotiation and Execution of Male Condom and Lubricant IDIQs

GHSC-PSM negotiated and executed three indefinite delivery, indefinite quantity contracts (IDIQs) for male condoms and personal lubricants. These contracts contain requirements for vendor-managed inventory services. Staff from GHSC-PSM, USAID, and the GHSC-Quality Assurance project (GHSC-QA, implemented by FHI360) visited the selected male condom and lubricant suppliers to prepare for seamless implementation of the new contracts. These new supply contracts offer **reduced product pricing**, due to more competitive pricing and dropping of the two highest-priced suppliers, and a **broader range of product options** to better support USAID social marketing partners. In addition, one contract strategically leverages supplier warehousing capacity for vendor-managed inventory services for male condoms, which is expected to reduce transport and warehousing costs associated with maintaining stock at GHSC-PSM's RDCs.

Improving Supply Chain Visibility

GHSC-PSM continues to develop and expand the PPMR-HIV, a data-gathering tool and data visualization platform focused on HIV/AIDS. Modeled on similar tools developed for reproductive health and malaria commodities (the PPMR and PPMRm, respectively), PPMR-HIV provides donors with data on stock status for RTKs and first- and second-line adult and pediatric ARVs. PPMR-HIV takes stock monitoring a step further than PPMR and PPMRm, in that PPMR-HIV includes information on stock levels below the central level. As of Q2, countries that report HIV commodity stock status are Cameroon, Ghana, Mozambique, Nigeria, Tanzania, and Zambia. We began onboarding Burundi, Côte d'Ivoire, Haiti, Malawi, Uganda, and Zimbabwe, which are expected to begin reporting in Q3. Another eight countries will start reporting by the end of the fiscal year, for a total of 20 countries, including all 13 PEPFAR priority countries. Central to this effort has been outreach to the Global Fund to support collaborative efforts aimed at coordinating shipments across the two major global procurers in this space. We anticipate that this collaboration will launch formally in the coming quarter.

Reliable stock visibility is essential to the successful management of supply chains in country and critical for commodity security tasks that take place at GHSC-PSM headquarters including order prioritization, effective supply planning, and increasing collaboration with service delivery partners and donors. To improve stock data visibility, GHSC-PSM has begun a monthly stock reporting initiative aimed at **collecting and reporting stock data more frequently** (working towards monthly reporting) and **from the lowest possible level of the supply chain** (working towards site level stock reporting). In anticipation of revising stock-level reporting frequency and depth, in Q2 GHSC-PSM surveyed 20 PEPFAR priority countries to assess the availability of reliable HIV stock data. GHSC-PSM will continue efforts next quarter including defining an action plan for improving stock data visibility for the remainder of 2018.

B2. Malaria

In Brief

A total of **24 countrie**s procured malaria commodities, and **25 countries** received systems strengthening support with malaria funding under the contract this quarter.

GHSC-PSM **refined our quality assurance (QA) approach** to lower costs and lead times, while minimizing risk and ensuring product quality.

The project supported distribution of LLINs to provide **protection from malaria for tens of millions of people** in Angola, Burundi, Ethiopia, Ghana, Madagascar, Mali, Nigeria, and South Sudan.

The project continued to provide technical leadership in **promoting malaria commodity market health** for secure supply.

Procurement of Malaria Commodities

FY18 Q2:
- $86 million

Life of Project:
- $286 million

We have delivered enough antimalarials to **treat nearly 74 million infections.**

Under the PMI-funded malaria task order, GHSC-PSM supplies lifesaving prevention and treatment medicines, rapid diagnostic tests (RDTs), and LLINs. We offer partner countries new approaches to strategic planning, logistics, data visibility, analytics, and capacity building. We also provide technical guidance to strengthen global supply, demand, financing, and introduction of new malaria commodities.

In this reporting period, GHSC-PSM **procured malaria commodities valued at $86 million for 24 countries**. Through technical guidance, we also are **strengthening national supply chains and improving health commodity availability in 25 countries**. The countries we support are listed in Exhibit 3 on the following page.

GHSC-PSM received confirmation that PMI intends to use the GHSC-PSM mechanism for technical assistance for its **new country programs in Cameroon** and **Niger**. In Q2, GHSC-PSM met with key in-country counterparts to get a deeper understanding of their existing malaria prevention programs and health commodity supply chain systems and to obtain stakeholder and counterpart input on priorities for supply chain systems strengthening technical assistance. During Q2, GHSC-PSM officially established field offices and started technical support activities in **Mali** and **Sierra Leone**.

Country Support

GHSC-PSM provided wide-ranging supply chain systems strengthening support in 25 countries in Q2 with a focus on improving the availability of malaria commodities.

Exhibit 3. Countries Receiving Support from GHSC-PSM with Malaria Funding in FY18

Country	Procure-ment	Technical Assistance	Country	Procure-ment	Technical Assistance
AFRICA			**AFRICA (cont.)**		
Angola	✓	✓	Malawi	✓	✓
Benin	✓		Mali	✓	✓
Burkina Faso	✓	✓	Mozambique	✓	✓
Burundi	✓	✓	Niger	✓	✓
Cameroon	✓	✓	Nigeria	✓	✓
Côte d'Ivoire	✓		Rwanda	✓	✓
Dem. Rep. of Congo	✓		Senegal	✓	
Ethiopia	✓	✓	Sierra Leone	✓	✓
Ghana	✓	✓	South Sudan	✓	✓
Guinea	✓	✓	Tanzania	✓	
Kenya ^	✓	✓	Uganda	✓	✓
Liberia	✓	✓	Zambia	✓	✓
Madagascar	✓	✓	Zimbabwe	✓	✓
ASIA					
Burma	✓	✓			
Cambodia	✓	✓			
Laos		✓			
Thailand	✓	✓			

^ GHSC-PSM provides technical assistance in Kenya under a unique task order (Task Order 5) overseen by USAID/Kenya

A Robust Approach to Supply Plan Coordination for Antimalarials in Ethiopia

GHSC-PSM worked with the Federal Ministry of Health, Pharmaceuticals Fund and Supply Agency (PFSA), and other implementing partners in Ethiopia to develop a coordinated supply plan for antimalaria commodities. This plan was based on the outcomes of the quantification meeting that took place in Q1, at which participants developed an exhaustive list of National Malaria Control Program (NMCP) commodities and assessed the availability of funds either from Global Fund or PMI for each item. Attendees then revised consumption forecasts and procurement quantities and determined delivery schedules. Based on the supply plan, Global Fund procurements will focus on ALu and RDTs for PFSA, while GHSC-PSM will procure artesunate and chloroquine based on the Federal Ministry of Health request.

A New Tool Improves Health Facility Reporting Rates in Malaria Lake Endemic Counties

In Kenya, Afya Ugavi — the GHSC-PSM Kenya task order — provides support to county health management teams in conducting data review meetings. In the malaria focus counties, Afya Ugavi introduced an easy-to-use **Excel-based malaria commodities dashboard** to aggregate and analyze data from the district health information system to generate performance scores for supply chain indicators. The scores for these indicators show how the health facility, subcounty, or county is performing. In Q2, the project noted improvements in the reporting rates and on-time reporting for malaria commodities in the district health information system, reaching an all-time high of **97 percent for reporting rates and 96 percent for on-time reporting**. The malaria commodities dashboard enabled county and subcounty commodity managers to identify areas of commodity management gaps/challenges and thus undertake appropriate actions for performance improvement. The project is exploring replicating this tool in other countries.

Commodity Accountability Performance Tracking in Malawi
GHSC-PSM worked with Ministry of Health district staff in collaboration with the National Malaria Control Program to conduct Commodity Accountability Performance Tracking (CAPeT) visits. CAPeT is **a rigorous data analysis and verification process** focused on identifying factors contributing to discrepancies between logistics data and malaria case data, reporting malaria commodity stockouts, and working with facility staff to identify facility-specific interventions to address highlighted gaps. This is part of ongoing efforts to improve service delivery point accountability through reporting for malaria commodities.

Collaboration to Ensure Primary Care Facilities Receive the Commodities They Need
GHSC-PSM provided technical and operational support to malaria commodity ordering and distribution through the Zimbabwe Assisted Pull System (ZAPS) across all 10 provinces. ZAPS integrates the distribution of health commodities previously distributed through four parallel systems into one system for primary-care-level facilities. The project, with NatPharm, UNICEF, and Global Fund co-support, distributes malaria, tuberculosis, and other essential medicines. GHSC-PSM provides direct operational support including transport services, LMIS forms, and LMIS hardware and software for the ZAPS ordering and distribution system. Also, GHSC-PSM covered the FY18 Q2 procurement of ACTs to accommodate the transition in Global Fund grants to ensure continuous supply during malaria season. This coordination will **ensure we better meet the needs of the facilities** and avoid stockouts and overstocks.

Supportive Supervision in Rwanda
GHSC-PSM provided supportive supervision of all 30 district pharmacies serving 586 public health facilities. Supportive supervision is a key activity aimed at reinforcing Rwanda's quality management improvement approach (QMIA) at district pharmacies. Through this supervision, the project assessed performance against key supply chain indicators, provided on-the-job mentorship in warehousing and inventory management best practices, assessed district pharmacy use of an electronic logistics management information system (eLMIS), and promoted use of data at the health facilities. Logistics management information systems are used to ensure data visibility throughout each supply chain function for decision making. The eLMIS, provides program managers **quicker access to data**. By encouraging use of the eLMIS' electronic reports, automated workflows, and email notifications, district pharmacies can dramatically decrease processing time for requisitions.

Data Visibility in South Sudan
GHSC-PSM is developing a **visual database platform to map supply chain** activities in South Sudan. As part of this effort, the project will pilot a Juba-based call center in the coming months. We will use routine structured phone communications — much like telemarketers in the United States — with last-mile delivery partners and facilities to capture and aggregate stock status information on key commodities, such as ARVs, HIV RTKs, malaria, and FP/RH products. Unlike other countries where LMIS data are available, South Sudan's security situation, lack of infrastructure, and financial challenges make it all but impossible to implement complex LMIS solutions. If successful, the call center will serve the same purpose at a fraction of the cost.

Training Master Trainers in Nigeria to Roll Out the Malaria Commodity Logistics System

GHSC-PSM **trained 50 government of Nigeria master trainers in preparation for the rollout of new malaria commodity logistics system tools** and related standard operating procedures. Over the last five years, infrequent use of reporting tools by service delivery point staff resulted in data inaccuracies and impeded staff ability to use supply chain management tools for decision making. The master trainers will go on to train local government and service delivery personnel responsible for malaria commodity inventory management in five PMI focus states (Bauchi, Ebonyi, Plateau, Sokoto, and Zamfara). GHSC-PSM's training boosted participants' skills in delivering training content using adult learning training methodologies, which will help ensure effective implementation and use of the new tools.

GHSC-PSM distributed almost 3 million LLINs across Sokoto State in Nigeria, where the net card redemption rate was 98 percent. *Photo credit: GHSC-PSM.*

Currently, facilities use the eLMIS to place orders and capture consumption data, but they do not use the easily generated reports and prefer to go to the district pharmacies for that analysis. We **trained the district pharmacies to conduct QMIA workshops** with health facility store managers to highlight findings from field visits, share knowledge and experience, and discuss supply chain challenges and ways to mitigate them.

Distribution Support

In Q2, many countries **launched or continued large-scale LLIN campaigns as a key prevention strategy**. These are massive initiatives to ensure beneficiaries, particularly in high-impact areas, receive the nets they need in advance of the rainy season. While the actual distributions can last just a few weeks, logistics, supply planning, procurement, and pre-positioning the nets take months.

Under the direction of PMI, GHSC-PSM supported newly launched campaigns in **Ghana** and **Thailand,** ongoing campaigns in **Ethiopia** and **Nigeria**, and distributions in **South Sudan.** The project also supported **Madagascar** in preparing to launch its new campaign. Strong planning and efficient, accountable systems are making a difference in the cost of these large-scale campaigns (see box).

Success in Driving Down Costs on LLIN Distribution

In Nigeria, GHSC-PSM has distributed LLINs during mass distribution campaigns at an average unit cost of 0.35 cents. This is considerably lower than the average planning figure of $1 per unit. The team streamlined the process of conducting campaigns, reduced the number of personnel, and contracted 3PL services at reduced cost through framework contracts.

In Ethiopia, LLIN Campaign Garners Extensive Media Coverage. The first round of the Ethiopia LLIN campaign was completed in Q1. During that round, UNICEF procured and delivered LLINs to Woredas (districts), from there, GHSC-PSM delivered them to health posts and to beneficiaries. In Q2, phase 1 of the second round of distribution was completed. During this phase, the project managed the entire process from procurement, importation, and warehousing to distribution to beneficiaries in the Tigray, Afar, and Amfara regions. In total, 6 million LLINs will be distributed during the campaign (which ends in May), benefitting more than 14 million people.

During Q2, GHSC-PSM partnered with USAID to organize a media visit of the LLIN distribution campaign launch in the Afar region of Ethiopia. Eighteen journalists (including two film production crew members) attended the event, leading to substantial coverage in Ethiopia and even internationally. One photograph was included in *The Week's Best in Photojournalism*. The online version of *The Week*, a British and American news magazine, gets more than 7 million unique hits each month.

Text accompanying the photo in The Week's Best in Photojournalism: A caravan of camels transports treated mosquito nets from the U.S. Agency for International Development to the remote Afar region, Ethiopia. | (*STR/EPA-EFE/REX/Shutterstock*)

Use of Mobile Technology to Manage Madagascar's LLIN Campaign

GHSC-PSM coordinated with the Ministry of Health in Madagascar to prepare for the 2018 LLIN campaign, helping the National Malaria Control Program establish a national coordination committee to lead the campaign. Based on lessons learned from previous campaigns, GHSC-PSM and partners will implement a new **monitoring and evaluation system that uses mobile communication technology** (SIM Application Toolkit - STK/USSD) to collect real-time data at the community level, giving stakeholders easy access to the information they need for decision making. GHSC-PSM, on behalf of PMI, procured 2,182 cellphones and equipment to be used for this. The National Malaria Control Program distributed the phones to LLIN field agents

in all communities and installed corresponding IT equipment at headquarters to capture data and provide timely feedback. PMI also is funding LLIN campaign M&E activities.

LLIN Distribution Success Hinges on Collaboration and Coordination in South Sudan
In South Sudan, GHSC-PSM led routine distribution of 500,000 LLINs across eight states. Developing a plan that ensured LLINs were distributed to sites and verifying last-mile delivery was a complex process that required coordination with more than 10 implementing partners. These **collaborations were critical to succeeding** in the complex work environment and provided key insights in developing and implementing GHSC-PSM's distribution and resupply plans.

Commodity Procurement, Sourcing, and Delivery

GHSC-PSM's provision of malaria commodities this quarter entailed procurement, quality assurance, deliveries, support for transferring/redistributing stocks, and response to emergencies, as summarized below.

Procurement. Since the start of the project, GHSC-PSM has procured malaria commodities for 27 countries (all of the PMI countries plus two USAID-designated malaria countries). Over the life of the project, we have procured $286 million in malaria commodities, including $86 million this quarter. This includes the **first procurement of malaria commodities for Cameroon**, which was recently added to the project's malaria portfolio.

Commodities Procured for Malaria Programs

- Artemisinin-based combination therapies (ACTs)
- Laboratory consumables
- LLINs
- Malaria rapid diagnostic tests (mRDTs)
- Other nonpharma
- Other pharma
- Severe malaria
- Sulfadoxine-pyrimethamine (SP)

Strategic Sourcing

In February 2018, PMI issued its annual technical guidance. The procurement and supply chain guidance reflected recommendations and analysis conducted by GHSC-PSM in 2017. The new guidance calls for significant stock-keeping unit (SKU) rationalization (i.e., reduction in the number of product options) and reduction in customization for LLIN procurements. This will **produce opportunities for improved supply chain performance and flexibility**, leading to lead time and cost savings. Preliminary analysis projects significant savings starting with FY2018 Malaria Operational Plan (MOP) procurements. Additional cost savings and lead time improvements may be negotiated in the future as we move toward strategic long-term agreements with our suppliers.

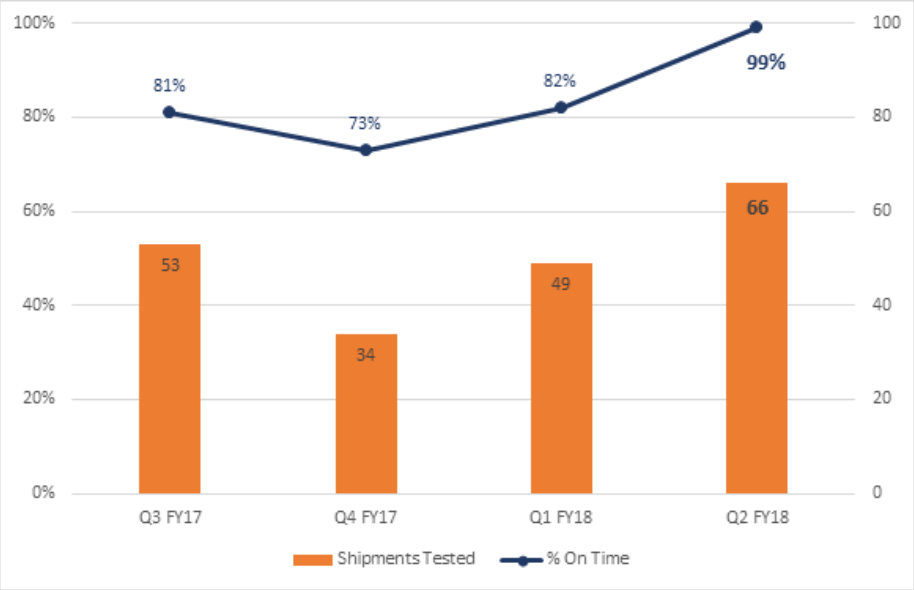
The new guidance also indicates that PMI will no longer allow sole-source selection of RDTs based on health worker training concerns. GHSC-PSM analysis indicates that this will reduce price variation, produce potential overall savings, and mitigate significant global capacity risks.

This new RDT policy, buttressed by GHSC-PSM analysis, informed the development of a **new RDT contracting strategy and order allocation methodology**. In Q2, GHSC-PSM completed best and final offer negotiations with RDT suppliers to enter into strategic long-term agreements. These contracts, coupled with the strategic order allocation methodology, are designed to support sustainable pricing, supply diversity, and long-term market health.

Lab Throughput Improves Quality Assurance Lead Times

GHSC-PSM is directly responsible for ensuring the quality of the malaria commodities that we deliver.[3] In Q2, the project processed the highest volume of malaria orders to date, while also achieving our **best QA performance to date**, with **98.5 percent** of commodity QA processes completed within estimated QA lead times. Exhibit 4 on the following page shows QA throughput in Q2. This was due to significant improvements in the lab network, especially capacity to meet contractual lead times for sulfadoxine-pyrimetamine + amodiaquine dispersible tablet (SPAQ DT), ASAQ, and generic ALu. Also, GHSC-PSM provided improved forecasts of future test requests to the lab network and stayed in constant contact with labs to ensure our requirements were met. All three primary pharmaceutical quality control laboratories have increased their staff and equipment to improve lab throughput.

Exhibit 4. QA throughput and timeliness at all-time highs in FY18 Q2



Visibility to React Quickly

The PPMRm provides quarterly data on central-level stock availability for critical malaria commodities (such as ACT, artesunate injectable, sulfadoxine-pyrimethamine, and malaria RDTs) in 23 countries. **Cameroon**, as a new PMI country, reported on its malaria stocks and expected deliveries for the first time in Q2. These data on upcoming shipments and stock on hand provide PMI and GHSC-PSM visibility into the current and projected stock status of countries on a high level. More importantly, they allow PMI and our project to take critical actions to address challenges to stock availability.

[3] Quality assurance for other GHSC-PSM-procured commodities is provided by the GHSC-QA contract, which is implemented by FHI 360.

B3. Family Planning and Reproductive Health

In Brief

16 countries procured FP/RH commodities and **20 countries[4] received systems strengthening** support with PRH funding this quarter.

GHSC-PSM continued to play a **global leadership role**, such as chairing the Systems Strengthening Working Group of the Reproductive Health Supplies Coalition, facilitating an interactive session at the West Africa Health Organization Early Warning System Workshop, and closely coordinating with donors and interested parties in **prioritizing limited supply of one-rod implants**.

Procurement of FP/RH Commodities

FY18 Q2:
- $15 million

Life of Project:
- $58 million

We have delivered enough contraceptives **to provide 28.4 million CYP.**

Our work addressing **core priorities** included providing market analysis, tracking contraceptive security, enhancing visibility of FP/RH supplies, and ensuring commodity quality.

The PRH task order serves as the primary vehicle through which USAID procures and provides FP/RH commodities for USAID health programs; offers technical assistance to improve supply systems and commodity security in partner countries; and provides technical leadership to strengthen global supply, increase financing, and introduce FP/RH commodities. This quarter, GHSC-PSM **procured $15 million in FP/RH commodities[5] for 16 countries**. We also worked to **strengthen national supply chains and improve contraceptive availability in 20 countries**. The countries we support are listed in Exhibit 5 on the following page.

Addressing PRH Priorities

GHSC-PSM addressed USAID/Office of Population and Reproductive Health global priorities in three areas: global leadership in PRH policy, planning, and advocacy; knowledge management in response to program needs; and support to the field in implementing effective and sustainable PRH programs. We provide below examples of our work in these areas.

Tracking Contraceptive Security

GHSC-PSM supported the redesign of the Contraceptive Security Indicators and Index to develop a new tool that combines elements of both. This will help program managers, advocates, and decision-makers track country progress toward contraceptive security. GHSC-PSM also is now conducting the survey every two years. In Q2, the project conducted a **rapid market analysis survey** of past users and potential future users of the Contraceptive Security Indicators and Index. We found that respondents' levels of familiarity with and use of the tools were mixed. Respondents reported on their diverse applications of the tools, from monitoring a country's contraceptive security status, assessing public sector funding needs, and advocating for

[4] All procurement and delivery figures for the PRH TO include Ebola procurements.
[5] Per USAID guidance, all condom procurements are counted under the HIV/AIDS task order.

timely action by government counterparts, to tracking a country's progress following introduction of a new product or initiative to expand access. Survey participants suggested several new channels for disseminating the Contraceptive Security Indicators and Index and advised on user preferences for accessing and viewing the data.

Exhibit 5. Countries Receiving Support from GHSC-PSM with FP/PRH Funding in FY18

Country	Procure-ment	Technical Assistance	Country	Procure-ment	Technical Assistance
AFRICA			**AFRICA (cont.)**		
Angola		✓	Mozambique	✓	✓
Benin	✓		Nigeria	✓	✓
Burundi		✓	Rwanda	✓	✓
Cameroon	✓		Senegal	✓	
Dem. Rep. of Congo	✓		Sierra Leone	✓	
Ethiopia	✓	✓	South Sudan		✓
Ghana	✓	✓	Tanzania	✓	
Guinea	✓	✓	Togo	✓	
Kenya ^	✓	✓	Uganda	✓	✓
Liberia	✓	✓	Zambia	✓	✓
Madagascar	✓	✓			
Malawi	✓	✓	**ASIA**		
Mali	✓	✓	Afghanistan	✓	
			Bangladesh	✓	
CARRIBEAN/LATIN AMERICA			Nepal	✓	✓
Guatemala^^		✓	Pakistan		✓
Haiti	✓	✓			

^ GHSC-PSM provides technical assistance in Kenya under a unique task order (Task Order 5) overseen by USAID/Kenya.
^^ FP/PRH funding to Guatemala was put on hold in April 2018.

Analyzing Supply Chain Reform Interventions

GHSC-PSM developed three landscape analyses on supply chain reform interventions in Q2, specifically, reviews of informed push models in supply management, incentive alignment, and social accountability. We submitted the final draft of the informed push models review to USAID and will submit the reports on aligning incentives and social accountability in Q3.

Collaborating with Global Stakeholders

In Q2, the project continued to build global partners' awareness of and support for the U.S. government's PRH priorities and programs, and to support USAID's leadership in FP/RH commodity availability.

In February, GHSC-PSM presented our work on **increasing data visibility to improve stock availability** at a meeting convened by Track20. Track20 promotes use of service statistics to track progress in achieving the global FP2020 initiative's goal, which is to increase the number of modern-method users by 120 million women and girls between 2012 and 2020 in 69 low and middle-income countries. At the meeting, 12 global organizations, including GHSC-PSM, discussed the platforms they use to collect family planning data. Attendees put forth a recommended set of indicators for monitoring progress in achieving FP2020's goals. Subsequent discussions with in-country stakeholders will work to achieve global consensus on a short list of service statistics-based indicators for this purpose.

GHSC-PSM worked to leverage our supply chain workforce initiatives through People that Deliver, a global partnership of organizations focusing on professionalizing health supply chain personnel. We participated in the People that Deliver board meeting, where we sought to align our workforce initiatives with global approaches to health supply chain workforce strengthening and to build relationships with other key partners. At the meeting, People that Deliver updated its strategic goals, selected three countries for advocacy efforts (Benin, Ethiopia, and Nigeria), and added four new members to the board, including GHSC-PSM's Workforce Development Manager. We plan to continue aligning our workforce development activities with People that Deliver's approaches, particularly in the three selected advocacy focus countries.

The project also attended the General Membership Meeting of the RHSC in March. GHSC-PSM's active participation included chairing the Systems Strengthening Working Group, moderating a panel discussion on the market conditions that attract a manufacturer to bring its product to market, speaking on three other panels, and participating in a meeting on consumables and equipment for long-acting reversible contraceptives. Outcomes of the meeting included several new initiatives for the Systems Strengthening Working Group, including one focused on availability of consumables for long-acting methods.

Enhancing Visibility of Data on Family Planning Supplies

Throughout Q2, GHSC-PSM **contributed to development of the Global Family Planning Visibility and Analytics Network (Global FP VAN)**. This network is the reproductive health community's highly ambitious undertaking to increase supply chain visibility and improve collaboration across major procurers of contraceptives for global health programs. RHSC, the institutional home of the Global FP VAN, managed an innovative collaborative process to select the technology solutions partner that will develop the virtual collaborative platform. GHSC-PSM participated extensively in this process, providing IT expertise and serving as one of the super users that interacted with prospective vendors to define functional requirements and test solutions.

Collaborating Globally to Avert Stockouts and Expiries

In Q2, the GHSC-PSM PPMR team processed data from 67 country reports. Based on data in the PPMR, the project worked with the Coordinated Assistance for Reproductive Health Supplies (CARhs) group to:

- Arrange a new shipment of 50,000 units of combined oral contraceptives for Togo.
- Expedite a shipment of combined oral contraceptives to Nigeria to avoid a prolonged national stockout; 10 pallets were rescheduled to be sent by air while the rest of the order is traveling by ocean.
- Helped Burundi address an oversupply of IUDs, DMPA-IM, and two-rod implants. The following transfers enabled Burundi to avoid expiries while alleviating stock shortages in other countries:
    - Transfer of 15,000 IUDs from Burundi to Togo and 40,000 units to Burkina Faso
    - Transfer of 360,000 units of DMPA-IM from Burundi to Togo
    - Transfer of 50,000 units of two-rod implants from Burundi to Democratic Republic of the Congo (DRC)

GHSC-PSM co-facilitated a workshop with the West African Health Organization (WAHO) to improve the West and Central Africa Early Warning System for Contraceptives. The world's

lowest contraceptive rates are found in West Africa, and, WAHO, an active CARhs member, often supports contraceptive transfers between its member countries through the CARhs process. At the workshop, 45 participants from 14 West African countries explored ways to improve quality of data on contraceptive stocks and increase data use. They also developed a revised protocol for product transfers between WAHO countries.

Commodity Procurement

In this section, we summarize GHSC-PSM activities related to procuring FP/RH commodities this quarter.

Maintaining Buffer Stock of One- and Two-Rod Implants

Due to shortages of one- and two-rod implants, GHSC-PSM placed strategic inventories of these products at our regional distribution center in Belgium. Maintaining stocks of these high-demand products will serve as a **buffer against global supply shortages**, enabling us to remain responsive to countries' demand and to better manage allocation among countries.

Commodities Procured for FP/RH Programs

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

Data Visibility to Stay Ahead of Challenges

GHSC-PSM routinely analyzes data on in-country stock levels collected through three mechanisms to inform planning:

- The PPMR data provides current information on central stock levels.
- Our M&E system's information on stock levels at lower levels of the supply chain helps us understand whether central shortages represent national shortages.
- PipeLine data and countries' supply plans help us understand consumption trends and when others' deliveries are due, facilitating planning over the medium term.

Collaborating to Address Scarce Supply

This quarter, to mitigate tight global supply, GHSC-PSM collaborated with manufacturers, country recipients, the RHSC's Coordinated Supply Planning Group, and CARhs to **prioritize country orders and to mete out limited supply** of DMPA-IM and one-rod implants through split shipments. Our insight into stock levels from multiple sources (see box) has helped the global community ensure reliable, timely supply and continuously reinforces the benefits of using data for decision making.

Procuring Non-catalog Products

GHSC-PSM regularly responds to country needs for products that are not in our product catalog. In Q2, the project continued to manage comprehensive procurement actions (e.g., release tenders, evaluate offers, negotiate contracts) to fulfil these needs. GHSC-PSM placed orders for pregnancy kits for Madagascar and for consumable kits for Uganda. We delivered essential medicines and consumables for the Ebola survivors program in Guinea, Liberia, and Sierra Leone (approximately 240 line items).

Sourcing

This quarter, GHSC-PSM made significant progress with sourcing FP/RH commodities, summarized below.

Negotiating and Executing a New IDIQ for Oral Contraceptives

GHSC-PSM **leveraged the project's aggregate buying power** to successfully negotiate and execute a new IDIQ for the supply of oral contraceptives, including combined oral contraceptives, progestin-only pills, and emergency contraceptives. The new supply contract offers **reduced product pricing, a broader range of product options, and, for the first time on a USAID contract, trade packaging services** for oral contraceptives to better support USAID social marketing partners (see box). This **diversified the supplier base**, which has been an important long-term goal for USAID.

Trade Packaging Services: An Important First for Social Marketing Programs

Social marketing programs are major distributors of FP/RH commodities, including oral contraceptives. Up until now, these programs have repackaged and branded products on their arrival in country. This introduces potential risk to product quality, lengthens lead time, and increases costs due to the procurement of additional packaging materials and labor. Under GHSC-PSM's new IDIQ with one oral contraceptive supplier, the supplier will provide customized trade packaging for social marketing organizations at the factory so the product arrives in country pre-branded and packaged.

Issuing requests for quotation

The project issued new tenders for implant contraceptives and intrauterine devices in March, aimed at expanding the supplier base through IDIQs for these categories.

Implementing a Five-Year Sourcing Strategy

This quarter, GHSC-PSM started implementing a five-year sourcing strategy (for 2018 to 2023) that will guide FP/RH commodity procurement in the near- (one year), medium- (three year), and long- (five year) terms. Product-specific sourcing goals and strategic initiatives are tailored to the unique constraints, opportunities, risks, and contexts of specific products and supply markets to provide better overall value to USAID. The strategy is intended to be dynamic and will be revisited on an annual basis, ensuring that GHSC-PSM's procurement is **continually supportive of USAID's broader programmatic goals and global FP/RH market health in the long term**.

Country Support

Below, we illustrate the technical assistance that GHSC-PSM provided to strengthen in-country supply chains for FP/RH commodities this reporting period.

Improving data visibility

GHSC-PSM, on behalf of USAID, continues to build on the previous project's work in implementing a country-wide eLMIS system in Rwanda, designed to improve data accuracy and facilitate real-time visibility into health commodity stock status at the central, district, and service delivery levels. This e-LMIS was implemented at the Ministry of Health, all 30 district pharmacies, 43 hospitals, four referral hospitals, and 527 health centers. Despite this nationwide implementation, utilization of the system remained low. As a result of GHSC-PSM's

District pharmacy staff monitor health facility stock levels, product expiration dates, consumption trends, and distribution status through the new e-LMIS in Rwanda. *Photo credit: GHSC-PSM*

advocacy in support of the eLMIS, the government recently endorsed the system and issued a mandate that all reporting must come through the system.

As a result of this mandate, along with additional mentoring activities and supportive supervision, in Q2, **utilization of the e-LMIS was 100 percent at district pharmacies** and 98 percent at health centers. Stakeholders are noting improvements in their ability to monitor health commodities through the e-LMIS, which is helping them make informed orders, manage their stocks, and prevent expiries (see box). The project continues to provide support to maintain these high utilization levels while improving data accuracy across the public health supply chain.

Dramatic Reduction in Cycle Time

"Cycle time [improved] from five days to one hour only, when I am ordering a pharmaceutical commodity....You report what you see since you have every service delivery point in your database, so it's easier to know their health commodity status."

Prudence Kwiera
Pharmacist Assistant
Huye District Pharmacy, Rwanda

In South Sudan, GHSC-PSM collaborated with partners to increase availability and access to FP/RH commodities at the facility level outside of Juba. Recognizing the existing in-country supply chain's challenges in distributing individual products, GHSC-PSM **facilitated the co-packaging of different FP/RH products into cartons**. For example, quantities of long-acting reversible contraceptive methods were packaged together and sent to facilities with training on how to administer these methods. These FP/RH cartons were distributed alongside established essential medicine kits that are managed through the Health Pooled Fund. GHSC-PSM determined that co-packaging product and aligning distribution with already established and functioning supply chains was the best way to ensure contraceptive commodity availability in the absence of a robust functioning LMIS and resupply system. Up until the project's intervention, an active distribution of contraceptives was lacking for several years. This innovative approach also addresses the country-wide challenges associated with product and data visibility at the facility level. Rather than tracking the movement of thousands of individual items through the supply chain, the focus is on tracking the more limited number of cartons that contain a variety of FP/RH products.

B4. Maternal, Newborn, and Child Health

In Brief

GHSC-PSM **supported MNCH in 20 countries**.

This quarter, we procured **$225,718 in MNCH commodities**.

GHSC-PSM continued to support **appropriate management of oxytocin**.

GHSC-PSM provided technical **leadership on MNCH supply chain challenges** through participation in international meetings.

Procurement of MNCH Commodities

FY18 Q2:
- $225,718

Life of Project:
- $1.4 million

Under the task order for maternal, newborn, and child health, GHSC-PSM works to help end child and maternal deaths by increasing access to quality-assured medicines and supplies for MNCH. In collaboration with USAID, the project provides global technical leadership on MNCH commodities and ensures that supply chain management considerations are included in global dialogue and initiatives. GHSC-PSM focused on three key areas during this reporting period: commodity quality, data availability, and coordination with other MNCH partners.

GHSC-PSM supports MNCH programs in 20 countries, as shown in Exhibit 6 on the following page.

Ensuring the Availability of High-Quality MNCH Commodities

GHSC-PSM continued our work to **increase appropriate management of oxytocin** this quarter. Oxytocin is the WHO-recommended first-line medicine for prevention and treatment of post-partum hemorrhage, the most common cause of maternal mortality. While oxytocin is widely available in most countries, it is heat sensitive and degrades quickly when exposed to temperatures above 25°C for extended periods of time. Building on the results of the technical consultation on appropriate management of oxytocin held in October 2017, GHSC-PSM collaborated with partners to **author a robust technical review of the evidence on oxytocin quality issues.**

In collaboration with PATH and the RHSC, GHSC-PSM published a messaging framework that translated technical recommendations into **actionable advocacy messages to promote appropriate management of oxytocin**. The Oxytocin Messaging Framework was officially launched during the Maternal Health Supplies Caucus meeting at the RHSC annual membership meeting in March.

Also, GHSC-PSM initiated support to the Family Health Directorate to **integrate oxytocin into the existing cold chain infrastructure in Ghana**. As in many other settings, oxytocin currently is not distributed or stored at the recommended 2 to 8°C as it flows through the public supply chain. Several studies conducted in Ghana have indicated that poor-quality oxytocin is widely available. The Ministry of Health asked GHSC-PSM to assist in ensuring the quality of oxytocin. As a first step, the project convened productive meetings with key stakeholders to gauge implementing partner interest in collaboration.

Exhibit 6. Countries Receiving Support from GHSC-PSM with MNCH Funding in FY18

Country	Procure-ment	Technical Assistance	Country	Procure-ment	Technical Assistance
AFRICA			**ASIA**		
Dem. Rep. of Congo	✓		Nepal		✓
Ethiopia		✓	Pakistan		✓
Ghana	✓	✓			
Guinea		✓	**CARRIBEAN/LATIN AMERICA**		
Kenya^		✓	Dominican Republic	✓	
Liberia		✓	El Salvador	✓	
Madagascar	✓	✓	Guatemala	✓	✓
Malawi		✓	Haiti	✓	
Mali	✓	✓	Honduras	✓	
Mozambique	✓	✓			
Nigeria	✓	✓			
Rwanda	✓	✓			
Zambia	✓	✓			

^GHSC-PSM provides technical assistance in Kenya under a unique task order (TO5) overseen by USAID/Kenya.

Also this quarter, GHSC-PSM, along with USAID and other partner organizations, reviewed the first draft of the **guidance document for procurement of quality-assured MNCH commodities** produced by the Concept Foundation. The document contains general information about quality assurance as well as information specific to key MNCH products. In most settings, MNCH commodities are procured by the government, sometimes at the subnational level. Often, the procurement agents are not specialists in the commodities. This document will provide guidance for these procurement agents to ensure the quality of the medicines they procure. The document will be finalized next quarter.

Commodities Procured for MNCH Programs

- Amoxicillin
- Chlorhexidine
- Gentamicin
- Magnesium sulphate
- Oral rehydration salts
- Oxytocin
- Zinc
- Other MNCH commodities, as requested

Improving Availability of Data on MNCH Commodities

GHSC-PSM continues to support ongoing efforts to **improve the availability of MNCH commodity data** through the revision and rollout of an updated version of the **end-use-verification (EUV) survey**. The EUV survey is used to help assess malaria commodity stock status and malaria case management practices. Across low-resource settings, the availability of data on MNCH commodities is limited largely due to local, and often decentralized, procurement of MNCH commodities and the fact that data on these commodities often are not included in the country's LMIS. EUV 2.0 will gives countries the option to include MNCH commodities in the survey. The new EUV also will use a **revised sampling strategy that will increase the representativeness** of the data collected. In preparation for two upcoming pilot surveys in Ghana and Zambia, GHSC-PSM made progress on several key activities, including:

- Updating and testing the survey questionnaire
- Drawing samples for selected pilot countries
- Sharing the new approach with GHSC-PSM EUV countries

- Revising the EUV protocol and accompanying materials

GHSC-PSM provided significant technical assistance at all levels of the health supply chain to **integrate child health commodities into Ethiopia's national LMIS**. In that country, integrated, community-based approaches to managing newborn and child health are widely implemented at primary-healthcare levels. However, child health commodities — such as those used for neonatal sepsis, pneumonia, and diarrhea — are often managed in an ad hoc manner, resulting in supply and service delivery disruptions. Since the official launch of the integration, reporting rates for child health commodities have improved, while stockout rates have declined. In the last quarter, the number of service delivery points reporting on availability of amoxicillin DT, oral rehydration salt (ORS)-zinc co-packs, and chlorhexidine has **increased by 33 percent, 25 percent, and 53 percent,** respectively. For amoxicillin DT and ORS-zinc co-packs, **stockout rates have declined** from 10.2 percent to 5.3 percent and from 4 percent to 1.8 percent, respectively.

GHSC-PSM is working to ensure the availability of high-quality medicines so that babies like Queen, pictured here being weighed at a clinic in Zambia, have the best chance for a healthy start in life. *Photo credit: GHSC-PSM*

Providing Technical Leadership in MNCH

In January, GHSC-PSM contributed to a meeting convened by WHO in collaboration with UNICEF and the Gates Foundation on **new guidelines for the management of sick young infants with possible severe bacterial infection** (PSBI) where referral is not feasible. Recent research has shown that when hospitalization is not possible, a safe, effective, and simpler antibiotic treatment can be provided in lower-level facilities. The new guidelines promoting this approach could help save some of the 600,000 lives lost to neonatal infections each year. Participants from 14 countries in Africa and Asia[6] shared their experiences with implementing the guidelines and identified key actions that stakeholders must take to introduce and implement the guidelines. GHSC-PSM advised countries on how to **ensure availability of the medicines that are critical to successful management of neonatal infections**.

Ensuring Meds Are in Place

Every one of the countries that had experience implementing the PSBI guidelines commented on issues with product availability or quality. To help countries address these critical issues, GHSC-PSM outlined how they should:

- Forecast their commodity needs
- Detail appropriate technical specifications in tender documents
- Include PSBI commodities in their LMIS

[6] From Africa: Burkina Faso, Burundi, Congo, DRC, Ethiopia, Malawi, Niger, Nigeria, Tanzania, Zambia, and Zimbabwe. From Asia: Bangladesh, Indonesia, and Pakistan.

GHSC-PSM chaired a Maternal Health Supplies Caucus meeting that identified initiatives for 2018 to **increase availability of quality-assured commodities**, including new focus commodities such as blood pressure cuffs and antihypertensives. The Caucus developed a new working group to move these initiatives forward.

B5. Other Emerging Health Threats

In Brief

The project **sourced mosquito repellent** for use by pregnant women.

GHSC-PSM supported **in-country commodity distribution to health facilities** in five countries to ensure that pregnant women have access to the needed commodities.

Commodities Procured for Zika Programs

- Condoms
- Repellent

GHSC-PSM is working to build resilient supply chains that are equipped to face the challenge of emerging public health threats when they arise. Specifically, in Q2, GHSC-PSM supported countries dealing with Zika and with the Ebola legacy.

Unique Challenges Addressed by GHSC-PSM to Procure/Deliver/Distribute Mosquito Repellent

Procuring, delivering, and distributing mosquito repellent as a health product for Zika prevention presented several unique challenges solved by GHSC-PSM, including:

- USAID required that only EPA-approved products be procured, and there are few such products.
- Because of its unusual product categorization, obtaining government authorization to import repellent involves long lead times.
- Repellent cannot be stored or transported alongside pharma products due to risk of contamination, creating unique supply chain/handling requirements.
- No systematized forecasting and supply planning framework is in place for this new commodity.
- Health facilities/antenatal care clinics have no experience instructing pregnant women in using the repellent.

Supporting the Zika Response

Our work to help countries address Zika, a virus spread by mosquitoes that can cause severe birth defects including microcephaly and Congenital Zika Syndrome, included **ordering mosquito repellent for countries in Central America and the Caribbean.** We sourced more than 650,000 units of this product through a U.S. Environmental Protection Agency (EPA)-approved supplier. GHSC-PSM will ship this repellent to ministries of health in the Dominican Republic, El Salvador, and Honduras. The repellent then will be distributed to antenatal care clinics and provided to pregnant women. During Q2, GHSC-PSM continued to coordinate closely with government ministries, USAID Missions, and other USAID implementing partners to **manage the importation, storage, and in-country transport of this commodity**, which presents several unique challenges (see box).

In January, at the request of USAID, Jamaica was added to the list of countries to receive Zika commodity support. GHSC-PSM met with USAID/Jamaica and Jamaica's Ministry of Health to plan the distribution of repellent to each of the country's 13 parishes.

Addressing Ebola Legacy Waste in Guinea

GHSC-PSM worked with the Inspector General of the Ministry of Health and the National Pharmacy and Drug Administration Directorate to define a management plan for unusable medical and pharmaceutical product (UMPP), including waste remaining from the Ebola

epidemic. The Ebola outbreak that devastated Guinea at the end of 2014 had significant adverse effects on the already over-burdened national supply chain, leaving a legacy of pharmaceutical waste at every level of the health-care system that required reverse logistics, treatment, and disposal.

GHSC-PSM organized a physical inventory in 505 health facilities, transported waste to a central site, and provided a method for sorting and packaging the UMPP. We provided safety training, scopes of work, and process maps for the 92 health workers and 42 handlers involved in this process, as well as protective equipment and vehicles. **Nearly 150 tons of medical and pharmaceutical waste** was collected, sorted, and repackaged in appropriate packaging and containers. This waste awaits export for final destruction in accordance with the Basel Convention at an incineration site in France.

In Guinea, GHSC-PSM is working to collect, sort, and pack 150 tons of medical waste that was a legacy of the 2014 Ebola outbreak. *Photo credit: GHSC-PSM*

SECTION C

PROGRESS BY OBJECTIVE

C1. Global Commodity Procurement and Logistics

In Brief

GHSC-PSM delivered 1,500 line-item orders this quarter, with a value of **$187 million**. This reflects a 9 percent decrease in line-item orders and a 12 percent increase in commodity value over FY18 Q1. It is double the number of line items and triple the commodity value of deliveries for this period last year (FY17 Q2).

On average, GHSC-PSM **delivered a line item about every 1.4 hours** this quarter.

73 percent of line items were delivered on time, based on the defined on-time window (within the period 14 days before or seven days after the agreed delivery date). Further, **67 percent of line items were delivered on-time and in-full (OTIF).**

The Global Supply Chain At a Glance

- 58 countries served
- 3,622 products in the catalog provided by 277 suppliers
- Five international freight forwarders responsible for 2,678 shipping lanes
- Three regional distribution centers with inventory for rapid response to orders

The project **procured $301 million** in health commodities. Procurement values have reached **$1.2 billion for total life of project**. This is 17 percent higher than procurement last quarter, and 62 percent higher than this period last year.

We **reduced our cycle time —** how long it takes a customer's order to be delivered after the order has been received **— by 5 percent** from Q1 by streamlining our procurement processes and initiating strategically priced blanket contracts.

The project more effectively leveraged data from our information system, ARTMIS, and targeted data analytics to **improve our demand/supply planning, increase our flexibility in decision making, and identify opportunities to improve on-time delivery (OTD) and cycle time**.

GHSC-PSM **enhanced our global supply chain logistics flexibility** through a refined RDC strategy, implementing an available-to-promise capability, consolidating shipments for long waiver lead time countries, and opening our Dubai warehouse for pharmaceutical products.

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

GHSC-PSM's procurement strategy seeks to continuously identify opportunities to pursue three main objectives:

- Reduce response/cycle times, lead times, and transaction costs
- Increase on-time deliveries
- Balance price, delivery, and quality (i.e., achieve best value)

In Q2, we built on Q1 successes by maintaining strong OTD while reducing cycle time and lowering overall commodity and supply chain costs. We did so by focusing on the following initiatives.

Ensuring Supply Timeliness and Velocity

Logistics Contracts

GHSC-PSM conducted our annual freight forwarder procurement. For our annual freight payments of approximately $45 million, we managed a complex procurement process to select third-party logistics (3PL) service providers that can provide superior service and increase value through **better visibility and shorter delivery** times at the best price. Our procurement process is summarized below.

Ensuring Best Value for Complex Logistics Needs

Prequalified bidders provided GHSC-PSM with rate quotes, transit times, and details on their door-to-door transportation services (air, sea, and land) including duty waiver processing, export/import clearance services, in-transit storage, and accessorial services. Bidders provided quotes for:

- **510 lanes by air**. Each lane had six different weight categories across three temperature gradients
- **254 lanes by ocean**. Each lane had four different container types across U.S. flag/foreign flag requirements

GHSC-PSM analyzed more than 500,000 data points for the evaluation. We implemented a Monte Carlo simulation to approximate future real-world cost and transit time variability. This allowed comparisons of 3PLs across the multitude of simulated demand scenarios for each combination of country, lane, temperature, weight, and mode.

Selection criteria included operational maturity, professional network, IT capability, compliance, transit time, and price. We also took into consideration USAID Mission and GHSC-PSM field office assessments of existing providers' performance.

In the contract awards, GHSC-PSM is designating primary and secondary providers for each lane.

Regional Distribution Centers and Inventory Management

In Q2, GHSC-PSM completed the final step in our RDC configuration by opening our Dubai warehouse for pharmaceutical products, with multiple benefits (see box). In parallel, we defined and implemented a revised regional distribution center strategy focused on high-volume products (e.g., ARVs) after conducting detailed analyses and simulations. Our new strategy differs from our previous strategy that focused on long-lead-time items only. The resulting new approach will **increase our flexibility to meet changing demands and further improve on-time delivery**. Also, we deployed an Available-to-Promise capability that provides real-time allocation of inventory from our RDCs at the point that the order is received, which enables greater flexibility in our inventory and improves the speed of decision making.

Benefits of Dubai Regional Distribution Center

Storage space in Dubai is up to 75 percent less expensive than previous warehouse locations and offers more shipping options by sea or air into the countries served by GHSC-PSM.

Other Initiatives to Achieve Greater Efficiencies

GHSC-PSM undertook additional initiatives to increase efficiencies in the supply chain, including:

- **Streamlining processes for several countries that have long waiver times**. For each shipment of health commodities into a country, GHSC-PSM needs to request a duty waiver. We deliver to several countries that have complex, time-consuming processes to issue such waivers. For these countries, we now try to consolidate orders into fewer, larger shipments to minimize the number of times we need to manage the waiver process. We also now capture each of the 17 steps of the waiver process for each order and review progress at our daily review meetings.
- **Including a vendor-managed inventory requirement in our new contracts for no-logo condoms**. Having condom manufacturers maintain our condoms in their inventory provides the same ability to ship product on receipt of order as our RDCs provide. It also reduces the time and costs associated with transporting stock to an RDC and warehousing it there.
- **Focusing on suppliers' performance in meeting their commitments.** We enhanced our supplier scorecards — the tool we use to measure supplier performance — to include the supplier's track record in meeting its promised goods available dates. Shining a spotlight on suppliers' pervasive challenges to meet their goods available date is encouraging improvements in supplier timeliness.

Providing Better Visibility into Data and Use of Data

GHSC-PSM's global supply chain continues to benefit from the accuracy, efficiency, and analytics offered by our information system, ARTMIS. In Q2, we expanded our capability to **use the system and related data to pinpoint opportunities for improvements** and **enable dashboards to provide timely feedback** on progress. Also, we implemented several system integration improvements that **streamline order processing** and **alert the management team to action**, as needed.

We enhanced our early warning system to capture in-country inventory levels from countries' supply plans. As we identify issues with inventory levels, we **prioritize that item in our daily review of active orders** and for follow-up.

We also **expanded our transportation optimization tool** that codifies business rules for International Commercial Terms, transportation modes, and shipment sizes. As an example, our new tool will identify the number of shipments required to meet an order at the point of order processing (as large orders may be several football fields in size). This will enable continual improvement of OTD and reduce costs.

Gaining More Health Through Better Value

GHSC-PSM's detailed analyses of key health commodity markets and our innovative commodity sourcing strategies allow us to obtain the best value for the agencies and countries we serve, improve cycle times, and support OTD. We have focused our efforts on increasing the share of total procurement managed under long-term agreements (whereby we have an ongoing contract with agreed-upon terms with a supplier) and reducing use of more labor-intensive one-off contracting. Long-term agreements will **reduce procurement lead times, in some cases by up to three to four weeks**. Agreements are **tailored to address the challenges of each commodity group's market**.

We are including requirements for vendor-managed inventory in several of our new contracts.

Our Commodity Councils are strategic governance bodies that coordinate the cross-functional development and implementation of sourcing strategies aimed at achieving best value and supporting market health within specific product portfolios. Highlights of GHSC-PSM strategic sourcing achievements in Q2, by commodity group, include:

HIV/AIDS Pharmaceuticals
GHSC-PSM worked collaboratively with USAID to develop a TLD transition strategy to support PEPFAR's directive to aggressively shift to TLD while minimizing waste of existing or legacy ARVs. We worked closely with TLD and other ARV suppliers and countries to conduct demand, supply capacity, and inventory analytics on both the ramp-up of TLD and ramp-down of legacy ARV products. (Please see a more detailed discussion of this in Section B.1.)

Also, during Q2, the project defined product requirements, released a solicitation, and started evaluating bids for our broad range of ARV products, reflecting our largest spend category across GHSC-PSM.

Laboratory Equipment and Supplies for HIV Testing
The project continued its work collecting and analyzing critical business intelligence on viral load prices by country, instrument mapping by country, and a reagent study that will be used to inform strategic sourcing plans.

GHSC-PSM provided strategic and analytic support to USAID and OGAC for their response to a supplier's instrument protocol change. We provided global and country-level information to inform cost negotiations.

In February, with project headquarters analytic support, two field offices entered into viral load reagent procurements that are expected to result in $370,000 in total cost savings.

The project has actively engaged in developing reagent rental pricing structures, under which we procure laboratory reagents, equipment, and equipment maintenance and service on a "per-test" basis. The per-test price is all-inclusive (covering the cost of the instrument, service, and reagents/supplies). The project has piloted reagent rental contracts in several countries. Also, for reagent rental, GHSC-PSM is working with a major global health partner to harmonize key performance indicators and terms and conditions for service-level agreements.

We also defined requirements and prepared a solicitation for strategic contracts covering 823 standard laboratory catalog items. When awarded, these contracts will streamline processing and contribute to reduced cycle times.

VMMC Kits
We issued a solicitation for VMMC kits and expect to finalize contracts for kits by the end of April. These will include tiered fixed pricing (whereby we obtain different pricing based on volume) as well as vendor-managed inventory, where having the vendor manage kit inventory for us would be advantageous.

Male Condom and Lubricants
GHSC-PSM negotiated and executed three IDIQs for the supply of male condoms and personal lubricant. The new contracts offer reduced product pricing and a broader range of product options to better support USAID social marketing partners. Also, one supplier's contract calls for the supplier to use its own warehousing capacity to provide vendor-managed inventory for male condoms.

Essential Medicines
We defined requirements and released a solicitation for a strategic contract that covers 218 standard essential medicines catalog items. Challenges in essential medicines procurement include a long list of products and large, low-value orders. The new contracts will cover a consolidated list of the most important essential medicines. They also will include fixed prices, so GHSC-PSM will not need to negotiate prices for each order. The consolidated product list with fixed prices will enable GHSC-PSM to streamline the procurement process, reduce cycle time, and mitigate supplier delays.

Long-Lasting Insecticide-Treated Nets
As discussed in Section B2, PMI's Annual Technical Guidance codifies a shift to significant SKU rationalization (i.e., streamlined number of products offered) and reduces the options for customizing LLINs. This policy change reflects GHSC-PSM's in-depth analysis that showed SKU rationalization and reduced LLIN customization will improve supply chain performance and flexibility and will generate savings in lead time and costs.

Rapid Diagnostic Tests
The new PMI guidance also indicates that PMI will no longer allow sole-source selection of RDTs based solely on health worker training concerns. GHSC-PSM analysis indicates that this new approach will lead to decreased price variation, potential overall savings, and mitigation of significant global capacity risks.

In Q2, GHSC-PSM evaluated offers for strategic long-term agreements with RDT suppliers. These contracts, coupled with a strategic order allocation methodology, are designed to support sustainable pricing, supply diversity, and long-term market health.

Oral Contraceptives
GHSC-PSM negotiated and executed a new IDIQ for the supply of oral contraceptives, including combined-oral contraceptives, progestin-only pills, and emergency contraceptives. The new supply contract offers reduced product pricing, a broader range of product options, and trade packaging services for oral contraceptives to better support USAID social marketing partners.

Implants
GHSC-PSM developed and issued a solicitation that will result in new supply contracts for one- and two-rod implants. New supply contracts are expected to expand the supply base, increase sourcing flexibility, and deliver cost savings, while maintaining a high-level of quality and low risk.

Intrauterine Devices
We also developed and issued a solicitation for IUDs. Forthcoming supply contracts will provide established product pricing and lead times.

C1b. Project Performance

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

In Q2, GHSC-PSM continued to drive efficiencies in global supply chain processes, while sustaining our OTD performance. In Q2, we **averaged 73 percent OTD**, **reduced the backlog to 4.3 percent** of annual volume, and **significantly increased deliveries**. **Cycle time was reduced by 5 percent** over the same period. This provides evidence that our continuous improvement efforts have taken hold and are having a sustained impact.

GHSC-PSM procured **$301 million in commodities** this quarter. The number of Q2 **delivery commitments increased by 22 percent** (from 1,226 to 1,498). This increase was driven by a high number of orders for Ebola in three key countries. Our ability to maintain high OTD with significant increases in our delivery commitments reflects the strength of our improvement measures.

We almost **tripled the number of deliveries** in the past six months (3,142 deliveries) compared to the first six months of FY17 (1,076 deliveries). This reflects our ability to scale improved processes.

Timeliness of Delivery

GHSC-PSM measures on-time delivery in two ways. Our on-time in-full (OTIF) rate reflects the number of on-time deliveries as a percentage of all **actual deliveries** in that period. OTD is the number of on-time deliveries as a percentage of **expected deliveries** in that period. It is a more accurate reflection of recent performance, while OTIF suppresses performance as late orders from previous months get delivered.

Exhibit 7. OTD and OTIF over the Last Three Quarters

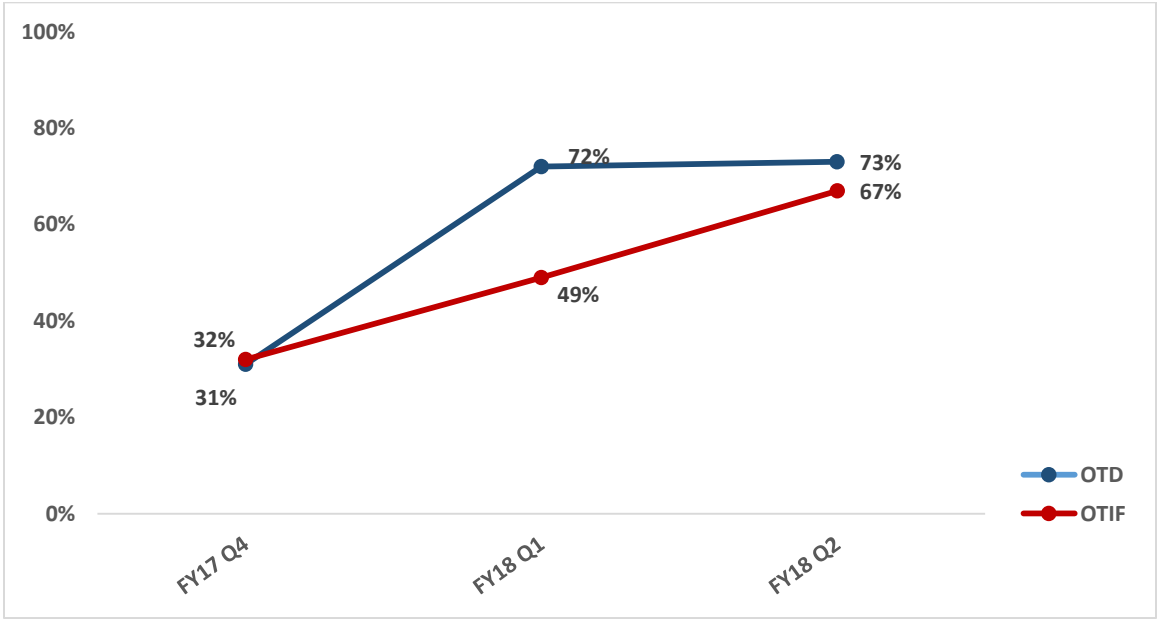


Exhibit 7 shows our OTD and OTIF over the last three quarters. OTD remained stable from Q1 to Q2, with monthly performance that averaged 73 percent. Our percentage of line items that are backlogged is down 12 percent from Q1, and now comprises 4.3 percent of annual volume. Our OTIF increased significantly in Q2 and now is much closer to our OTD rate. This reflects the significant reduction in the backlog. (Delivery of backlog decreases OTIF, which reflects the month of delivery, but not OTD, which reflects the month of commitment.)

Our OTD and OTIF rates and reduced backlog provide evidence of the sustained success of our process improvements.

Exhibit 8. Monthly OTIF and OTD in Q2

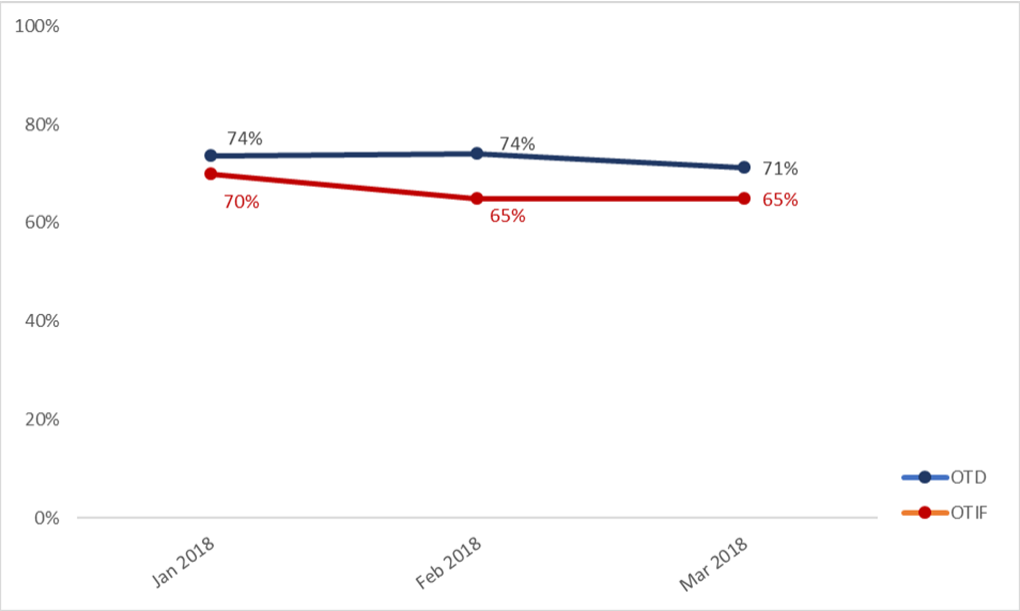


Exhibit 8 shows our OTIF and OTD in Q2 across all health commodities. We see our weakest quarterly OTD performance with malaria commodities. Our OTD for malaria commodities dropped from 59 percent in FY2018 Q1 to 46 percent in Q2. The drop was driven by three factors: poor supplier performance, the lagging effect of earlier orders for which our delivery commitments were poorly set, and a large number of deliveries to three countries with long waiver lead times. (Note: all GHSC-PSM deliveries require that the country receiving the product waive duties on USAID donations. The process of receiving a waiver is protracted in some countries). We have implemented initiatives to address supplier performance, increase the accuracy of our delivery commitments, and reduce long waiver lead times. As such, we expect to see a rebound in OTD of malaria commodities in Q3.

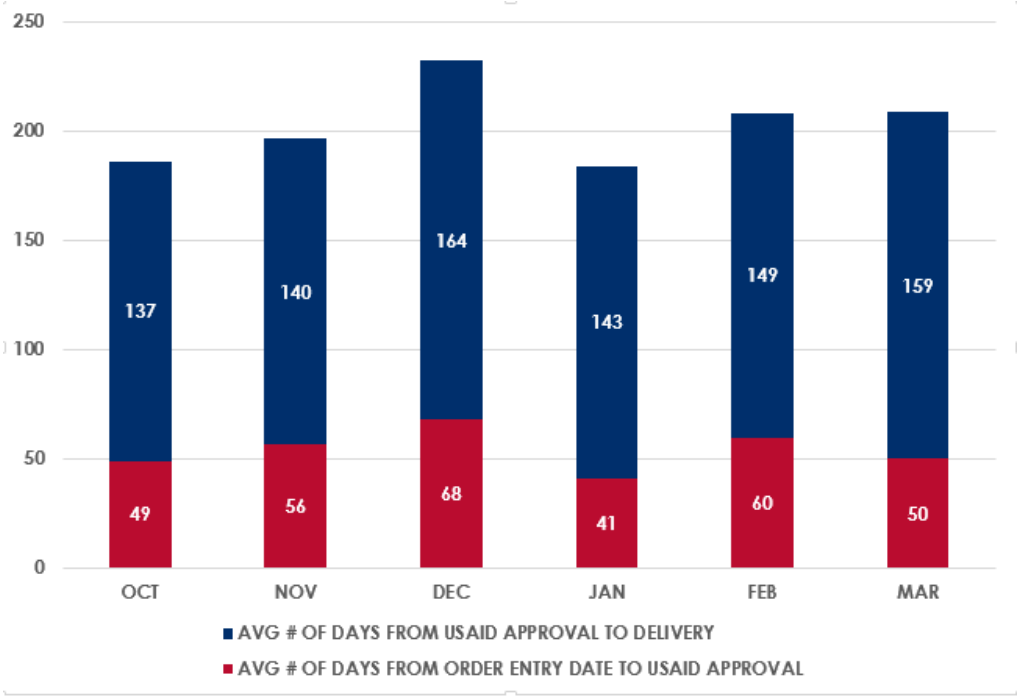
Cycle Time

Cycle time is the industry's standard indicator of supply chain responsiveness, measuring how long it takes for a customer's order to be delivered once the order has been received. For GHSC-PSM, cycle time is the time from order entry to delivery of goods to the recipient (in most cases to a country's central warehouse). We use this indicator to identify bottlenecks in the fulfillment process that may impact our ability to deliver orders on time and to identify opportunities for improving efficiency.

Reductions in Cycle Time

We achieved a **45 percent reduction in cycle time for core sourcing functions** (order entry through initial sourcing) in the last quarter.

Exhibit 9. Cycle Time (October 2017 through March 2018)



GHSC-PSM's **overall cycle time is down by 5 percent** this quarter, fueled by a 66 percent reduction in cycle time for FP/RH commodities and a 17 percent reduction for malaria commodities. GHSC-PSM is on target to reach our annual targets.

Our initiatives to reduce cycle time in specific targeted segments are showing results. For example, we saw an **average reduction of 45 percent** in the segment from USAID approval to our release of a purchase order for those orders initiated in Q2 versus Q1. This is a leading indicator that points to promising future results.

While malaria commodities have comparatively longer cycle times (due mainly to quality assurance processes that can take up to eight weeks after production), malaria cycle times already are close to targets set for the end of FY18.

Total Landed Cost

Our semiannual indicator *Total Landed Cost* measures the total cost of all supply chain operations and expenses associated with delivery of one U.S. dollar of product. Our total landed cost results demonstrate that we are achieving significant cost efficiencies for the taxpayer. These are a direct result of:

- Our global network optimization (moving from five to three strategically located warehouses)
- Reduced warehouse costs and efficiencies
- Use of:
    - A 4PL model that continuously recompetes shipping lanes

- An integrated supply chain management system
- Targeted, sophisticated supply chain analytics as a basis for decision making

Logistics costs (for freight, warehousing, and insurance) were 9.12 percent of the total U.S. dollar delivered. (The target is 8 percent.) Overall supply chain costs (logistics plus headquarters operations costs) were 13.9 percent of the total U.S. dollar delivered. (See the presentation of Indicator A.5 in Annex A.) The cost savings can be used to buy more medicine and save more lives.

C2. Systems Strengthening Technical Assistance

In Brief

GHSC-PSM **continued start-up activities** in Mali and began start-up in Niger and Sierra Leone, with funding emphasis on malaria.

The project made significant strides in advancing training programs associated with **health supply chain workforce development.**

GHSC-PSM continued to **provide LMIS support to 16 countries**, tailoring our support to the infrastructure and priorities of each.

Systems strengthening through country programs
32 country-specific and regional field offices (with offices opening in Niger and Sierra Leone soon)
43 countries supported
More than 1,200 staff

The project helped **integrate use of global positioning system (GPS) into warehousing and distribution planning in Ethiopia**, and **supported contracting for private-sector service provision in Ghana**, achieving significant savings and other value.

We developed **supply chain flow diagrams for all countries** we support, giving stakeholders a consolidated view of these complex networks to facilitate planning and process improvement.

GHSC-PSM received 88 total supply plans from 23 countries, including 76 required plans. The team **reviewed 53 supply plans** to provide technical feedback.

A strong national health system requires a supply chain that consistently provides affordable, high-quality medicines and other health products at all health service delivery points. GHSC-PSM maintains field offices in 32 countries and has provided long- and/or short-term technical assistance to ministries of health and other key stakeholders in 43 countries to achieve these ends.

GHSC-PSM's vision is for every country to have a government-led health supply chain that is **integrated, optimized, accountable, agile, lean, and able to sustainably supply quality products** to all citizens. Each supply chain system should emphasize automated data capture, real-time end-to-end data visibility, pharmaceutical-grade infrastructure, and efficient distribution. Each supply chain should be managed by supply chain professionals in a culture of quality improvement. GHSC-PSM works to achieve this vision through four key methods:

- **Strategy**: Developing project-wide global technical approaches and assisting country teams in applying these to their context.
- **Implementation**: Providing technical assistance and tools and building technical capacity to help country teams implement activities.
- **Monitoring:** Engaging continuously with country teams to monitor and support technical progress toward long-term goals.
- **Thought Leadership:** Curating, creating, and disseminating content related to technical knowledge in health supply chain management.

C2a. Activities and Achievements

In Q2, GHSC-PSM continued to maintain our existing 30 field offices and added offices in two new countries — Mali and Niger. In Mali, the new country office is already moving forward with installing a prefabricated warehouse to provide critically needed central-level storage for health commodities in the country's capital, Bamako (see box).

A Quick and Cost-Effective Storage Solution: Prefabricated Warehouses

Prefabricated warehouses are made for rapid, cost-effective deployment. They consist of pre-engineered modular components and fittings that can be erected quickly and easily, while being easily maintained and operated by local personnel.

We are helping countries **develop strategies to achieve improved and self-sustaining supply chains**. This starts with understanding a supply chain's strengths, weaknesses, and national priorities for improvement. We use several tools to support this, including the National Supply Chain Assessment (NSCA) tool. In January, GHSC-PSM contributed technical input to help USAID finalize version 2.0 of the 11-module NSCA tool. An NSCA provides a comprehensive view of a country's national supply chain maturity and performance. Outcomes and recommendations from a NSCA help **identify areas requiring intervention and facilitate stakeholder coordination to ensure strategic improvements** in the national public-sector-financed supply chain. The NSCA tool will be applied by GHSC-PSM and USAID in Uganda in May 2018.

A pregnant woman visits a pharmacy in the Dosso region of Niger, one of GHSC-PSM's newest PMI-supported countries. *Photo credit: GHSC-PSM*

GHSC-PSM uses global technical approaches (co-created by USAID and GHSC-PSM headquarters and field staff) as suggested 'standards' against which countries should consider selecting and sequencing in-country system strengthening activities. In Q2, GHSC-PSM worked to systematically apply our global technical approaches and effectively model implementation to individual countries. This process is owned by the GHSC-PSM field office in collaboration with the USAID Mission, with inputs from USAID and GHSC-PSM staff at headquarters. Field offices refer to health supply chain systems strengthening (HSCSS) global technical approaches as they engage with USAID Mission and government staff to match HSCSS activities to country priorities. Field office teams conduct their own systems strengthening work, in addition to collaborating with and following up short-term technical assistance from GHSC-PSM headquarters. GHSC-PSM headquarters specialists review country work plans and provide technical feedback on all activities with reference to sequencing, methods, timing, etc. We also review proposed methodologies and approaches in detailed scopes of work for new activities to be supported by short-term technical assistance. All technical assistance activities are aligned with indicators from the country's approved M&E plan, and it is envisaged that the activities contribute to the relevant indicators.

Following are highlights of where and how GHSC-PSM has applied HSCSS approaches globally and in specific countries.

Workforce Development

GHSC-PSM continues to provide support to **Angola**, **Burma, Ethiopia, Mozambique, Nepal, Nigeria, Pakistan**, and **Rwanda** to strengthen their public health supply chain workforces. These interventions will help build sustainable workforces through professionalization and systematic approaches to workforce development.

Supply Chain Systems Strengthening Technical Areas

- Forecasting and supply planning
- Governance and leadership
- Global standards
- Health-care waste management
- Laboratory networks
- Management information systems
- Process improvement
- Procurement
- Strategy and design
- VMMC
- Warehousing and distribution
- Workforce development

In January, GHSC-PSM **hosted the Workforce Development Technical Workshop**, bringing together 33 representatives from USAID, eight project country offices, and a range of partners including APICS (a leading association for supply chain management), the Bill & Melinda Gates Foundation, the Global Fund, and People that Deliver. This was the first of a series of HSCSS technical workshops designed to share with other stakeholders our work in the health supply chain sector, review notable technical interventions, discuss key learnings, look forward, and make necessary adjustments for future activities.

Following the workshop, GHSC-PSM updated and circulated the *Workforce Development Global Technical Approach* and more detailed resource documents. The project then **hosted a workforce development webinar** in multiple time zones to orient field teams to these documents.

In Q3, the project will launch a **five-module certificate series** designed to better equip our global staff with knowledge and approaches that can be applied to local country contexts. Our aim is for each country we support to have skilled professionals who assume end-to-end responsibility for the performance of their country's public health supply chain, become change agents, and foster institutionalized policies and procedures to finance, develop, support, and retain a sufficient health supply chain workforce.

In **Angola,** GHSC-PSM adapted, translated, and facilitated the use of the project's **health supply chain workforce self-assessment tool** to identify opportunities for strengthening the skills of health supply chain managers. Angola's National School of Public Health reviewed the results of the assessment and agreed to partner with GHSC-PSM in developing a curriculum for a Masters specialization in public health supply chain management. This will be the **first Masters-level specialization of its kind in Angola**, in association with the most prestigious university in the country, University Agostinho Neto. The program will be offered at no cost to current Ministry of Health employees with responsibilities in supply chain management, from warehouse managers to senior national health program leaders. The potential impact is significant, as almost all graduates of the school of public health go on to work for the Ministry of Health.

In **Pakistan,** to promote training and career opportunities for the next generation of supply chain professionals, GHSC-PSM supported **an internship program for both undergraduate and graduate students** (see box). The first cohort of 11 interns from various backgrounds and leading universities recently completed the program.

> "I congratulate GHSC-PSM for introducing the internship program. It contributes not only to capacity building of young talent but also helps in identifying shining stars who could be absorbed within the government for sustainable strengthening of supply chain systems."
>
> *Mr. Fazal Nabi Khan*
> *Secretary, Population Welfare Department, Government of Khyber Pakhtunkhwa*
> *Pakistan*

Participants contributed to developing family planning commodity forecasts for provinces, received international procurement training, and staffed the management information system helpdesk. As a measure of success of the internship program, four of the nine post-graduate interns were inducted as short-term training, IT, and human resources officers for the WHO-funded Vaccine Logistics Management Information System. One of the interns also continues to work as a short-term human resources officer for GHSC-PSM.

Management Information Systems

GHSC-PSM continues to provide support to **Angola, Botswana, Burma, Cambodia, Guatemala, Guinea, Haiti, Kyrgyzstan, Lesotho, Madagascar, Malawi, Mozambique, Nepal, Pakistan, Rwanda,** and **Zambia** with their supply chain information systems. Although at different levels of supply chain maturity, these countries are on a path to developing end-to-end visibility, with data-driven mechanisms to support evidenced-based decision making.

In **Burma,** GHSC-PSM onboarded six regional LMIS managers and officers to oversee and ensure the collection of essential stock data **at the township level, for the first time effectively capturing data at this level.** This milestone is part of an ambitious LMIS initiative that includes implementing an integrated LMIS roadmap to streamline visibility of available stock throughout the country.

Recognizing that simple-to-use, low-cost tools are often more effective and readily adopted, GHSC-PSM used free, open-source technology to help develop an **Online Logistics Information Integrator** (www.integrador.org) in **Guatemala**. Using the Integrator, personnel in charge of logistics management at the 16 hospitals providing ARV treatment upload their monthly balance and requisition forms online. This process eliminates the cut-and-paste operation previously used to consolidate all logistics information at the central level of the national HIV/AIDS program, resulting in considerable time savings (see box).

> **Time Savings from Adopting a Low-Cost Information Tool**
>
> In Guatemala, thanks to the GHSC-PSM-developed Online Logistics Information Integrator, an operation that **once took one person almost two weeks to complete now takes just one day**.

The Integrator offers numerous features that will enable data review and support decision making. The platform can generate a variety of reports that can be used to:

- Identify potential stockouts
- Review trends in consumption patterns

- Monitor availability of ARVs (organized by first-, second-, and third-line ARVs) at USAID-priority hospitals

The Online Logistics Information Integrator is empowering staff from the national HIV/AIDS program to better understand their entire logistics network for ARVs. This tool could be integrated or used as a complement to any future nationwide LMIS.

In **Lesotho,** GHSC-PSM accelerated the expansion of an "informed push" system nationwide, using electronic data to track and manage Lesotho's health commodity supply chain system. This automated system allows health facility staff to **use electronic tablets to upload information** about commodity stock levels and quantities of stock received from the central warehouse. By connecting to the National Ministry of Health's web-based platform for health records, the application **automatically calculates the quantities the facility needs to ensure continuous supply of critical health commodities and avert waste of unused supplies**. This automated system **alleviates the burden on often-understaffed facilities** of manually entering stock data into paper-based records and manually doing the calculations to forecast supply needs (see box).

Saving Time Through Automation

In Lesotho, GHSC-PSM has supported one-third of the nation's health facilities in using a tablet-based system to upload supply chain data. The electronic informed push system saves valuable time by automatically calculating the average monthly consumption of commodities — a previously time-consuming and error-prone exercise that was done manually using a calculator for each of the 100 or so items a facility ordered.

By implementing a web-based "push" supply request system, facility staff **improved data clarity and reduced delivery times** to ensure commodity availability in last-mile storage sites. Also, the electronic system enhances data visibility and transparency at all levels of the health system — an improvement that can reduce overall cost and improve the ability of health officials at the central, district, and facility levels to analyze supply chain data for critical decision making. Project staff currently are working to **expand the informed push system** and providing training on the system for additional government facilities, nonprofit facilities run by the Christian Health Association of Lesotho, and private-sector clinics.

Warehousing and Distribution

GHSC-PSM continues to provide support to **Ethiopia, Lesotho, Liberia, Ghana, Rwanda,** and **Zambia** to improve their warehousing and distribution systems. Our approaches seek to improve data-driven decision making across the supply chain, optimize in-country warehouse networks, and increase efficiencies in warehousing and distribution operations. Promoting alternative ownership and management models for medical stores and distribution is another key approach.

In **Ethiopia,** GHSC-PSM is working with the Pharmaceuticals Fund and Supply Agency (PFSA), the country's public health supply chain agency, to encourage the **use of GPS data to inform distribution and warehousing decisions**. PFSA (with UNOPS support) is installing GPS trackers on all its vehicles. GHSC-PSM is supporting PFSA's use of GPS data tracking to:

- Increase vehicle use
- Reduce poor driver performance

- Decrease transportation costs

Further, we are working with PFSA to conduct an analysis of its existing hub network coverage to **highlight areas of overlap and gaps** and to **identify opportunities for greater efficiency**. Also, the project supported the **pilot of a delivery scheduling tool** in the Adama hub. This tool tracks the status of orders, identifies the impact of missing orders, and helps determine the delivery routes to run on any given day to help reduce cost and improve performance.

In Ghana, as part of a program called Last Mile Distribution (LMD), GHSC-PSM renegotiated a central-level warehousing contract for USAID-funded commodities that resulted in a **42 percent cost-saving in comparison to FY17**. The Global Fund then leveraged our rates to renegotiate its warehousing costs by about 47 percent. GHSC-PSM added two more regions — for a total of four — for which the project has **engaged a private-sector company to distribute public-sector health commodities** to health facilities. LMD has a significant impact on health facility staff. Karaga District Hospital staff, for example, previously arranged their own transportation to pick up commodities from their regional medical store 80 km away, whereas now the commodities are delivered to them.

In Ghana, Amina Ewuntonnah is a nurse manager at the Karaga District Hospital, Northern Region. Amina and her assistant receive health supplies through the last-mile distribution program supported by GSHC-PSM. *Photo credit: GHSC-PSM*

Leadership, Governance, and Procurement

GHSC-PSM continues to provide support to **Burma, Guyana, Nigeria,** and **Rwanda** to put in place foundational leadership, governance, and procurement approaches to ensure more self-sustaining supply chains. Key approaches seek to establish and strengthen logistics management units, improve legislative frameworks for procurement, and improve procurement procedures.

GHSC-PSM advocated with the Lagos State government to provide an increase for the state's Logistics Management Coordination Unit (LMCU) in the 2018 budget. The State Honorable Commissioner of Health announced an increase of N22.5 million (about US $62,000) in January. Since establishment of the LMCUs in various states, USAID has provided most of their funding. More funding by state governments is essential to an effective **transition to a sustainable, government-led procurement and supply chain system**.

In **Rwanda,** GHSC-PSM carried out a gap analysis of the procedures manual of the Rwanda Biomedical Center/Medical Procurement and Production Division (MPPD) in light of regulatory changes that have been enacted since the manual was published in 2013. Following the analysis, GHSC-PSM provided a roadmap for revisions to the procedures manual. This initial gap analysis also informed the proposed transformation of MPPD to Rwanda Medical Supply (RMS) Ltd. RMS Ltd will **be a more autonomous entity** in the form of a state-owned enterprise (also known

as a parastatal). RMS Ltd will **merge with all 30 district-level warehouses, for important savings** (see box).

GHSC-PSM has been working to increase service delivery point ordering and reporting in **Uganda**. As a result of targeted supervision by the Joint Medical Store and spot checks by GHSC-PSM, the percentage of 645 service delivery points ordering and reporting malaria commodities increased from 83 percent in November/December to 97 percent in January/February.

Revised Approach has Potential to Yield Significant Savings

The merging of MPPD with 30 district warehouses **could potentially reduce the costs of medicines by up to 20 percent** by eliminating one layer of mark-up.

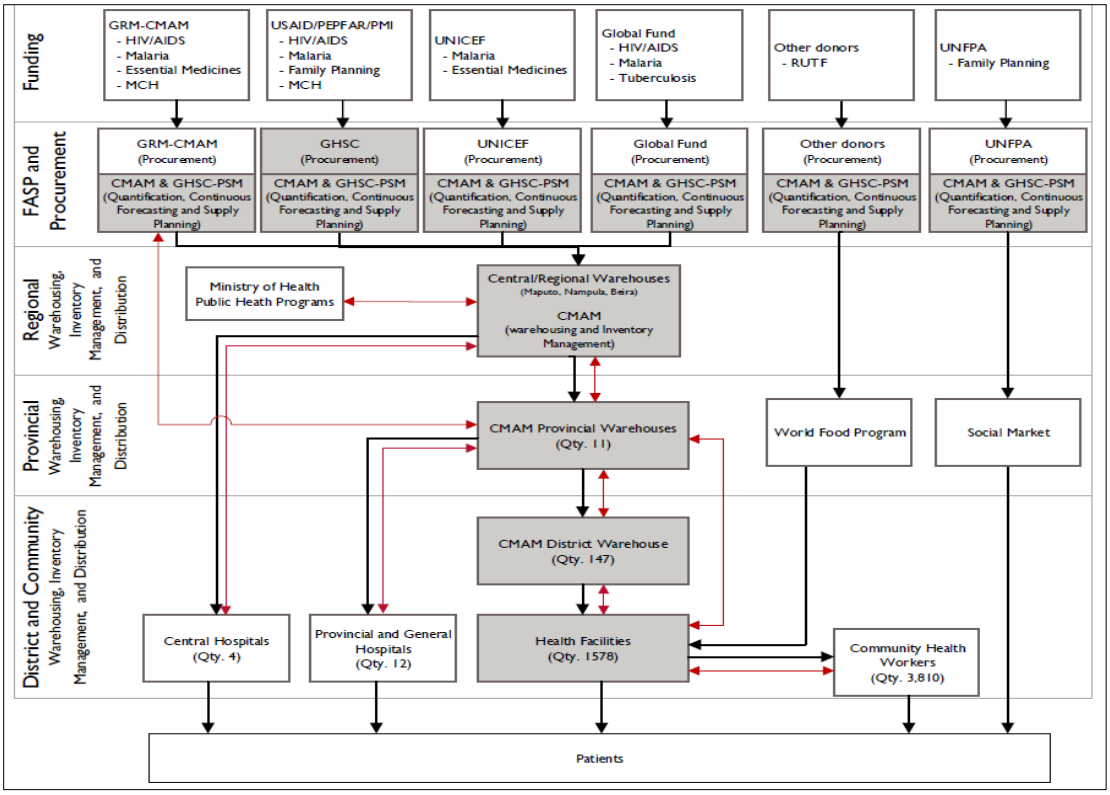
Country-Level Process Improvement

GHSC-PSM field offices assist with analyzing, evaluating, and developing recommendations for system and process improvements, optimization, and/or operations sustainment efforts for countries.

Health supply chains in the countries supported by GHSC-PSM are managed by complex networks of host-government ministries, international donors, not-for-profit nongovernmental organizations, and commercial-sector entities. Different entities have different roles and responsibilities, depending on the health area and the level of the supply chain. Ensuring the supply chain works to meet citizens' needs requires close coordination and planning across all these entities. Coordination starts with a clear understanding of who does what in the supply chain.

To this end, this quarter, GHSC-PSM developed supply chain flow diagrams for all GHSC-PSM-supported countries. (As an illustration, the flow diagram for Mozambique is provided as Exhibit 10 on the following page.) These flow diagrams graphically depict the flow of products through the supply chain from supply planning to the delivery of health commodities to patients. The flow diagrams **allow all parties to review the same information about the totality of the health supply chain** in the country. They can be used to facilitate collaborative planning around allocation of resources and responsibilities and to envision how the supply chain system could be improved or redesigned.

Exhibit 10. Mozambique Supply Chain System: Commodities and Information Flow



Forecasting and Supply Planning

GHSC-PSM continues to provide forecasting and supply planning (FASP) support to all GHSC-PSM countries that purchase commodities through our project. In addition, we provided technical support to **Botswana, Burundi, Côte d'Ivoire, Guinea, Indonesia, Jamaica, Madagascar, South Sudan,** and **Zambia** as those countries seek to institutionalize FASP processes, moving from reliance on external technical support to **developing their own fully integrated FASP capabilities**.

Countries develop and submit to GHSC-PSM supply plans for up to eight commodity groups. Supply plans are the source of field office procurements, based on projections of consumption and inventory. For Q2, GHSC-PSM received 88 supply plans from 23 countries — 76 required supply plans plus 12 additional plans. Additional plans are plans not required for submission to GHSC-PSM because there is no GHSC-PSM presence in the country or because GHSC-PSM does not procure these items. Although the additional plans may not include GHSC-PSM procurements, they can provide us with insight on the market size and scope for various commodities and can be shared with global community stakeholders. 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 14 criteria, with the reviews generating actionable recommendations for improvement. In Q2, GHSC-PSM reviewed 53 supply plans, including ARV, RTK, malaria, and FP/RH plans.

GHSC-PSM contributed key modifications to Quantimed and PipeLine, two key legacy tools used by country programs to forecast and develop supply plans for pharmaceuticals and other medical supplies. We worked to enable users of the two platforms to migrate existing inventory, consumption, and shipment data to the GHSC-PSM catalog nomenclature, **enabling supply plan data to merge seamlessly with GHSC-PSM procurement and delivery information**. Upon implementation, countries will have GHSC-PSM product information the moment they begin planning, which will **improve accuracy and efficiency of FASP and placement of procurement orders**.

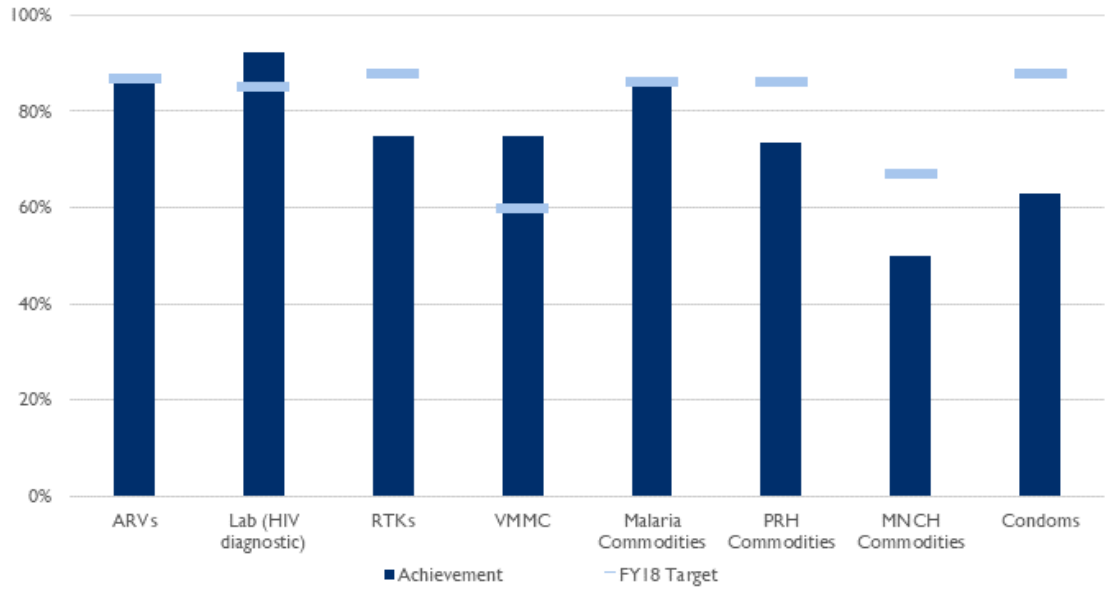
FASP will play an essential role in transitioning to TLD by helping reduce the risk of overstock, expiry, and stockout of TLD and legacy ARVs. The project **helped more than a dozen countries model their TLD commodity needs** based on agreed-upon transition plans, including the drawdown of legacy ARVs to minimize waste. The project also provided analytical support to USAID and OGAC in prioritizing countries for TLD transition in 2018 and beyond. See Section B1 for additional detail.

C2b. 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 we operate and to help us calibrate our work. These indicators also help establish priorities for our systems strengthening support and, over time, will allow us to assess the outcomes of our technical assistance. Values for these indicators are provided in Annex A. Below, in Exhibit 11, we present results for one indicator — percentage of countries conducting quarterly supply plan updates — that is critical to ensuring procurements are planned well ahead and that adequate stock levels are maintained in the supply chains that we support.

Percentage of Countries Conducting Quarterly Supply Plan Updates

Exhibit 11. Percentage of Required Supply Plans Submitted to GHSC-PSM during Q2 by Commodity Group



Under the quantification paradigm supported by GHSC-PSM, supply plans take 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.

Across all commodity groups, 76 required quarterly supply plans were submitted, representing almost 77 percent of the Q2 required supply plan expectation. This ranged from 92 percent of required supply plans submitted for lab (HIV diagnostics), 87 percent for ARVs, and 86 percent for malaria commodities to 50 percent (3 of 6) for MNCH commodities. The supply plan submission rates are slightly down across all health areas; the number of supply plans submitted this quarter remained steady but the number of supply plans expected increased since the previous quarter.

C3. Global Collaboration

In Brief

GHSC-PSM conducted market dynamics research for HIV/AIDS, malaria, and FP/RH to **identify ways to strengthen markets for key commodities**.

The project made significant progress in implementing a plan to **incorporate global standards** throughout our supply chain. This will help improve efficiency, reduce costs, and improve end-to-end data visibility.

GHSC-PSM continued to **participate actively in global fora**, sharing data and promoting new approaches, and to **test innovations** in our global and country-level procurement and logistics work.

C3a. Activities and Achievements

Our global collaboration in Q2 focused on strategic engagement, market dynamics, and other research, awareness, and advocacy efforts. We are also working to scale successful innovations in multiple countries and within the global health supply chain space. The scale, scope, and complexity of managing a global supply chain require us to collaborate with many global and local partners to ensure the availability of health commodities. By integrating our work across health sectors and sharing information, resources, activities, and capabilities, we can achieve together what we could never achieve alone.

Strategic Engagement

As described throughout this report, GHSC-PSM engages actively with other global players to promote availability of health commodities. We do so by providing supply chain expertise to important global fora; working with other global partners to allocate scarce supply; promoting harmonization in standards and practices; and working to manage commodity stock information as a global good. Our contributions are recapped below.

Providing Supply Chain Expertise to Important Global Fora
GHSC-PSM represents the supply chain point of view in key global meetings to ensure donors and governments take supply chain considerations into account when planning their programs. This helps them get timely access to the commodities needed for their programs. Participation in these meetings also helps GHSC-PSM stay current with emerging requirements so we are ready to respond to global health commodity needs. Specifically, this quarter, GHSC-PSM:

- Hosted and presented data at the USAID Office of HIV/AIDS Voluntary Medical Male Circumcision biannual headquarters partner meeting
- Chaired the Systems Strengthening Working Group of the General Members Meeting of the RHSC
- Co-facilitated a workshop with WAHO to improve the West and Central Africa Early Warning System for Contraceptives, including the quality of contraceptive stock data and data use
- Presented at the Track20 meeting on platforms used to collect family planning data

- Participated in the People that Deliver board meeting on professionalizing health supply chain personnel and joined the board of that organization
- Moderated a panel on market conditions that attract manufacturers to the market for the General Members Meeting of the RHSC
- Participated in a meeting on consumables for long-acting reversible contraceptives at the General Members Meeting of the RHSC
- Facilitated a Medicines for All (M4All) panel on prioritizing drugs for chemistry improvements

Collaborating to Allocate Scarce Supply
Through our PPMR and PPMR-HIV processes, we supported donor review and planning around commodity overstocks and low stocks. To address scarce supply of DMPA-IM and one-rod implants, we collaborated with manufacturers, country recipients, the RHSC's Coordinated Supply Planning Group, and CARhs to prioritize country orders and allocate supply.

Promoting Harmonization
GHSC-PSM **shares our methods with the global community** to promote broad improvement in product availability. For example, this quarter, we shared our contractual service and maintenance terms to ensure continuous instrument performance for viral load testing platforms. We shared these contract terms with CHAI, WHO, and UNITAID so all global laboratory stakeholders can align on requirements that promote performance.

As a further example, we facilitated harmonization of packaging requirements among major contraceptive and condom procurers.

Managing Commodity Stock Information as a Global Good
GHSC-PSM serves as an information resource on commodity availability, sharing our supply chain information and collecting and managing additional country data on stocks. As described in Section B, through the PPMR process in the HIV, malaria, and FP/RH sectors, GHSC-PSM manages collection of data on country-level stocks of critical health commodities. These data are shared with countries and donors in user-friendly dashboards to inform planning and prioritization. Every quarter, based on this information, the global community considers actions to address imbalances (such as redistributing stock to mitigate stockouts and minimize waste).

GHSC-PSM is an **active participant in developing the Global FP VAN**, which will increase supply chain visibility and improve collaboration between USAID and other major procurers of contraceptives. This quarter, GHSC-PSM served as a super user, interacting with potential software solution providers to explore functional requirements for the system and helped elaborate the technical requirements for that contract.

Research and Innovation

GHSC-PSM is engaged in cutting-edge research that helps shape global markets to meet countries' needs for health commodities and that explores better ways to get these products to the people who need them.

Market Dynamics
We continued a robust program of research into the health commodity marketplace, with significant progress this quarter. Insights from our market dynamics research inform our

approaches to **working with the private sector to ensure long-term market responsiveness, efficiency, and sustainability.**

China active pharmaceutical ingredient import-export data. GHSC-PSM is working to understand how China's new Blue Skies environmental program is affecting its export of raw materials, starting materials, and active pharmaceutical ingredients used by health commodity manufacturers. This quarter, we contracted a data provider and received the first two months of data on Chinese exports of 29 antiretroviral, essential medicine, condom, and malaria products. These data will support our analysis of pricing and volume trends over time to better understand input market volatility facing manufacturers, which, in turn, will inform our procurement strategies.

Manufacturing and chemistry improvements. GHSC-PSM collaborates with M4ALL and Project Optimize to explore the development of new, more scalable, and more cost-effective technologies for manufacturing global health medicines. In Q2, we analyzed key first-line products (lamivudine and emtricitabine) to inform PEPFAR decision making around the priority drug list and Project Optimize strategies. Also, GHSC-PSM leveraged market dynamics models developed in 2017 to analyze emtricitabine. This is informing M4ALL's strategies for improving the manufacturing chemistry for this product.

GHSC-PSM also participated in the first M4ALL Institute Steering Committee on March 29. We joined a panel with CHAI and Medicines Patent Pool that considered how to promote manufacturer uptake of optimized M4ALL processes. We also facilitated a panel on USAID's experience with ARVs to inform approaches to prioritizing drugs for chemistry improvements.

Private market development. At the March 22 RHSC membership meeting, GHSC-PSM facilitated a discussion with PT Tunggal and Bayer on manufacturer insights on private market development. They described the market conditions that attract a manufacturer to bring its product to market. A key insight from the discussion is that manufacturers often begin market evaluations through a market segmentation approach. The next conversation in this continuing effort to understand private market development will focus on learning how manufacturers conduct market segmentation.

Country-level private sector landscape analysis. At the country level, GHSC-PSM project commissioned QuintilesIMS to conduct a private sector supply chain landscape analysis of HIV, malaria, tuberculosis, maternal and child health, and family planning commodities and RDTs in Nigeria. The landscape analysis was funded using both core and field funds from all health elements. The analysis included a qualitative study involving targeted interviews with stakeholders throughout the private sector supply chain and a quantitative study of the private sector in eight states - Bauchi, Cross River, Ebonyi, Kano, Lagos, Oyo, Rivers, and Sokoto - and five wholesale markets – in Aba, Kano, Lagos, Onitsha, and Port Harcourt. We submitted the two reports for the Private Sector Supply Chain Landscape Activity to USAID this quarter.

Building Awareness and Advocacy for Change in Supply Chain Issues

GHSC-PSM works to build awareness of key supply chain issues and advocates for change around them at global and country levels. Examples are provided below.

Global Standards

Use of global standards has been a **strategic enabler of supply chain efficiency, effectiveness, and innovation** for numerous industries across the globe. Adoption of global standards has become a central part of the entire GHSC program to reduce costs, enhance

efficiencies, and improve the availability of health commodities worldwide. To this end, in Q2, GHSC-PSM:

- Incorporated requirements for product identification, labeling, and data exchange in accordance with GS1 standards in our new health commodity contracts
- Developed and shared a *GHSC-PSM Global Standards Technical Implementation Guideline* to support suppliers who are new to global standards to help them understand how to meet the new requirement
- Completed integration of our information system, ARTMIS, with the Global Data Synchronization Network™ (GDSN)
- Conducted pilot projects with Abbott and with Johnson & Johnson, in which we successfully received master data for a select number of pharmaceutical products and laboratory supplies
- Launched our GDSN community enablement initiative, which provides supplier outreach and onboarding
- Co-hosted two supplier webinars in February and March, in partnership with our GDSN data pool provider, 1WorldSync
- Published a *Business Case for the Implementation of Global Standards* that describes the benefits to the global health community from implementing global standards
- Launched our web landing page (http://ghsupplychain.org/globalstandards), where all our global standards publications can be accessed

Other Advocacy

In other advocacy activities, GHSC-PSM:

- Completed the user survey on **the Contraceptive Security Indicators and Index** to understand how stakeholders use the tool to monitor a country's contraceptive security status, assess public sector funding needs, track progress after introducing a new commodity or implementing a program to expand access, or advocate for timely government action.
- Co-published a **messaging framework around management of oxytocin** with PATH and the RHSC. This messaging framework translates technical recommendations from a previous global consultation on oxytocin into actionable advocacy messages to promote appropriate management of oxytocin.
- Participated in a small group of international organizations that reviewed a draft **guidance document on procurement of MNCH commodities**. The document will be used to help non-specialists ensure the quality of the MNCH medicines they procure.
- Continued to **advocate for a network as opposed to a traditional approach to lab procurement**. This approach uses reagent rental and all-inclusive procurement. It translates into a lower and predictable price per test, easier budgeting, higher supplier performance, greater coordination, transfer of risk to the manufacturer/distributor, and other benefits.
- Worked to **leverage our supply chain workforce initiatives** through People that Deliver, a global partnership of organizations focusing on professionalizing health supply

chain personnel. We plan to continue aligning our workforce development activities with People that Deliver's approaches, particularly in the three selected advocacy focus countries (Benin, Ethiopia, and Nigeria).

- **Continued our country-level advocacy.** For example, in **Mali**, with strong advocacy and leadership from GHSC-PSM, the leading governmental, multilateral, and nongovernmental organizations, agreed to **form a technical working group to discuss and update supply plans for various health commodities**. This new mechanism, led by the Ministry of Health, represents a significant milestone designed to improve upon existing processes. The group brings together a small team of key technical experts to review data and act quickly to eliminate bottlenecks in the supply chain and avoid risks of overstock, expiry, and stockout.
- **Successfully advocated with the Lagos State government to provide an increase for the state's Logistics Management Coordination Unit** (LMCU) in the 2018 budget. More funding by state governments is essential for an effective **transition to a sustainable, government-led procurement and supply chain system**.

Collaborating Across GHSC-PSM Health Areas

The GSHC-PSM contract combines procurement and supply chain support for all global health areas into one contract for the first time. This consolidation has generated benefits for all health areas that are felt every day. Below we summarize four areas — data visibility, contracting, innovation and research, and training — where the cross-pollination and benefits of consolidation were particularly notable this quarter.

Data Visibility

GHSC-PSM can apply lessons learned and best practices from work in one health area to another. For example, the long-standing PPMR and the emerging Global FP VAN approaches for FP/RH commodities **are directly informing development of PPMR-HIV**. Also, lessons from core PRH activities to use and align various data sources (i.e., PipeLine, supply plans, and PPMR) to understand the state of FP/RH commodity security are informing a similar HIV initiative targeting HIV commodity security.

Ministries of Health have gleaned information on malaria commodity stock levels and commodity use from EUV surveys for years. In developing EUV 2.0, GHSC-PSM has improved the methods for conducting these surveys and incorporated collection of data on MNCH commodities. **This will fill a critical gap in data on MNCH commodity stock** status at the facility levels for the first time in many countries.

Contracting

GHSC-PSM continued to leverage our methods, approaches, and infrastructure across all four health areas in Q2. For example, the **combined volume of shipping** to transport our HIV, malaria, FP/RH, and MNCH commodities generated substantial 3PL provider interest in our solicitation for 3PL services and helped us **negotiate favorable terms in our 3PL service contracts**.

Some suppliers manufacture products for multiple health areas (e.g., for both HIV and FP/RH). GHSC-PSM leverages significant spend in one health area to get attention for small orders for another health area that otherwise might not be prioritized.

Innovation and Research

As described above under our Market Dynamics work, volatility in markets from China's new Blue Skies policy is impacting manufacturing and pricing of a wide range of health commodities. We contracted data and are conducting analysis that will support our understanding of market dynamics and sourcing strategies for health areas supported by USAID, PEPFAR, and PMI.

Similarly, our pilot studies of unmanned aerial vehicles for commodity delivery and of temperature monitoring during warehousing and distribution have potential application for all health areas.

In Mozambique, Celeste Bernardo of the Central Medical Stores prepares medicine for a quarterly distribution using barcode scanners introduced by GHSC-PSM for more efficient warehouse management. *Photo credit: GHSC-PSM*

Training

As decribed in Section C3 below, GHSC-PSM **trained more than 7,600** host-country government and other supply chain staff this quarter. This health supply chain training strengthens a country's supply chain for all commodities and health areas.

Collaborating with Other GHSC Projects

GHSC-PSM is a member of the GHSC program family and interacts regularly with the other GHSC projects. Below we summarize examples of collaboration with other GHSC projects in Q2.

As described in Section B1, GHSC-PSM supports the GHSC-RTK project in **ensuring availability of HIV RTKs**. Our extension of supply planning efforts to cover RTKs and our regular sharing of RTK supply plans gives the GHSC-RTK project good visibility into needs for its product 18 months into the future. Also, our survey of country-level supply chain personnel provided key insights into RTK supply chain challenges, and our work to address these challenges will support more predictable demand and improved planning for GHSC-RTK's procurement activities.

GHSC-PSM interacts continuously with GHSC-QA, implemented by FHI 360, to coordinate QA efforts for HIV, FP/RH, and MNCH commodities. We are working closely with the GHSC-QA project to **find creative ways for completing QA processes at different logistics stages** to shave cycle time and improve on-time delivery performance.

The GHSC-Business Intelligence and Analytics (BI&A) project, implemented by IntelliCog, aggregates data from all GHSC projects so that USAID and external parties can examine performance. Another critical purpose of the BI&A is to aggregate data across the USAID supply chain projects, both past and present, to assist in analyzing data across supply chain investments. The ability for outside parties to access and use these data helps ensure accountability for U.S. government funding. The BI&A dataset for GHSC-PSM and our own data management systems structure GHSC-PSM's data differently. As a result, methodologies to calculate indicators from the two different datasets must be reconciled to obtain consistent and accurate results. This

quarter, GHSC-PSM and GHSC-BI&A staff **worked to align queries to calculate values for some priority performance indicators** such as OTD.

GHSC-PSM serves as a primary aggregator of information on the GHSC program for USAID. This quarter, we worked with USAID and contractors under the GHSC-Technical Assistance multiple-award contract to **assemble information on procurement and supply chain activities** across all U.S. government-supported countries.

C3b. Project Performance

People Trained

A key performance measure related to global collaboration and cross-cutting activities is the number of people trained. This indicator provides a basic illustration of where the project is focusing its capacity-building resources and where it might expect related supply chain outcomes to improve.

A high number of individuals were trained in Q2, with a total of **7,602 trainees** (3,925 men and 3,677 women). Nigeria alone trained 3,815 people (2,046 men and 1,769 women).

Most trainings were cross-cutting, meaning they addressed topics relevant to multiple health areas. For funding source, 19 percent were trained with HIV/AIDS funding; 39 percent with malaria funding; 37 percent with FP/RH funding; and 4 percent with MNCH funding.

The focus of trainings was:

- 69 percent on warehousing and inventory management
- 11 percent on MIS
- 7 percent on governance and finance
- 7 percent on transportation and distribution
- 3 percent on human resources capacity development
- 2 percent on forecasting and supply planning
- 1 percent on quality assurance
- <1 percent on M&E
- <1 percent on strategy and planning

Annex A. M&E Indicators

The Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project tracks a full array of performance indicators that span commodity procurement and logistics, global collaboration, and several cross-cutting issues (e.g. training). Our commodity procurement and logistics indicators capture efficiency, effectiveness, quality, and cost of our service delivery, in line with the industry-standard Supply Chain Operations Reference (SCOR) model. Other indicators reflect performance of project partners (e.g. vendors), providing insight into how we plan, procure, and deliver high-quality health commodities through our management of subcontractors. Our global collaboration and cross-cutting indicators track contributions to the global community as well as project-wide services and contributions (e.g. number of innovations developed). In-country performance indicators capture the availability of stock at central and subnational warehouses, the extent of health facility-level stockouts by product, health element, and country, health facility reporting rates to the logistics management information system (LMIS), product loss while under GHSC-PSM control, project-led innovations, trainings, and support to developing or updating supply chain policies, regulations, and standard operating procedures. Finally, our context indicators provide information on the country supply chain environments in which we operate to inform decision-making and monitor critical assumptions.

Data Use

GHSC-PSM advocates for transparent access to appropriate data as a means of encouraging accountability, transparency, and evidence-based management. In the following tables, we capture the program activities and results, as specified in the project's Monitoring and Evaluation plan.

The GSHC-PSM field offices and headquarters use the data captured here to continuously improve results. The overall goal of the program is to ensure uninterrupted supplies of health commodities; the data that inform these indicators contribute to this. A visual management system of our progress (updated and utilized daily) allows managers to hone in on and troubleshoot these individual orders. Across all field offices, GHSC-PSM and our partners and counterparts actively use ARTMIS and in-country logistics management information system (LMIS) data to monitor stock levels and inform procurement planning. This quarter, a new On-Time Delivery dashboard has allowed unprecedented access and visibility into our OTD data, which was limited to static spreadsheets in the past. As stakeholders utilize the data, we continue to create and roll out new, innovative, and useful tools to foster an environment where evidence is used for decision-making.

Methodology Notes for Measuring Impact

In this report, we share the following results, each based on products delivered between the start of the project through March 31, 2018:

1. Number of years of antiretroviral (ARV) treatments delivered by GHSC-PSM
This report only includes Adult Efavirenz/Lamivudine/Tenofovir (TLE) and Nevirapine/Lamivudine/Zidovudine (NLZ). 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.

2. Number of full doses of malaria treatment
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 only Artemether/Lumefantrine and Artesunate/Amodiaquine formulas this quarter.

3. Number of Couple Years Protection (CYP) provided by delivered contraceptives

CYP is a standard indicator calculated by multiplying the quantity of each contraceptive method distributed by a conversion factor, to yield an estimate of the duration of contraceptive protection provided per unit of that method. The CYP for each method is then summed for all methods to obtain a total CYP figure. CYP conversion factors are based on how a method is used, failure rates, wastage, and how many units of the method are typically needed to provide one year of contraceptive protection for a couple. The calculation takes into account that some methods, e.g., condoms and oral contraceptives, may be used incorrectly and then discarded, or that intrauterine devices (IUDs) and implants may be removed before their life span is realized. This GHSC-PSM measure includes all condoms, IUDs, and hormone (oral, injectable, and implantable) contraceptives delivered over the life of the project, with the conversion factor provided by USAID/MEASURE (see https://www.usaid.gov/what-we-do/global-health/family-planning/couple-years-protection-cyp for details).

Explanatory notes on current data

Data for the project's core logistics indicators were fully generated using ARTMIS and LMIS reports. This includes all data for both on-time, in-full (OTIF) and on-time delivery (OTD), cycle time, total landed costs, and price variance. The Global Supply Chain team is actively using system-generated data on a daily basis.

Delivery data presented in this report reflect orders captured in the system and marked as delivered or expected to be delivered between January 1 and March 31, 2018 at the time that the data were analyzed (April 24, 2018). Given that indicator A16, "percentage of backlogged line items," must be calculated two weeks after the reporting period end date, data were analyzed on April 15, 2018 for A16. Because GHSC-PSM continues to clean and update the data in the system daily, as described below, data pulled at a different point in time for the same time period may reflect additional updates. GHSC-PSM will continue to push for timely data entry; however, some degree of data lag is inherent in the global supply chain data system. Due to continuous data quality assessment actions, the figure presented in the annual report may differ slightly from a calculation derived from previously reported data.

During this reporting period, Q2 FY18, some noteworthy milestones were reached:
• The OTD Dashboard was launched through a series of presentations and written guidelines.
• Namibia country data quality assessment was conducted
• Participation in Track20 consultation meeting on family planning service statistics
• Regular contributions to reinforce USAID evidence base

Data Quality
GHSC-PSM continues its commitment to providing internal and external stakeholders with the highest possible data quality. This is accomplished through a range of continuous actions specifically designed to identify, validate, and revise incorrect data. Actions include:
1. Ad hoc data quality improvement:
When users identify inaccurate data, they report the necessary changes to the ARTMIS HelpDesk. Progress for resolving data-quality tickets is reviewed twice a week.

2. Comprehensive DQA:
Each quarter, key data underlying the OTD calculations for line items with a delivery date in the current quarter are fully validated through two independent mechanisms.

a. Actual delivery date validation
The actual delivery date is the date that GHSC-PSM delivers a line item to the recipient. To assess the quality of this data field in ARTMIS, we survey data from each commodity group and confirm that the data fields are accurate to >95% (with < 5% α or β errors). If a group does not pass this rigorous test, evidence is inspected to confirm the ARTMIS data of each and every line item within that group. If applicable, the original scan of the proof of delivery (PoD) is retrieved, examined, and verified. After each line item was reviewed, we corrected any discrepancies before calculating the reported data.

b. Agreed delivery date (ADD)
The ADD is the date that GHSC-PSM commits to deliver a line item to the recipient. It is established at the time that a requisition order (RO) is approved and is the point of reference for determining if an order was delivered on time. Because the ADD is now system-generated – it is automatically designated according to product specifications and other attributes – it is not subject to input error. However, if an ADD is modified for any reason, this risk is re-introduced. All adjusted ADDs were validated and the following attributes were confirmed: 1) they were only changed for reasons considered valid by USAID, and 2) they were substantiated with the requisite approvals and backup documentation.

This systematic review demonstrated that actual delivery dates and ADDs in ARTMIS are valid.

Field Office Reporting and Data Validation

Each quarter, the field offices face an expedited data collection, reporting, and analysis schedule. They must submit their indicator data within five working days of the period end. Once the data are transmitted by field offices, the GHSC-PSM headquarters M&E team conduct a systematic review to validate the data before additional analysis and aggregation can be done. Working closely with technical and M&E staff in the field, we ensure that each data point is uniformly high quality and can be harmonized across the project. This schedule allows us to be responsive to the quick turnaround required for appropriate document review and finalization. However, it makes it difficult for teams to digest the results, incorporate evidence, and report on the usage of indicator data in this document. We continue to promote additional feedback measures that will contribute to even greater usage.

Summary of Performance

The following tables include indicator values for performance indicators, presented by quarter, health area, and tracer product, as relevant. These performance indicators assess the outcomes of routine supply chain operations. While the performance on many of these indicators may not be immediately attributable to GHSC-PSM's activities in the short term, all are related to the project's long-term goal of ensuring an uninterrupted supply of health commodities in country public health systems.

We also report on context indicators, providing values by country. With each indicator table, we provide a definition of the indicator, our analysis, and known data limitations. For country performance indicators, targets are set in-country through consultations that include field offices, USAID missions, government counterparts, and project technical staff and leadership. Progress on these indicators, including B1, B2, B3, and C10, will be monitored against the country-level targets and reported in the annual report; no aggregated project- or task order-level targets will be set.

Context Indicators

Context indicators are meant to provide high-level insight into the public health commodity supply chain systems that GHSC-PSM and our partners are working to strengthen. They guide strategic direction for stakeholders (including GHSC-PSM field offices, ministries of health, donors, NGOs, and others) working to improve supply chain performance. GHSC-PSM will routinely monitor these indicators to identify areas where systems strengthening is needed and to assess the effectiveness of system strengthening approaches. With the collective contribution of GHSC-PSM and other key stakeholders, we expect to see improvements in these indicators over time.

The majority of context indicators are compiled from existing in-country data platforms such as LMIS and warehouse management systems, which GHSC-PSM is working to strengthen in many countries to enable governments to more fully use the data for supply chain decision-making. GHSC-PSM compiles context indicator data for all countries in which the project maintains a field office, regardless of the extent of the project's engagement in the country. Therefore, the results in a given country, for a specific point in time, are not solely a consequence of GHSC-PSM's activities, but rather are reflective of the many stakeholders and elements that influence in-country supply chain performance.

Beyond system strengthening activities, these contextual data (including data from the Procurement Planning and Monitoring Report [PPMR], Procurement Planning and Monitoring Report for Malaria [PPMRm], Pipeline, and other platforms, in addition to GHSC-PSM's context indicators) are the basis for the GHSC-PSM-led regional approach to address commodity imbalances across countries. GHSC-PSM works with the international donor community to identify and respond immediately to shortages of life-saving commodities.

Section A: Fiscal Year 2018 Key Performance Overview-IDIQ							
Reporting Period (Quarter) Start Date			**10/01/2017**	**01/01/2018**	**04/01/2018**	**07/01/2018**	**10/01/2017**
Reporting Period (Quarter) End Date			**12/31/2017**	**03/31/2018**	**06/30/2018**	**09/30/2018**	**09/30/2018**
Summary Performance to Date			**FY2018 Q1**	**FY2018 Q2**	**FY2018 Q3**	**FY2018 Q4**	**FY2018**
Global Supply Chain							
A1a.	Percentage of line items delivered on time and in full, within the minimum delivery window – %		49%	67%			
A1b.	Percentage of line items delivered on time, within the minimum delivery window – %		72%	73%			
A3.	Cycle time (average) – # (days per shipment)		212	202			
A4.	Inventory turns (average number of times inventory cycles through GHSC-PSM-controlled global facilities) – ratio		Annual Indicator				
A5.	Total landed cost (logistics costs) – %		9%		Semiannual		
A13.	Percentage of batches of product showing nonconformity (out of specification percentage) – %		0.4%	0.2%			
In-Country							
B1.	Stockout rate at SDPs – %		12%	15%			
B2.	Percentage of stock status observations in storage sites where commodities are stocked according to plan, by level in supply system – %		26%	23%			
B3.	SDP reporting rate to the logistics management information system (LMIS) – %		84%	85%			
B8.	Percentage of initially GHSC-PSM-supported supply chain functions carried out by national authorities without external technical assistance – %		**Annual Indicator**				
Cross-cutting							
C2.	Number of people trained – #	TO-Specific Trainings Combined	1,723	4,587			
		Cross-TO Trainings	1,879	3,015			
		All Trainings (TO-Specific & Cross-TO)	3,602	7,602			

Important: Key performance metrics on this page are intended to provide an overall snapshot of the project's performance. They may conceal nuances of TO performance and must be interpreted in light of individual TO performance or granular data.

Section B: Fiscal Year 2018 Key Performance Overview by Task Order

Performance to Date

		IDIQ	Task Order 1					Task Order 2					Task Order 3					Task Order 4				
		FY18 Target*	TO1 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO2 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO3 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO4 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2
Global Supply Chain																						
A1a	Percentage of line items delivered on time and in full, within the minimum delivery window – % *(in parentheses: Total number of line items delivered)*	80%	N/A	25% (809)	35% (985)	50% (1,505)	61% (1,042)	N/A	15% (125)	14% (108)	32% (82)	43% (137)	N/A	5% (20)	28% (57)	62% (42)	94% (311)	N/A	0% (1)	100% (1)	80% (15)	70% (10)
A1b	Percentage of line items delivered on time within the minimum delivery window – % *(in parentheses: Total number of ADDs in the quarter)*	80%	N/A	N/A	31% (1181)	73% (1,061)	69% (1,013)	N/A	N/A	19% (77)	59% (66)	46% (145)	N/A	N/A	59% (29)	79% (34)	94% (331)	N/A	N/A	50% (2)	85% (13)	100% (8)
A2	Percentage of QA processes completed within the total estimated QA lead times - %		N/A					80%	81%	74%	82%	99%	N/A					N/A				
A3	Cycle time (average) – # (days per line item delivered)		158	154	185	206	212	262	234	313	316	267	RDC: 176 Direct Drop: 224	220	250	RDC: 236 Direct Drop: 217	RDC: 189 Direct Drop: 129	N/A	310	26	190	235
A4	Inventory turns (average number of times inventory cycles through GHSC-PSM-controlled global facilities) – ratio		4	3.3		Annual		3	2.0		Annual		3	2.1		Annual		N/A				
A5	Total landed cost (logistics costs) – %	8%	N/A	7%		7%		N/A	15%		16%		N/A	14%		9%		N/A	2%		19%	
A6a	Absolute percent supply plan error, with variants mean absolute percent error (MAPE) and forecast bias – %	30%	See A6a indicator pages for detailed data for this indicator.																			
A6b	Absolute percent forecast error, with variants mean absolute percent error (MAPE) and forecast bias – %	35%	See A6b indicator pages for detailed data for this indicator.																			
A7	Percentage of line items imported using a temporary registration waiver (temporary waiver percentage) – %		Not required	N/A	N/A	N/A	N/A	Not required	N/A	N/A	N/A	N/A	Not required	35%	65%	N/A	N/A	Not required	N/A	N/A	N/A	N/A
A8	Average percentage of shelf life remaining for warehoused commodities, weighted by the value of each commodity's stock (product at risk percentage) – %		78%	77%	79%	82%	81%	70%	61%	61%	74%	74%	75%	65%	75%	81%	84%	N/A				

A2 (QA lead times) is not reported for TO1, TO3, or TO4. Reason: QA processes for these TOs are managed by the GHSC-QA project.

A7 (temporary waiver percentage) is not reported. Reason: The project is still operationalizing sources and indicator calculations.

****Targets reflect anticipated project performance by end of FY18 (September 30, 2018).***

Performance to Date

Indicator			IDIQ FY18 Target*	Task Order 1 TO1 FY18 Target*	TO1 2017 Q3	TO1 2017 Q4	TO1 2018 Q1	TO1 2018 Q2	Task Order 2 TO2 FY18 Target*	TO2 2017 Q3	TO2 2017 Q4	TO2 2018 Q1	TO2 2018 Q2	Task Order 3 TO3 FY18 Target*	TO3 2017 Q3	TO3 2017 Q4	TO3 2018 Q1	TO3 2018 Q2	Task Order 4 TO4 FY18 Target*	TO4 2017 Q3	TO4 2017 Q4	TO4 2018 Q1	TO4 2018 Q2	Cross-Cutting FY18 Target*	Cross-Cutting 2017 Q3	Cross-Cutting 2017 Q4	Cross-Cutting 2018 Q1	Cross-Cutting 2018 Q2
A10	Percentage of product procured using a framework contract (framework contract percentage) – %			75%	82%	74%	71%	70%	30%	0.1%	11.0%	24%	29%	95%	100%	98%	99%	99%	55%	N/A	98%	100%	100%	N/A				
A12	Percentage of price variance between the median unit price paid during the quarter and the median unit price paid over the life of the project – %			See A12 indicator page for detailed data for this indicator. Target not required.																								
A13	Percentage of batches of product for which the final result is showing nonconformity (out of specification percentage) – %			N/A					<1%	0%	2%	0.4%	0.2%	N/A					N/A					N/A				
A14	Average vendor rating score – rating	Suppliers		Not required	81%	87%	N/A	N/A	Not required	90%	94%	N/A	N/A	Not required	85%	94%	N/A	N/A	Not required	N/A	N/A	N/A	N/A	Not required				
		Laboratory QA								76%	46%	77%	86%															
		Freight forwarders																							69%	64%	76%	73%
A15	Percentage of QA investigation reports submitted within 30 calendar days of outcome determination (QA investigation report submission) – %			N/A					90%	100%	67%	100%		N/A					N/A					N/A				
A16	Percentage of backlogged line items – %		<5%	N/A	N/A	N/A	5%	4%	N/A	N/A	N/A	6%	7%	N/A	N/A	N/A	1%	2%	N/A	N/A	N/A	10%	0%	N/A				
In-Country Performance and Sustainability																												
B1	Stockout rate at SDPs – %			Set at the country level	8%	5%	6%	9%	Set at the country level	21%	19%	13%	16%	Set at the country level	31%	29%	13%	18%	Set at the country level	N/A				N/A				
B2	Percentage of stock status observations in storage sites where commodities are stocked according to plan, by level in supply system – %				29%	35%	33%	34%		13%	21%	25%	24%		10%	14%	19%	15%		5%	30%	29%	13%	N/A				
B3	SDP reporting rate to the logistics management information system (LMIS) – %				91%	90%	83%	88%		85%	83%	83%	89%		79%	80%	79%	82%		77%	78%	72%	80%	N/A				
B4	Average rating of in-country data confidence at the central, subnational, and SDP levels – rating (0-9 scale)			Not required	5.4		Annual		Not required	5.9		Annual		Not required	6.3		Annual		Not required	5.7		Annual		N/A				

A9 and A11 have been dropped from the GHSC-PSM M&E plan with approval from USAID.

A13 (out of specification percentage) is not reported for TO1, TO3, or TO4. Reason: QA processes for these TOs are managed by the GHSC-QA project.

A14 (average vendor rating score) is not reported for QA vendors for TO1, TO3, or TO4. Reason: QA processes for these TOs are managed by the GHSC-QA project. Supplier scorecard is undergoing revisions; data to be reported in a future report.

A15 (QA investigation report submission) is not reported for TO1, TO3, or TO4. Reason: QA processes for these TOs are managed by the GHSC-QA project.

****Targets reflect anticipated project performance by end of FY18 (September 30, 2018).***

Performance to Date

Indicator		Task Order 1					Task Order 2					Task Order 3					Task Order 4					Cross-Cutting					
		TO1 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO2 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO3 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO4 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2
B5	Percentage of required annual forecasts conducted – %	Annual Indicator Targets: ARV 87%, RTK 88%, Condoms 88%, Lab (HIV diagnostic) 85%, VMMC 60%, Malaria 86%, PRH 86%, MNCH 67%																								
B6	Percentage of required supply plans submitted to GHSC-PSM during the quarter – %	See B6 indicator page for detailed data for this indicator. Targets: ARV 87%, RTK 88%, Condoms 88%, Lab (HIV diagnostic) 85%, VMMC 60%, Malaria 86%, PRH 86%, MNCH 67%																								
B7	Percentage of total spent or budgeted on procurement of commodities for public sector services by the government, the U.S. government, the Global Fund, or other sources – %	Annual Indicator. Target not required.																								
B8	Percentage of initially GHSC-PSM-supported supply chain functions carried out by national authorities without external technical assistance – %	Annual Indicator. Targets set at the country level.																								
B9	Supply chain technical staff turnover rate – ratio	Annual Indicator. Target not required.																								
B10	Percentage of countries that have a functional logistics coordination mechanism in place – %	Not required	80%		Annual		Not required	92%		Annual		Not required	93%		Annual		Not required	70%		Annual		N/A	N/A			
B11	Percentage of leadership positions in supply chain management that are held by women (in countries where GHSC-PSM is providing technical assistance related to workforce development) – %	Not required	53%		Annual		Not required	33%		Annual		Not required	41%		Annual		Not required	46%		Annual		N/A	Annual Indicator			
B12	Mean absolute percent consumption forecast error, with forecast bias variant – %	Annual Indicator. Target not required.																								
C1	Number of innovations (including operations research studies) that were developed, implemented, or introduced and are related to the health commodity market or supply chain best practices – #	Not required	1	4	3	1	Not required	1	1	1	1	Not required	1	2	2	3	Not required	0	0	0	1	N/A	1	5	3	4
C2	Number of people trained – #	Not required	680	1,056	1,362	505	Not required	17	430	37	2,146	Not required	0	14	99	1,936	Not required	0	0	225	0	N/A	2,872	6,253	1,879	3,015

C3 has been dropped from the GHSC-PSM M&E plan with approval from USAID.

****Targets reflect anticipated project performance by end of FY18 (September 30, 2018).***

Performance to Date

Indicator		Task Order 1					Task Order 2					Task Order 3					Task Order 4					Cross-Cutting				
		TO1 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO2 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO3 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	TO4 FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2	FY18 Target*	2017 Q3	2017 Q4	2018 Q1	2018 Q2
C4	Percentage of required files submitted to BI&A in the reporting period – %	N/A					N/A					N/A					N/A					TBD	N/A	N/A	77%	88%
C5	Percentage of required files timely submitted to BI&A in the reporting period – %	N/A					N/A					N/A					N/A					TBD	N/A	N/A	77%	86%
C6	Percentage of complete submissions reported to BI&A in the reporting period – %	N/A					N/A					N/A					N/A					TBD	N/A		N/A	
C7a	Percentage of product lost due to expiry while under GHSC-PSM control (product loss percentage – Expiry) – %	See C7a indicator page for detailed data for this indicator. Target not required.																								
C7b	Percentage of product lost due to theft, damage, or other causes while under GHSC-PSM control (product loss percentage – theft, damage, other) – %	See C7b indicator page for detailed data for this indicator. Target not required.																								
C8	Number of global advocacy engagements in support of improved availability of essential health commodities – #	Not required	4		4		Not required	3		3		Not required	6		10		Not required	6		0		Not required	13		5	
C10	Percentage of GHSC-PSM-procured or supported molecular instruments that remained functional during the reporting period – %	Set at the country level	79%	88%	89%	72%	N/A					N/A					N/A					N/A				

C6 (accurate submissions to BI&A) is not reported at this time. Reason: The project is still operationalizing sources and indicator calculations.

C9 has been dropped from the GHSC-PSM M&E plan with approval from USAID.

Targets reflect anticipated project performance by end of FY18 (September 30, 2018).

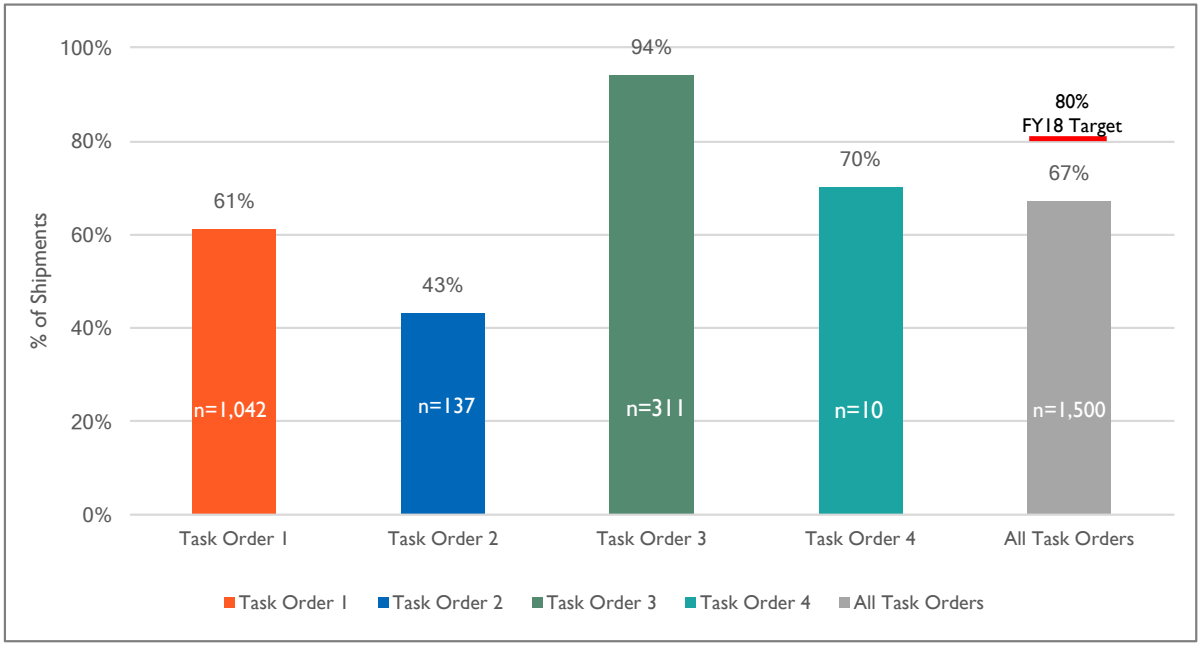
A1a. Percentage of line items delivered on time and in full, within the minimum delivery window

Measure Definition

Numerator: Number of line items delivered to the recipient on time and in full during the quarter.
Denominator: Total number of line items delivered to the recipient during the quarter.
Purpose: On time, in full (OTIF) is a measure of supply chain reliability. This indicator depicts the degree to which the right products are delivered on time (defined for the project as no more than 14 days before or 7 days after the agreed delivery date) and in the right quantity, as specified by the customer.

Task Order	FY18 Target	Achievement FY2018 Q2	Achievement Year to Date*
TO1	N/A	61%	56%
TO2	N/A	43%	41%
TO3	N/A	94%	90%
TO4	N/A	70%	76%
All TOs	80%	67%	59%

Indicator Performance FY2018 Q2



Analysis

- On-time, in-full performance improved from the previous quarter, from 49 to 67 percent. This result shows the outcome of the reduction in the backlog, and achievement in Q1 that has been sustained through Q2 (see indicator A16). With the bulk of lingering backlog now delivered, OTIF results have begun to rise and converge with OTD.

Data Notes

- 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.
- Targets reflect anticipated project performance by end of FY18 (September 30, 2018)
- *Year to Date performance is calculated using all data currently available, which may include data that was not available at the time of reporting for previous quarters. Current year to date figures may differ slightly from a calcuation derived from previously reported data.

A1a. Percentage of line items delivered on time and in full, within the minimum delivery window (tracer product category)

HIV	Total number of line items delivered	Number of line items delivered on time and in full	On time in full (%)
Task Order 1	1,042	640	61%
Adult ARVs	103	44	43%
Condoms	67	58	87%
Food and WASH	24	0	0%
HIV RTK			
Laboratory	591	413	70%
Other Non-pharma	77	47	61%
Other Pharma	84	33	39%
Other RTK	6	3	50%
Pediatric ARVs	62	28	45%
Prefab			
Vehicles and Other Equipment			
VMMC	28	14	50%

Malaria	Total number of line items delivered	Number of line items delivered on time and in full	On time in full (%)
Task Order 2	137	59	43%
ACTs	50	31	62%
LLIN	37	8	22%
Other Pharma	1	1	100%
RDTs	6	3	50%
Severe Malaria Medicines	12	3	25%
Sulphadoxine-pyrimethamine	9	1	11%
All Other Non-pharma	22	12	55%

PRH - Method Level	Total number of line items delivered	Number of line items delivered on time and in full	On time in full (%)
Task Order 3	311	292	94%
Combined Oral Contraceptives	8	5	63%
Copper-bearing Intrauterine Devices	8	8	100%
Emergency Oral Contraceptives			
Implantable Contraceptives	17	13	76%
Injectable Contraceptives	19	11	58%
Progestin-only Pills	4	3	75%
Standard Days Method	2	1	50%
All Other TO3 Products	253	251	99%

Maternal and Child Health	Total number of line items delivered	Number of line items delivered on time and in full	On time in full (%)
Task Order 4	10	7	70%
Laboratory			
Other Non-pharma			
Other Pharma	10	7	70%

Blank rows indicate that no line items for these product categories were delivered this quarter.

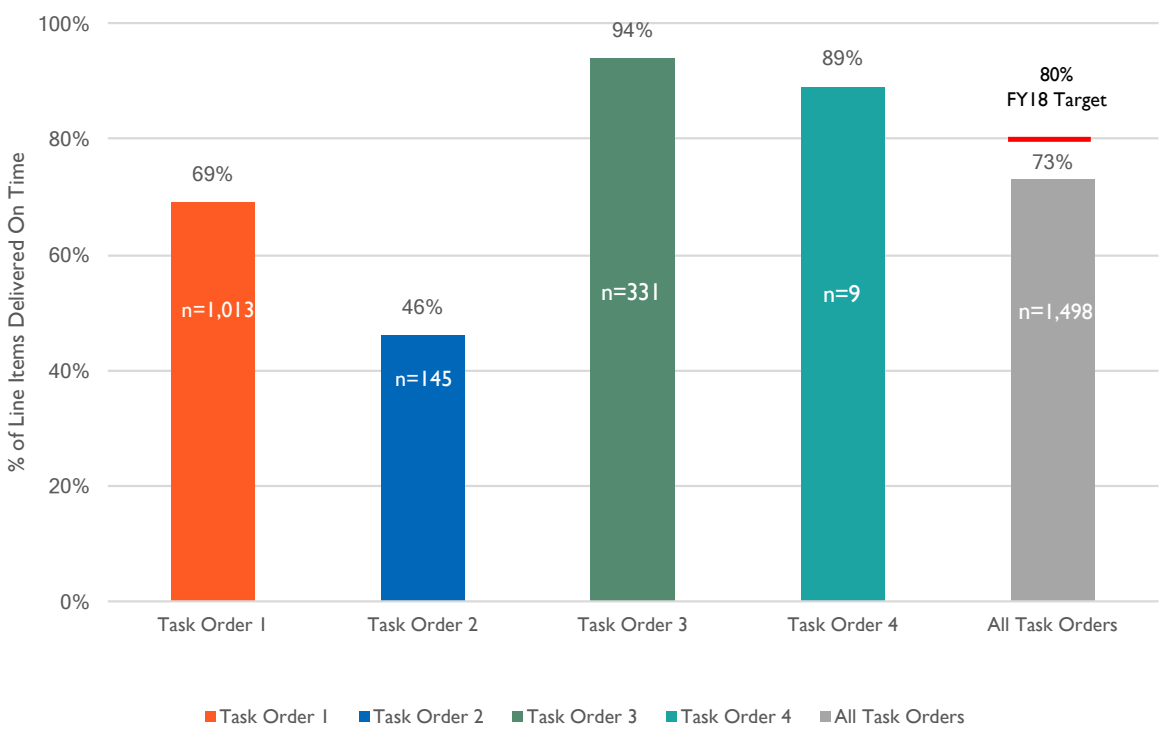
A1b. Percentage of line items delivered on time, within the minimum delivery window

Measure Definition

Numerator: Number of line items with an agreed delivery date during the quarter that were delivered to the recipient on time.
Denominator: Total number of line items with an agreed delivery date during the quarter.
Purpose: On time delivery (OTD) is an essential, industry-standard measure of supply chain reliability. It reflects the extent to which customers can be confident that their order will arrive at the right time, defined for the project as no more than 14 days before or 7 days after the agreed delivery date.

Task Order	FY18 Target	Achievement	
		FY2018 Q2	Year to Date*
TO1	N/A	69%	71%
TO2	N/A	46%	51%
TO3	N/A	94%	92%
TO4	N/A	89%	86%
All TOs	80%	73%	72%

Indicator Performance FY2018 Q2



Analysis

- Overall OTD performance has remained steady from the first quarter, at 72 percent in Q1 to 73 percent in Q2. The project also had a higher volume of commitments this quarter, rising from 1,174 at the time of reporting last quarter to 1,498 in Q2.
- Task Order 3 saw a strong improvement, from 79 to 94 percent on-time deliveries from Q1 to Q2. The number of commitments also increased, due to Ebola orders with a large number of line items, nearly all of which were delivered on time.
- Task Order 2 performance fell, from 59 percent in Q1 to 46 percent in Q2. This was driven by three factors: poor supplier performance, the lagging effect of earlier orders for which our delivery commitments were poorly set, and a large number of deliveries to three countries with long waiver lead times. The project has implemented initiatives to address supplier performance, increase the accuracy of our delivery commitments, and reduce long waiver lead times.
- Task Order 1 performance fell slightly from the previous quarter, from 73 to 69 percent. There were improvements in some key product categories, including pediatric ARVs (59 to 73 percent) and condoms (62 to 81 percent).

Data Notes

- 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.
- Targets reflect anticipated project performance by end of FY18 (September 30, 2018).
- *Year to Date performance is calculated using all data currently available, which may include data that were not available at the time of reporting for previous quarters. Current year-to-date figures may differ slightly from a calcuation derived from previously reported data.

A1b. Percentage of line items delivered on time, within the minimum delivery window (tracer product category)

HIV	Total number of line items with ADDs in the quarter	Number of line items with ADDs in the quarter delivered on time	On Time Delivery (%)
Task Order 1	1,013	702	69%
Adult ARVs	102	58	57%
Condoms	74	60	81%
Food and WASH	24	0	0%
HIV RTK			
Laboratory	598	439	73%
Other Non-pharma	80	51	64%
Other Pharma	61	40	66%
Other RTK	5	3	60%
Pediatric ARVs	51	37	73%
Prefab			
Vehicles and Other Equipment			
VMMC	18	14	78%

Malaria	Total number of line items with ADDs in the quarter	Number of line items with ADDs in the quarter delivered on time	On Time Delivery (%)
Task Order 2	145	67	46%
ACTs	49	32	65%
LLIN	31	11	35%
Other Pharma	3	1	33%
RDTs	12	6	50%
Severe Malaria Medicines	22	4	18%
Sulphadoxine-pyrimethamine	3	1	33%
All Other Non-pharma Products	25	12	48%

PRH - Method Level	Total number of line items with ADDs in the quarter	Number of line items with ADDs in the quarter delivered on time	On Time Delivery (%)
Task Order 3	331	310	94%
Combined Oral Contraceptives	7	6	86%
Copper-bearing Intrauterine Devices	8	8	100%
Emergency Oral Contraceptives			
Implantable Contraceptives	18	15	83%
Injectable Contraceptives	22	12	55%
Progestin-only Pills	5	3	60%
Standard Days Method	2	1	50%
All Other TO3 Products	269	265	99%

Maternal and Child Health	Total number of line items with ADDs in the quarter	Number of line items with ADDs in the quarter delivered on time	On Time Delivery (%)
Task Order 4	9	8	89%
Laboratory			
Other Non-pharma			
Other Pharma	9	8	89%

Blank rows indicate that no line items for these product categories had ADDs in this quarter.

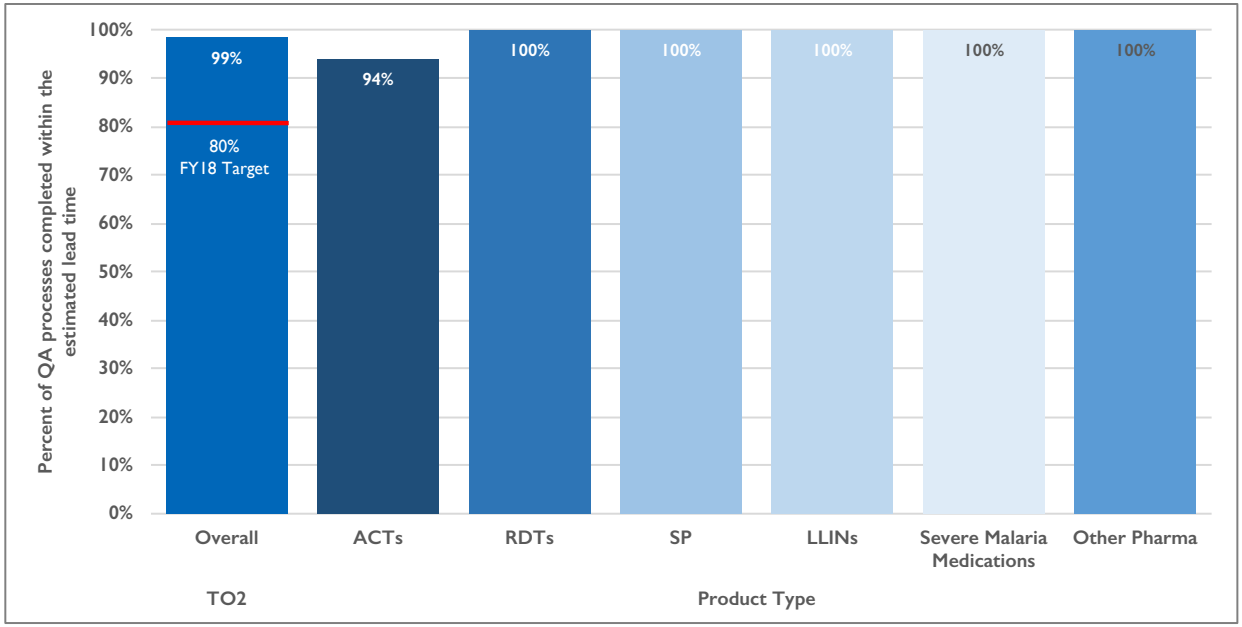
A2. Percentage of quality assurance (QA) processes completed within the total estimated QA lead times

Measure Definition

Numerator: Number of consignments complying with the pre-established QA lead times during the quarter.
Denominator: Total number of consignments requiring QA processes that were cleared for shipment during the quarter.
Purpose: This indicator reports on the timeliness of completion of quality assurance (QA) processes. It gives insight into how well the project is managing its QA subcontracts and the impact of QA procedures on the overall product procurement and delivery cycle time.

Task Order	FY18 Target	Achievement FY2018 Q2	Achievement Year to Date
TO1	N/A	N/A	N/A
TO2	80%	99%	91%
TO3	N/A	N/A	N/A
TO4	N/A	N/A	N/A

Indicator Performance FY2018 Q2



Analysis

- Significant improvements have been demonstrated by the lab network, in particular with capacity to meet contractual lead times for SPAQ DT, ASAQ, and generic ALu. This was accomplished by providing the lab network with improved forecasts of future test requests, procuring stock of reference materials, and continuous communication with the labs to ensure the labs understood the requirements of TO2 QA. It should be noted that all three primary pharmaceutical QC laboratories have increased their staff and equipment to improve lab throughput.
- Challenges will remain with maintaining this level of compliance for all products, in particular generic ALu. These products are complicated to test and there will be a high volume of test requests in the coming quarter due to multiple procurements with similar goods availability dates. TO2 QA will work with the TO2 Procurement team to prioritize the procurements accordingly (as per ADD and/or in-country stock situations).

Data Notes

- Total number of consignments requiring QA processes that were cleared for shipment this quarter is 66. Consignment is defined as a shipment of commodities, including one or more line items. QA process transactions are managed at the consignmnet level, regardless of the number of line items in the consignment.
- Exceptional procedures outside of routine QA testing and clearance have been excluded from the indicator. This includes consignments requiring QA investigations, method transfers, non-PMI procurements, post-shipment quality control, and LLIN shipments requiring witnessing of loading and/or sealing of goods. Three consigments were excluded this quarter for these reasons.
- 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.
- Target reflects anticipated average project performance for the full 2018 fiscal year (October 2017-September 2018).

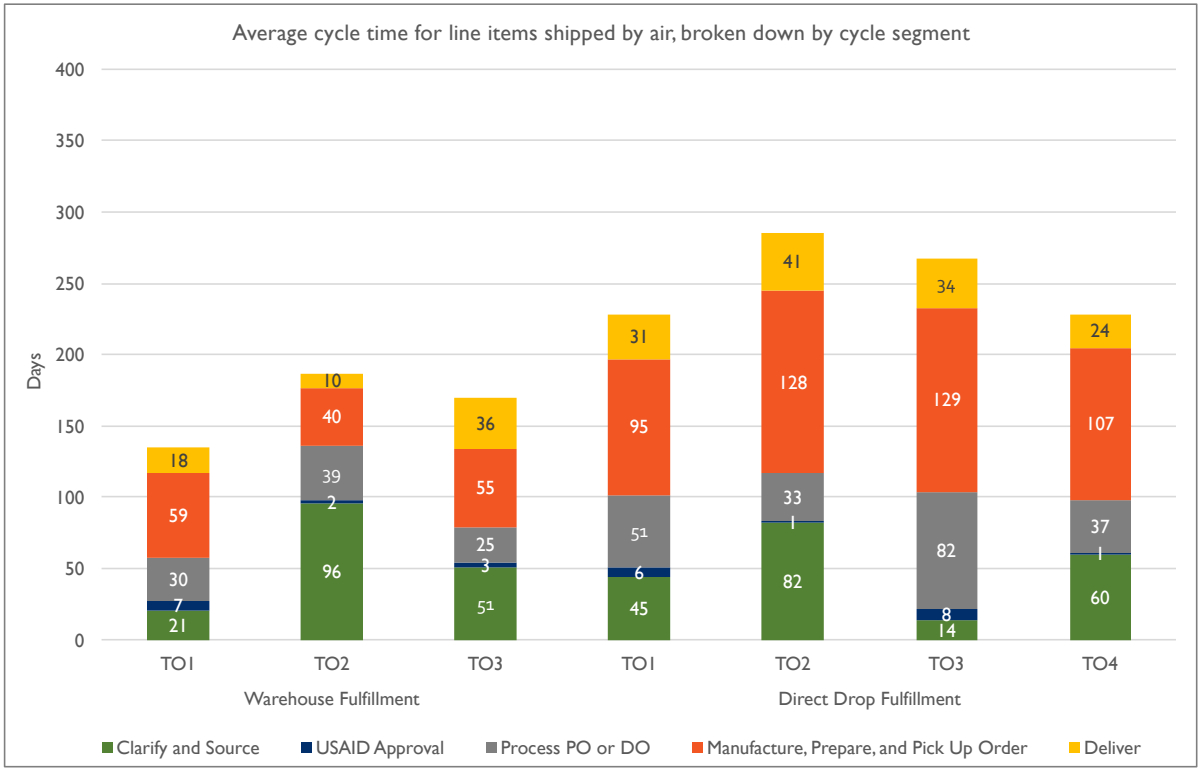
A3. Cycle time (average) - # (days per line item delivered)

Measure Definition

Numerator: Sum of cycle time for all line items delivered during the quarter.
Denominator: The count of all line items delivered during the quarter.
Purpose: Cycle time is the number of days between when a customer order is submitted and when it is filled. It reflects the responsiveness of the GHSC-PSM supply chain and how quickly customer orders are being filled.

Task Order	FY18 Target	Achievement (All Modes) FY2018 Q2	Achievement (All Modes) Year to Date*
TO1	158	212	207
TO2	262	267	284
TO3	176 (RDC); 244 (direct drop)	189 (RDC) 129 (DD)	204 (RDC) 135 (DD)
TO4	N/A	235	208
All TOs	N/A	202	206

Indicator Performance FY2018 Q2



Analysis

- Overall cycle time across task orders and fulfillment methods averaged 202 days in Q2, a 5 percent reduction from the previous quarter. Average task order cycle times declined for TOs 2 and 3 and showed a small increase for TO1.
- While Task Order 2 has the longest cycle time across the project, it also saw a strong improvement from the previous quarter, falling by 16 percent. It is coming closer in line with its FY2018 target of 262 days.
- Task Order 3 cycle times also fell, both for direct drop and RDC fulfillments. The most dramatic decrease was in direct drop cycle times, although this was driven by the large volume of Ebola line items that were procured through TO3. Cycle times may increase in the future as TO3 resumes a normal volume of direct drop deliveries. For RDC fulfillments, which represent the majority of TO3's core contraceptive business, overall cycle times fell by 20 percent, from 263 days to 189 days. The project is closing in on its RDC target of 176 days.
- In addition to the routine cycle segments shown in the charts here, the project added 27 products to the catalog as a result of customer requests for new products. The average time for a new product request to be added to the catalog was 2.6 days.

Data Notes

- Additional milestones and cycle segments are defined in the GHSC-PSM M&E plan. Data for additional segments will be included as the quality and completeness of ARTMIS milestone data improve. At this time, less than 60 percent of line items delivered in the quarter have data available for RO validation and actual goods available date (GAD) milestones.The project has recently changed its policies to improve the quality and capture of actual GADs, which will allow improved reporting in future quarters. These milestones will be excluded from cycle time reporting until data completeness meets this threshold, per the GHSC-PSM M&E plan.
- Task Order 2 quality assurance process segment cycle time (time from Actual GAD to QA Completed Date) could not be calculated this quarter because the start and ending milestones do not meet the 60 percent completeness threshold noted above. However, per the results of indicator A2, 99 percent of QA processes were completed within the pre-established lead times.
- Please note that overall cycle time data presented in this report are inclusive of all days from order entry date to actual delivery date, including all manufacture time and any time an order spends on hold. The MIS and GSC teams are working on procedures to apply hold flags to line items in ARTMIS when appropriate, so that hold time may be excluded from future cycle time calculations, per the project M&E plan. The M&E plan also specifies that a variation of cycle time will be presented with the manufacturing segment (PO release date - actual goods availability date) removed. This segment has not been removed at this time due to incomplete data for GADs, as noted above. Once data completeness for this milestone have improved, the project will present a version of overall cycle time less manufacture time, per the M&E plan.
- Data on overall cycle start and end dates are complete for all line items delivered this quarter. However, internal milestone data are not complete for some line items (as with the GAD example mentioned previously). 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.
- *Year to Date performance is calculated using all data currently available, which may include data that were not available at the time of reporting for previous quarters. Current year-to-date figures may differ slightly from a calcuation derived from previously reported data.
- Targets reflect anticipated project performance by end of FY18 (September 30, 2018).

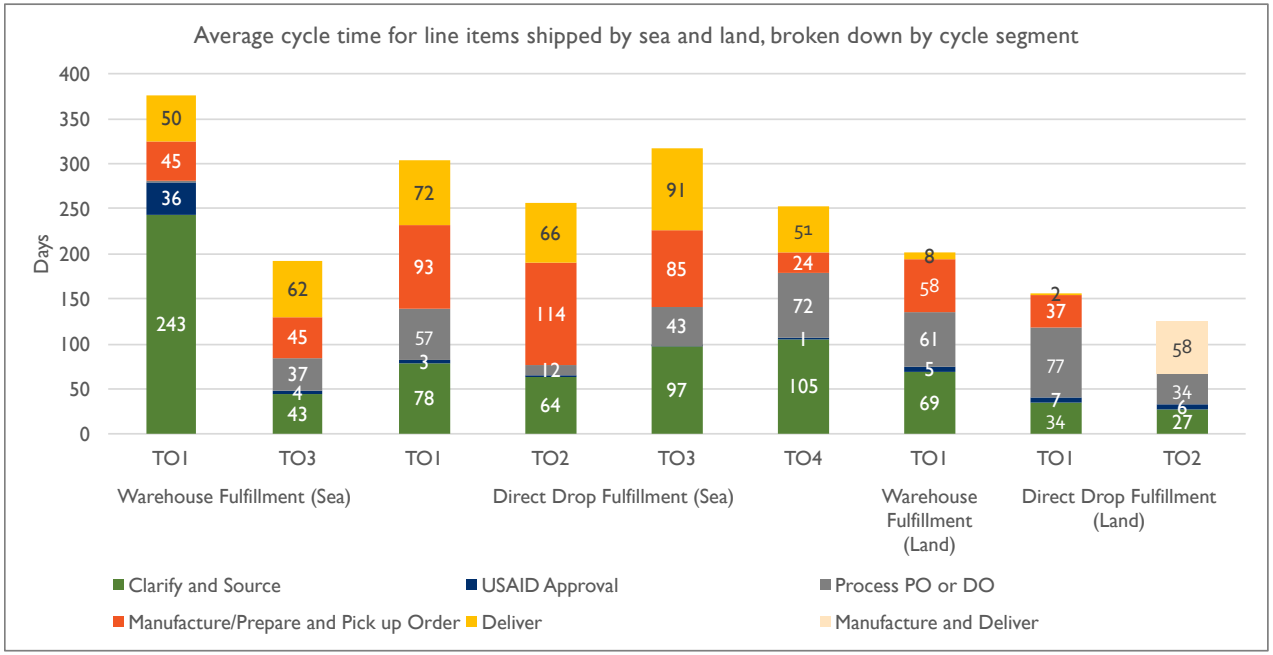
A3. Cycle time (average) - # (days per line item delivered)

Measure Definition

Numerator: Sum of cycle time for all line items delivered during the quarter.
Denominator: The count of all line items delivered during the quarter.
Purpose: Cycle time is the number of days between when a customer order is submitted and when it is filled. It reflects the responsiveness of the GHSC-PSM supply chain and how quickly customer orders re being filled.

Task Order	FY18 Target	Achievement (All Modes) FY2018 Q2	Achievement (All Modes) Year to Date*
TO1	158	212	207
TO2	262	267	284
TO3	176 (RDC); 244 (direct drop)	189 (RDC) 129 (DD)	204 (RDC) 135 (DD)
TO4	N/A	235	208
All TOs	N/A	202	206

Indicator Performance FY2018 Q2



Analysis

- One line item was shipped from the RDC via land for Task Order 3, which is not pictured in the chart to the left. The item had an overall cycle time of 578 days. The item was an injectables order for Mozambique that was placed far in advance of the time it was required in country. The cycle included a long dwell time between the order entry date and recipient approval, as the order was not needed in country for nearly two years after the order entry date. The project is still working to develop policies for identifying dwell times that are the result of advanced planning, so that they may be removed from the active cycle times.

Data Notes

- See above
- Manufacture/Pick Up and Deliver segments have been combined for TO2 Director Drop via land in the above chart due to incomplete milestone data.

A3. Cycle time (average) - Tracer product category

HIV	All channels and modes	Air		Sea		Land	
		Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment	Direct Drop Fulfillment
# of Line Items Delivered	1,042	16	583	5	121	14	303
Task Order 1	212	131	218	377	293	202	171
Adult ARVs	241	116	251		246	194	
Condoms	208		214	377	312		94
Food and WASH	261				261		
HIV RTK							
Laboratory	190		191		350		173
Other Non-pharma	221		228		179		217
Other Pharma	276	182	270		398		291
Other RTK	214		214				
Pediatric ARVs	258	88	270		298	228	
Prefab							
Vehicles and Other Equipment							
VMMC	232	114			268	135	135

Malaria	All channels and modes	Air		Sea		Land
		Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment	Direct Drop Fulfillment	Direct Drop Fulfillment
# of Line Items Delivered	137	11	85		30	11
Task Order 2	267	177	298		264	126
ACTs	254	177	275			
LLIN	316		460		265	618
Other Pharma	76					76
RDTs	271		271			
Severe Malaria Medicines	441		414			
Sulphadoxine-pyrimethamine	277		277			
All Other Non-pharma	140		170		263	77

PRH - Method Level	All channels and modes	Air		Sea		Land
		Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment
# of Line Items Delivered	311	25	262	16	7	1
Task Order 3	137	171	124	193	317	578
Combined Oral Contraceptives	199	128		198	483	
Copper-bearing Intrauterine Devices	132	126		169		
Emergency Oral Contraceptives						
Implantable Contraceptives	260	222	359	156	386	
Injectable Contraceptives	247	132	332	222	261	578
Progestin-only Pills	219	287		151		
Standard Days Method	301		301			
All Other TO3 Products	116		115		308	

Maternal and Child Health	All channels and modes	Air	Sea	Land
		Direct Drop Fulfillment	Direct Drop Fulfillment	Direct Drop Fulfillment
# of Line Items Delivered	10	8		2
Task Order 4	235	230		254
Laboratory				
Other Pharma	235	230		254

Blank rows indicate that no line items for these product categories were delivered this quarter.

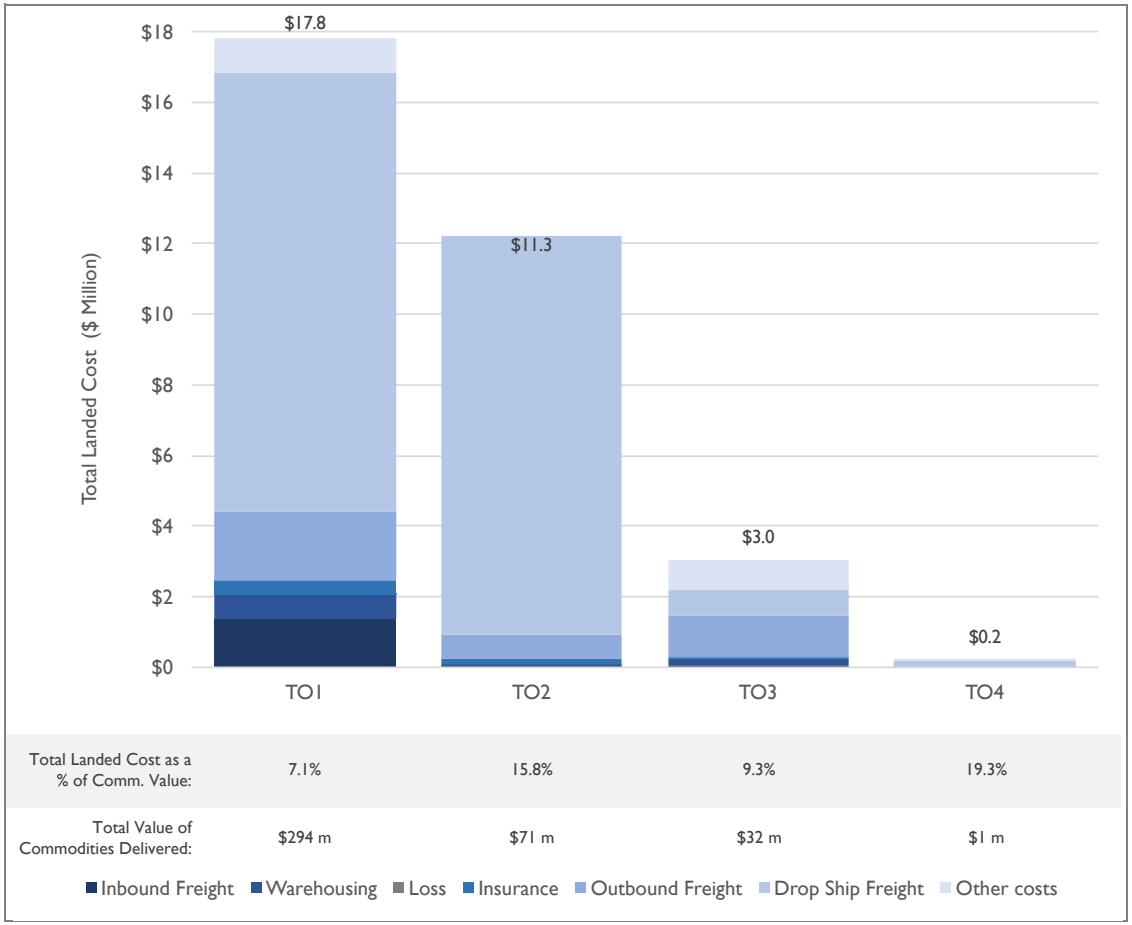
A5. Total landed cost (logistics costs only)

Measure Definition

Numerator: Sum of all logistics costs (in USD) paid by GHSC-PSM during the reporting period.
Denominator: Total value of commodities delivered to customers during the reporting period.

Task Order	Annual Target	Achievement FY2018 Q1-2
TO1	N/A	7.1%
TO2	N/A	15.8%
TO3	N/A	9.3%
TO4	N/A	19.3%
All TOs	8%	9.1%

Indicator Performance



Analysis

- Total landed costs for logistics, as a percentage of total value of commodities delivered, is 9.1 percent across all TOs. This represents a similar cost-per-dollar compared to FY2017 performance (also about 9 percent). The largest reduction is in Task Order 3, which saw its total landed costs fall to 9.3 percent in the first half of FY2018.
- The largest cost category for the project is drop ship freight, which reflects the freight costs associated with direct drop shipments from suppliers to customers. The reflects the project's recent strategy of a relatively greater proportion of direct drops compared to RDC fulfillments (with the exception of TO3). As the project channels more orders through the RDCs, drop ship freight costs are expected to fall. Inbound and outbound freight and warehousing costs may then rise as a proportion of overall logistics spend, but costs are expected to remain under control as a result of savings from the new warehouse configuration and competitive freight lane procurement.
- Task Order 3 fulfills most orders through RDCs, which is reflected in its relatively greater proportion of outbound freight costs compared to drop ship.
- Improved efficiencies are also evident in the increased volume that GHSC-PSM has been able to deliver in the current period. FY2017 deliveries totaled approximately $400 million; GHSC-PSM has already delivered over $350 million in the first half of FY2018.
- Per agreement with USAID, QA costs are not included in this indicator, since GHSC-PSM does not manage QA across all TOs. For TO2, where QA is managed by GHSC-PSM, the total landed cost with QA costs included is $11.8 million (up from $11.3 million without QA). As a percentage of commodities delivered, total landed costs rises from 15.8 percent to 16.6 percent with QA costs included.

Data Notes

- Total landed costs includes all costs paid between October 2017 and March 2018, per Chemonics' financial management information system. Total value of commodtiies delivered includes total value of all line items delivered to customers with an actual delivery date during the same period, per ARTMIS. The indicator includes both GSC and decentralized procurement costs and delivery values.
- The source for expenditures data is the project's Monthly Financial Statement. For this report, the project made one adjustment to correct for a large credit to the Warehousing cost category, recevied from a supplier for whom the project had previously stored a large quantity of product. This indicator was calcuatred with that credit removed, to more accurately capture actual Warehousing expenditures during the period.
- Condom and lubricant deliveries and freight costs are reported under the TO that funded them.

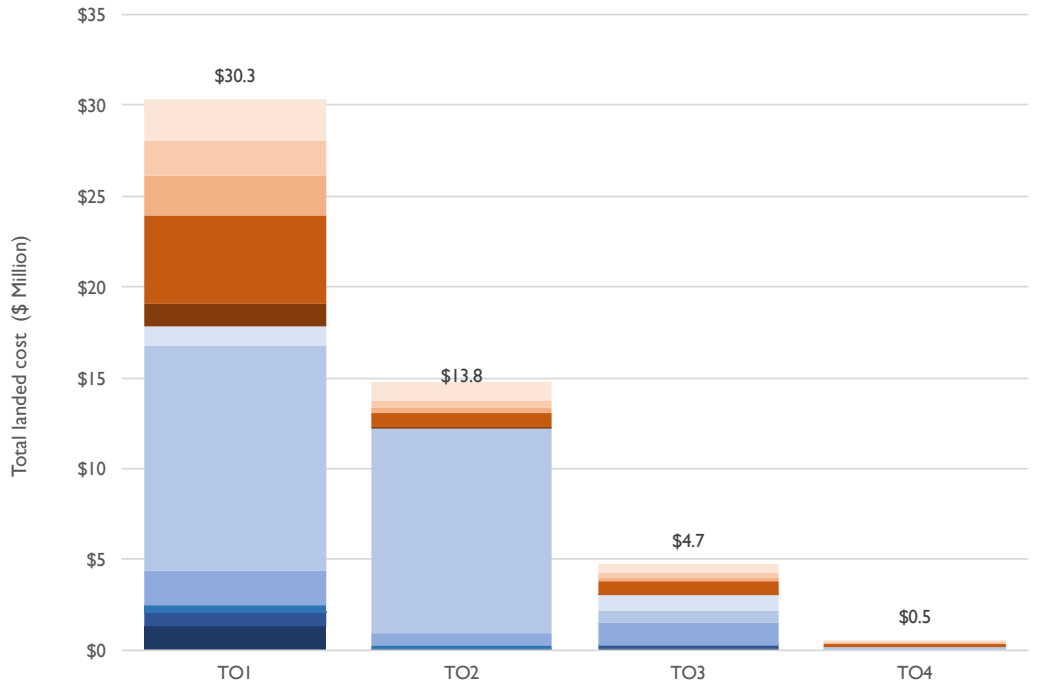
A5. Total landed costs (logistics and HQ operations costs)

Measure Definition

Numerator: Sum of all commodity-related and HQ operations costs (in USD) paid by GHSC-PSM during the reporting period.
Denominator: Total value of commodities delivered to customers during the reporting period.

Task Order	Annual Target	Achievement FY2018 Q1-2
TO1	N/A	12.2%
TO2	N/A	19.4%
TO3	N/A	14.6%
TO4	N/A	50.7%
All TOs	N/A	13.9%

Indicator Performance



	TO1	TO2	TO3	TO4
Total Landed Cost (all) as a % of Comm. Value:	12.2%	19.4%	14.6%	50.7%
Total Value of Commodities Delivered:	$249 m	$71 m	$32 m	$1 m

Inbound Freight; Warehousing; Loss; Insurance; Outbound Freight; Drop Ship Freight; Other costs; Forecasting and Supply Planning; Procurement; Warehousing and Distribution; Monitoring and Evaluation; MIS

Analysis

- Total landed costs, including all logistics costs and HQ supply chain operations, as a percentage of total value delivered, is 13.9 percent for the first half of FY2018.
- The greatest headquaters cost reductions were in MIS and procurement. MIS costs were expected to fall after the initial buildout of ARTMIS was completed. Procurement costs, as a proportion of HQ operations costs, have fallen 20 percent compared to FY2017, while delivery volume has increased significantly. This suggests greater efficiencies across procurement, as the commodity teams have increased their output.
- Per agreement with USAID, QA costs are not included in this indicator, since GHSC-PSM does not manage QA across all TOs. For TO2, where QA is managed by GHSC-PSM, the total landed cost (both logistics and HQ operations) included is $14.5 million, up from $13.8 with QA excluded. As a percentage of commodities delivered, total landed cost rises from 19.4 percent to 20.5 percent.

Data Notes

- Total landed costs includes all costs paid between October 2017 and March 2018, per Chemonics' financial management information system. Total value of commodtiies delivered includes total value of all line items delivered to customers with an Actual Delivery Date during the same period, per ARTMIS. The indicator includes both GSC and decentralized procurement costs and delivery values.
- The source for expenditures data is the project's Monthly Financial Statement. For this report, the project made one adjustment to correct for a large credit to the Warehousing cost category, recevied from a supplier for whom the project had previously stored a large quantity of product. This indicator was calcuatred with that credit removed, to more accurately capture actual Warehousing expenditures during the period.
- Condom and lubricant deliveries and freight costs are reported under the TO that funded them.

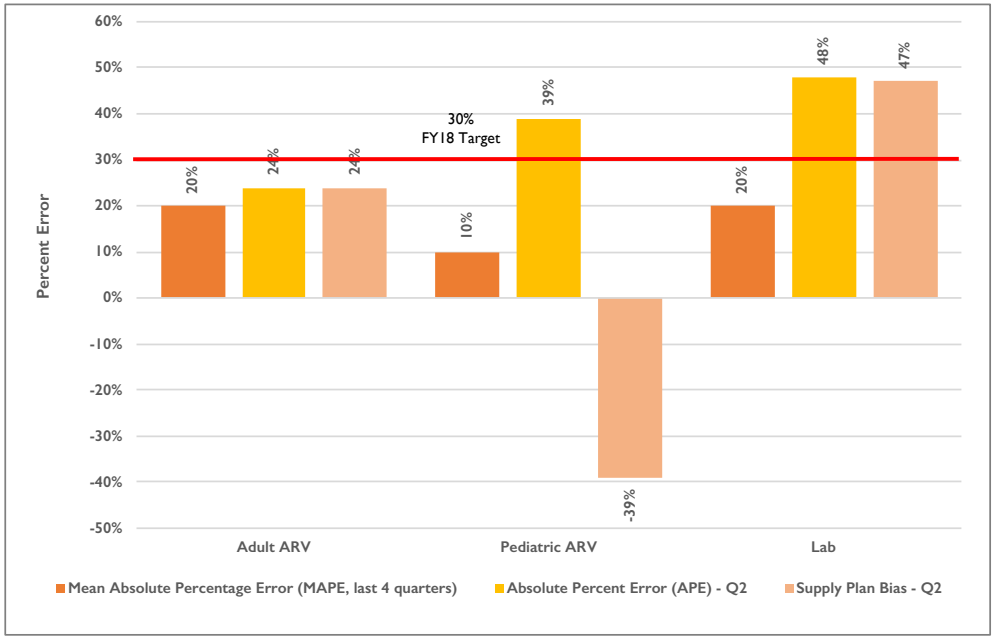
A6a. Absolute percent supply plan error, with variants mean absolute percent error (MAPE) and supply plan bias

Measure Definition

Numerator: 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.
Denominator: Sum of the actual quantities with requested delivery dates during the quarter.
See Data Notes below for variant definitions.
Purpose: This indicator looks at how well country commodity supply plans match the commodities which were actually delivered. It is used to assess the accuracy of country supply plans and to promote efficient supply management practices.

		FY2018 Q2		Last Four Quarters	
Product	**FY18 Target: MAPE**	**Supply plan error (%)**	**Supply plan bias (%)**	**MAPE (%)**	**Supply plan bias (%)**
Adult ARV	30%	24%	24%	20%	20%
Pediatric ARV	30%	39%	-39%	10%	-10%
Lab	30%	48%	47%	20%	20%

Indicator Performance FY2018 Q2



Analysis

- While supply plan error increased for adult and pediatric ARVs compared to the previous quarter, there was a small improvement for lab items. Mean absolute percent error over the last four quarters is within the targeted range for all categories.
- Variance for adult ARVs was driven by a large order of more than 2 million units for Tanzania, which had not appeared in early supply plans.
- The Plan team is supporting the FASP team's review of country supply plans and recommending updates regarding alignment of supply plans and orders. They are also working with the Health Systems Strengthening lab team to identify areas where more data are needed, especially as related to large order quantities.

Data Notes

- Planned quantities are drawn from an aggregation of country supply plans submitted in the prior quarter, including only the quanties 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.
- See GHSC-PSM's IDIQ Monitoring and Evaluation Plan for complete details on indicator defintions and calculations. Simplifed versions of the definitions are provided below for reference:

Supply plan error: $$\frac{|(Actual\ ordered\ quantity) - (Planned\ quantity)|}{(Actual\ ordered\ quantity)}$$

Supply plan bias: $$\frac{(Actual\ ordered\ quantity) - (Planned\ quantity)}{(Actual\ ordered\ quantity)}$$

MAPE: $$\frac{|(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters) - (Sum\ of\ planned\ quantity\ in\ last\ 4\ quarters)|}{(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters)}$$

Supply plan bias (last four quarters): $$\frac{(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters) - (Sum\ of\ planned\ quantity\ in\ last\ 4\ quarters)}{(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters)}$$

Supply plan bias definitions are under review and may be refined in the future.

- Negative supply plan bias indicates fewer products requested compared to the forecast. Positive supply plan bias indicates more products ordered than forecasted.
- At the present time, GHSC-PSM does not measure supply plan accuracy for TO2 or TO4. Forecast accuracy (indicator A6b) is measured for TO3.
- Targets reflect anticipated project performance on the four-quarters MAPE indicator by end of FY18 (September 30, 2018).

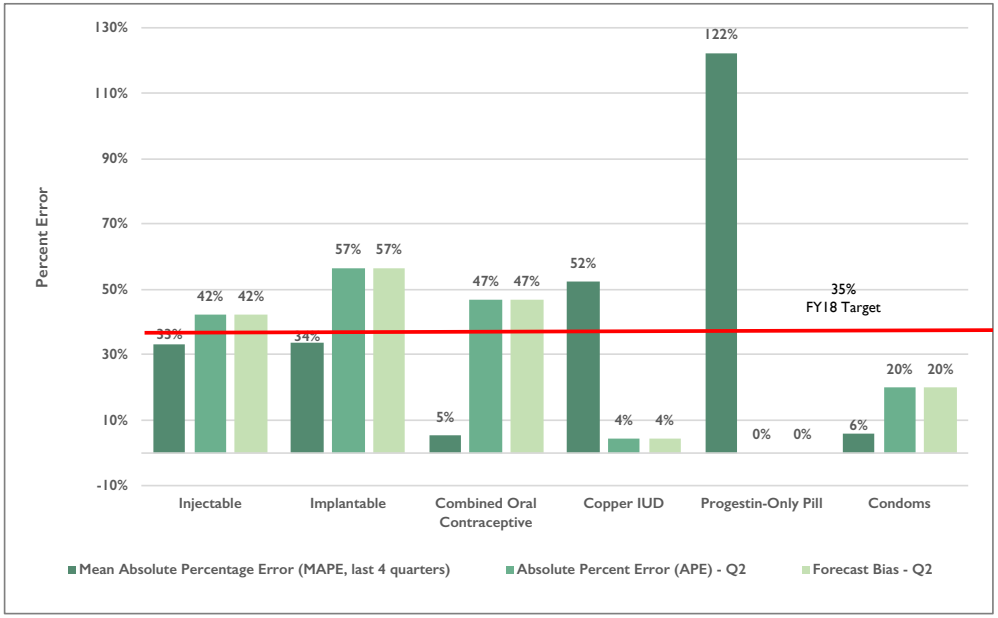
A6b. Absolute percent forecast error, with variants mean absolute percent error (MAPE) and forecast bias

Measure Definition

Numerator: 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.
Denominator: Sum of the actual quantities with requested delivery dates during the quarter.
See Data Notes below for variant definitions.
Purpose: This indicator looks at how well country global demand forecasts for commodities (based on the country supply plan together with variables such as country order history, data from planning groups, and global market dynamics) match the commodities actually delivered. It will be used to assess the accuracy of the global demand forecasts and promote efficient supply management practices.

Product	Target Annual	FY2018 Q2		Last Four Quarters	
	FY18 Target: MAPE	Absolute percent error (%)	Forecast bias (%)	MAPE (%)	Forecast bias (%)
Injectable	35%	42%	42%	33%	33%
Implant	35%	57%	57%	34%	34%
Combined Oral	35%	47%	47%	5%	-5%
Copper IUD	35%	4%	4%	52%	-52%
Progestin Pill	35%	0%	0%	122%	-122%
Condoms	35%	20%	20%	6%	6%

Indicator Performance FY2018 Q2



Analysis

- Copper IUDs and progestin-only pills had strong performance this quarter, due largely to lack of new demand and minimal changes to order quantities and requested delivery dates. However, variance in previous periods contributed to relatively greater rates of mean absolute percent error (MAPE) over the last four quarters.
- Forecast variance for injectables, implants, and combined oral contraceptives was due to orders placed with less than one-quarter requested lead time, resulting in underforecasting.

Data Notes

- 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.
- See GHSC-PSM's IDIQ Monitoring and Evaluation Plan for complete details on indicator defintions and calculations. Simplifed versions of the definitions are provided below for reference:

Absolute percent error: $$\frac{|(Actual\ ordered\ quantity) - (Planned\ quantity)|}{(Actual\ ordered\ quantity)}$$

Forecast bias: $$\frac{(Actual\ ordered\ quantity) - (Planned\ quantity)}{(Actual\ ordered\ quantity)}$$

MAPE: $$\frac{|(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters) - (Sum\ of\ planned\ quantity\ in\ last\ 4\ quarters)|}{(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters)}$$

Forecast bias (last four quarters): $$\frac{(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters) - (Sum\ of\ planned\ quantity\ in\ last\ 4\ quarters)}{(Sum\ of\ actual\ ordered\ quantity\ in\ last\ 4\ quarters)}$$

Forecast bias definitions are under review and may be refined in the future.

- Negative forecast bias indicates fewer products requested compared to the forecast. Positive forecast bias indicates more products ordered than forecasted.
- At the present time, GHSC-PSM does not create demand forecasts for TO2 or TO4. Supply plan error (indicator A6a) is measured for TO1.
- Targets reflect anticipated project performance on the four-quarters MAPE indicator by end of FY18 (September 30, 2018).

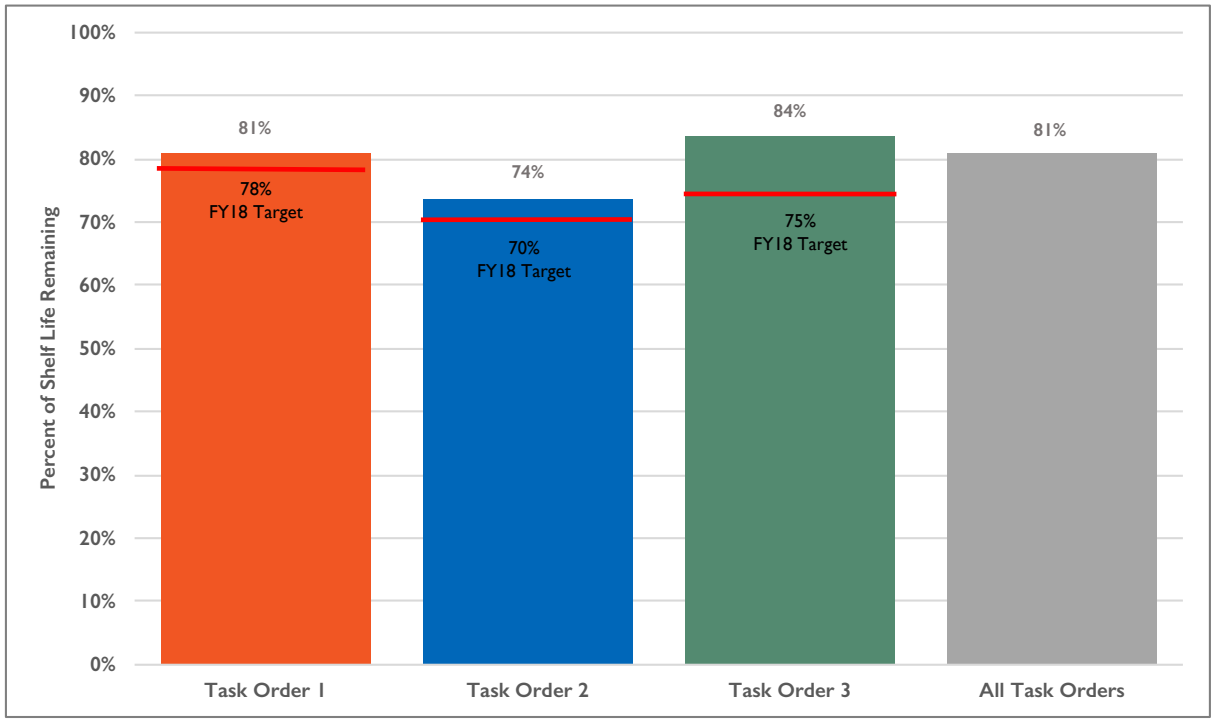
A8. Average percentage of shelf life remaining for warehoused commodities, weighted by the value of each commodity's stock (product at risk percentage)

Measure Definition

Numerator: Percentage of shelf life remaining at the end of the quarter, weighted by value of commodities, summed across all products.
Denominator: Total value of commodities, summed across all products, at the end of the quarter.
Purpose: This indicator, a measure of warehouse efficiency at GHSC-PSM regional distribution centers (RDCs) or stockpiles, can be used to gauge the amount of product that is at risk of expiration in a specified time. The information it provides helps maximize the efficiency of product turnover.

Task Order	FY18 Target	Achievement FY2018 Q2	Achievement Year to Date
TO1	78%	81%	81%
TO2	70%	74%	74%
TO3	75%	84%	82%
TO4	N/A	N/A	NA
All TOs	NA	81%	81%

Indicator Performance FY2018 Q2



Analysis

- Shelf life remaining was consistent from Q1, with overall percentages remaining the same (TO1 and TO4), or moving up slightly (TO3). All task orders are in line with their FY2018 targets.
- Task Order 2 maintained strong shelf life performance while also significantly increasing inventory, from $566,502 at the end of Q1 to more than $4 million at the close of Q2. Most of the increased volume has already been allocated to country orders and is expected to continue moving, maintaining good shelf life performance.
- Task Order 3 shelf life remaining increased slightly from quarter 1, rising from 81 to 84 percent. Most of the increase is due to an inbound delivery of 1-rod implants, which replenished limited stock of this item with fresh product.

Data Notes

- Total value of stock on hand as of March 31, 2018 is as follows: Task Order 1 - $18,099,855. Task Order 2 - $4,359,217. Task Order 3 - $11,471,066.
- Task Order 1 stock on hand includes all condoms. No inventory is kept for Task Order 4.
- Some expiries for Task Order 1 occurred this quarter. These quantities are excluded from the numerator and denominator of this indicator, as this stock was not available for allocation at the end of the quarter. See indicator C7a (percent of product loss due to expiry) for reporting on these expirations.
- Targets reflect anticipated project performance by end of FY18 (September 30, 2018).

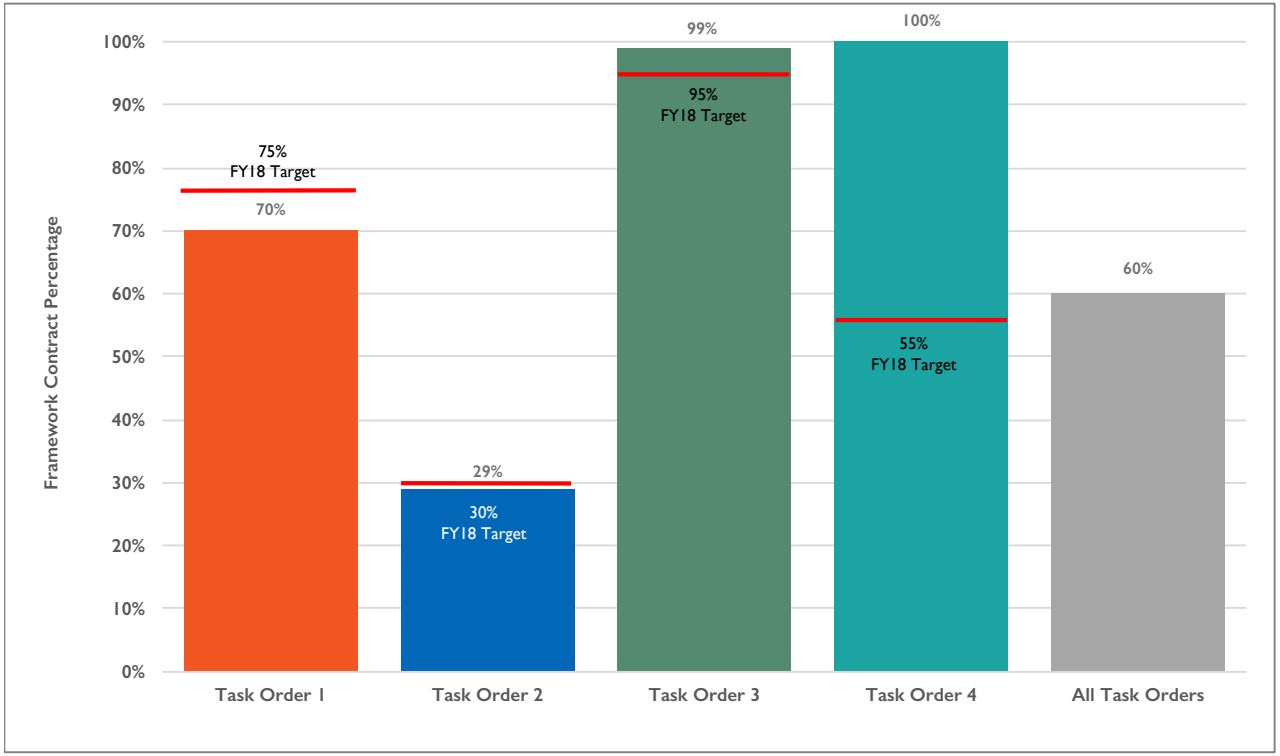
A10. Percentage of product procured using a framework contract (framework contract percentage)

Measure Definition

Numerator: Value of product purchased through framework contracts during the quarter.
Denominator: Total value of commodities purchased during the quarter.
Purpose: This indicator, which refers to the proportion of products purchased through framework contracts with suppliers, helps assess whether GHSC-PSM is promoting strategic sourcing to ensure the best value for customers. Framework contracts, in addition to being suited for negotiation for best value, also eliminate steps in the procurement process, enabling a quicker cycle time and reduced transaction costs.

Task Order	FY18 Target	Achievement	
		FY2018 Q2	Year to Date*
TO1	75%	70%	69%
TO2	30%	29%	25%
TO3	95%	99%	99%
TO4	55%	100%	100%
All TOs	NA	60%	59%

Indicator Performance FY2018 Q2



Analysis

- Trends in framework contracting have remained consistent with previous quarters, with Task Orders 3 and 4 using framework contracts for nearly all procurements from vendors.
- Task Order 2 has increased its framework contract percentage from 24 to 29 percent, closing in on its FY2018 target. The increase was driven by increased use of these contract types for ACTs and other pharmaceuticals. Other large-volume product groups, such as LLINs and mRDTs, continue to use one-off contracts. However, a new RDT sourcing strategy is expected to use long-term agreements in the coming quarters.
- Task Order 1 use of framework contracts remained consistent with earlier quarters, with close to all ARV and VMMC procurements going through framework contracts. Condoms, which are usually procured under framework contracts, saw a drop in framework contracting percentage this quarter. This is due to a large order of female condoms for a country with specific distribution requirements, which required the use of a one off contract.

Data Notes

- Commodities are considered "purchased" during the quarter if the "PO Released for Fulfillment Date" in ARTMIS is between January 1 and March 31, 2018.
- 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.
- Procurement totals per task order are as follows: Task Order 1 (including all condoms and decentralized procurement): $199,888,164. Task Order 2: $86,371,532. Task Order 3: $14,551,670. Task Order 4: $225,718.
- *Year to Date performance is calculated using all data currently available, which may include changes to procurements that occurred in previous quarters, such as cancellations. Current year-to-date figures may differ slightly from a calculation derived from previously reported data.
- Targets reflect anticipated project performance by end of FY18 (September 30, 2018).

A10. Percentage of product procured using a framework contract (framework contract percentage) - Tracer product category

HIV	Total value of all product procured	Framework contract percentage
Task Order 1	$199,888,164	70%
Adult ARVs	$120,530,023	100%
Condoms	$5,175,156	33%
Food and WASH	$819,400	100%
HIV RTK		
Laboratory	$57,663,402	9%
Other Non-pharma	$4,117,647	7%
Other Pharma	$1,086,502	99%
Other RTK	$483,000	0%
Pediatric ARVs	$2,898,085	100%
Prefab		
Vehicles and Other Equipment		
VMMC	$7,114,948	97%

Malaria	Total value of all product procured	Framework contract percentage
Task Order 2	$86,371,532	29%
ACTs	$25,202,720	86%
LLIN	$41,978,535	0%
Other Pharma	$542,008	100%
RDTs	$15,123,657	0%
Severe Malaria Medicines	$3,234,148	100%
Sulphadoxine-pyrimethamine	$136,508	100%
All Other Non-pharma	$153,956	2%

PRH - Method Level	Total value of all product procured	Framework contract percentage
Task Order 3	$14,551,670	99%
Combined Oral Contraceptives	$1,240,762	100%
Copper-bearing Intrauterine Devices		
Emergency Oral Contraceptives		
Implantable Contraceptives	$5,604,900	100%
Injectable Contraceptives	$6,400,308	100%
Progestin-only Pills	$257,688	100%
Standard Days Method	$177,120	100%
All Other TO3 Products	$870,892	84%

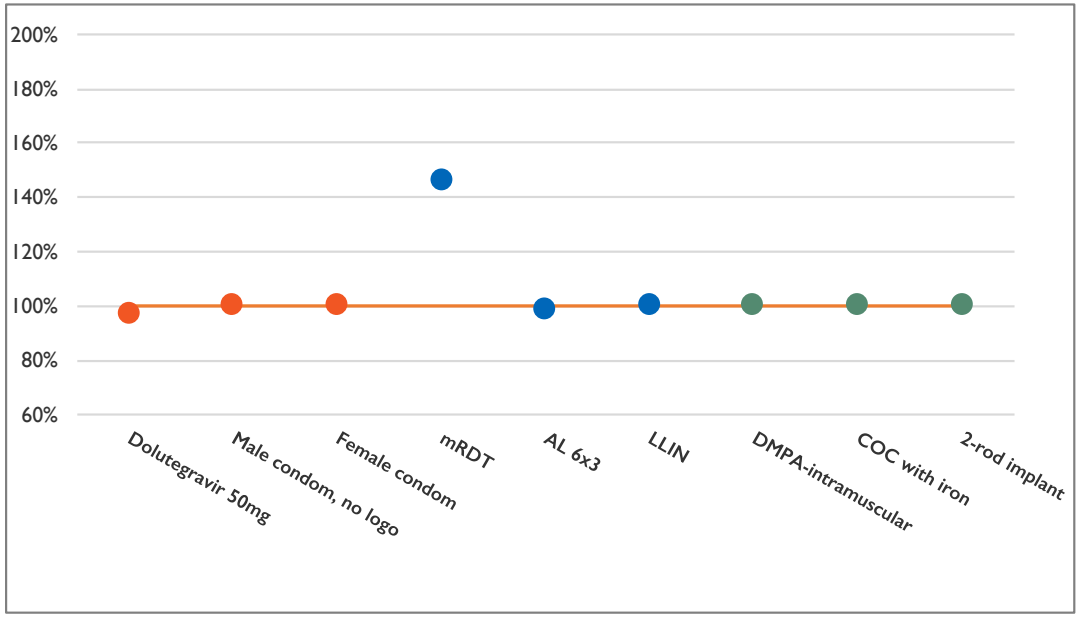
Maternal and Child Health	Total value of all product procured	Framework contract percentage
Task Order 4	$225,718	100%
Laboratory		
Other Non-Pharma	$145,308	100%
Other Pharma	$80,410	100%

A12. Percentage price variance between the median unit price paid during the quarter and the median unit price paid over the life of the project

Measure Definition

Numerator: Median price paid per base unit of measure during the quarter.
Denominator: Median price paid per base unit of measure over the life of the project.
Purpose: This indicator allows GHSC-PSM to track variation in price for commodities ordered. Price variations can reflect a variety of market and supply chain realities, including but not limited to market stability, pricing structure in strategic contracts, and fluctuations in demand and capacity.

Indicator Performance FY2018 Q2



Analysis

- Prices have remained stable for most of the project's frequently ordered products this quarter. The median price for mRDTs was higher this quarter compared to the median over the life of the project. The price for this product typically varies, due to the use of brand-specific products in different countries. Following the release of PMI's *Procurement and Supply Chain Guidance*, which includes new policies for RDT selection, and the development of a new RDT contracting strategy for GHSC-PSM, the price for this product is expected to stabilize in the coming year.

Data Notes

- Targets not required for this indicator, per the GHSC-PSM M&E plan.
- The three most frequently ordered catalog products in the quarter are analyzed. Order frequency for this indicator is measured by the number of line items ordered per product per quarter.
- Exact product names and life-of-project median unit prices for the products shown above are as follows: Dolutegravir 50 mg Tablet, 30 Tablets, $3.70. Male condom (latex) lubricated, no logo, 53 mm, case of 3,000 pieces, $67.71. Female condom (nitrile) lubricated, 17 cm, 500 each, $336.87. Malaria rapid diagnostic test (RDT) HRP2 (Pf) cassette, 25 tests, $6.25. Artemether/Lumefantrine 20/120 mg tablet, 30 x 6x3 blister pack tablets, $15.15. Long-lasting insecticide-treated net (LLIN) 190x180x180 cm (LxWxH) rectangular (light blue), 1 each, $2.02. Depot (IM) medroxyprogesterone acetate 150 mg/mL (1 mL) vial, w/AD syringe, burn boxes, 1 each, $0.88. Levonorgestrel/Ethinyl Estradiol 150/30 mcg + Fe 75 mg, 28 tablets/cycle (PS), 1 cycle, $0.27. Levonorgestrel 75mg/rod, 2-rod implant, 1 each, $8.50.
- Order frequency may differ from the project's highest value products. The top three products per task order with the highest value of orders placed include TLD, TLE, and viral load reagents for TO1, two sizes of LLIN and mRDTs for TO2, and 2-rod implants,1-rod implants, and 3-month injectable contraceptives (DMPA-IM) for TO3.

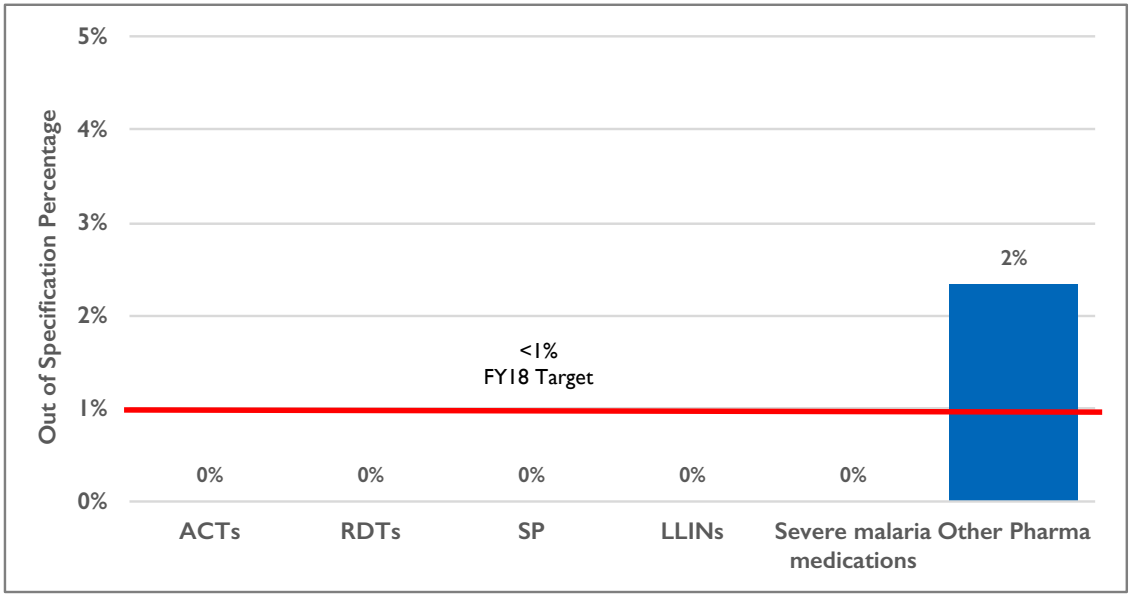
A13. Percentage of batches of product for which the final result is showing nonconformity (out-of-specification-percentage)

Measure Definition

Numerator: Total number of batches of product showing nonconformity during the quarter.
Denominator: Total number of batches tested during the quarter.
Purpose: This indicator measures whether manufactured products meet acceptance criteria and critical quality standards as defined by regulatory authorities.

Task Order	FY18 Target	Achievement	
		FY2018 Q2	Year to Date
TO1	N/A	N/A	N/A
TO2	<1%	0.2%	0.3%
TO3	N/A	N/A	N/A
TO4	N/A	N/A	N/A

Indicator Performance FY2018 Q2



Analysis

- One batch of co-blistered SP+AQ was found to be out of specification this quarter. The vendor has confimed that they will replace the product.

Data Notes

- Total number of batches of malaria products tested this quarter is 458.
- All QA testing for TO2 is conducted by GHSC-PSM. All testing for TOs 1, 3, and 4 is conducted via the USAID GHSC-QA contract. GHSC-QA may be contacted for out-of-specification data for these TOs.
- Target reflects anticipated average project performance for the full 2018 fiscal year (October 2017-September 2018).

A14. Average vendor rating score

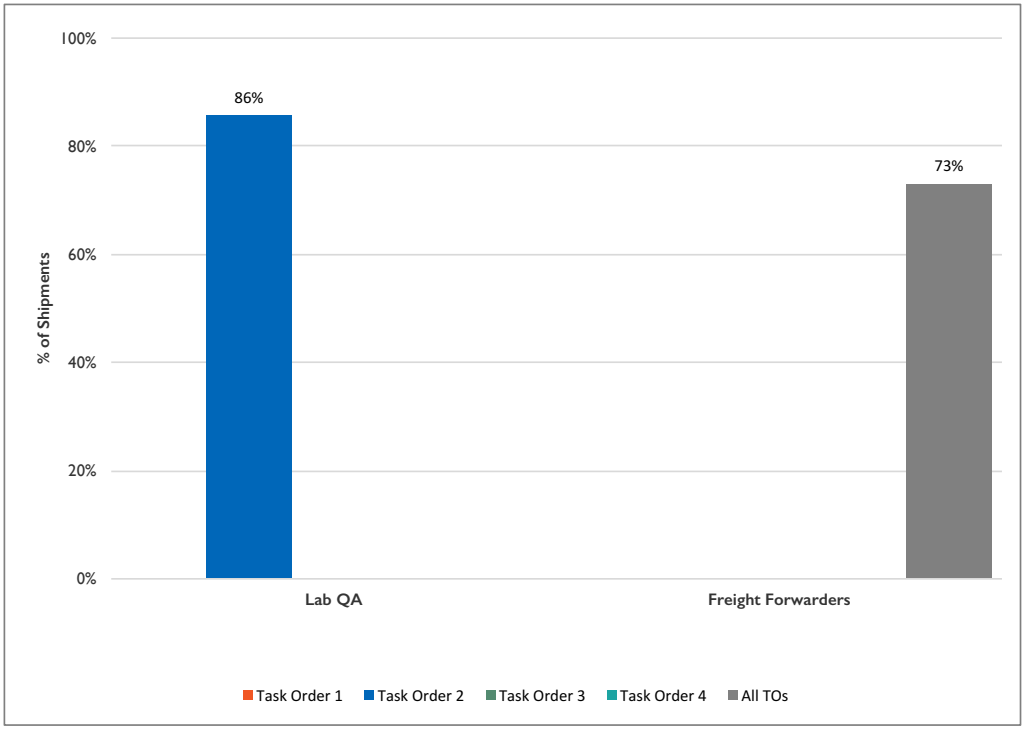
Measure Definition

Numerator: Sum of all key vendor ratings.
Denominator: Number of vendors from whom GHSC-PSM procured products/commodities, lab testing services, or freight forwarding during the quarter.
Purpose: This indicator enables GHSC-PSM and USAID to monitor performance of their vendors. This information helps the project to better manage vendor relations and can be used as a factor in vendor selection. Project vendors include manufacturers of health commodities (suppliers), freight forwarders (third party logistics providers), and labs providing quality assurance testing of commodities.

Achievement

Task Order	FY2018 Q2 Lab QA	FY2018 Q2 Freight Forwarders
TO1		
TO2	86%	
TO3		
TO4		
All TOs	N/A	73%

Indicator Performance FY2018 Q2



Data Notes

- Lab QA vendors (all TO2): Three labs were evaluated this quarter.
- Freight forwarders (no TO disaggregation): Five freight forwarders were evaluated this quarter.
- Supplier scorecard is undergoing revisions; data to be reported in a future report.
- Target not required for this indicator.

Analysis

- Significant improvements have been demonstrated by the lab network, in particular with capacity to meet contractual lead times for SPAQ DT, ASAQ, and generic ALu. This was accomplished by providing the lab network with improved forecasts of future test requests, procuring stock of reference materials, and continuous communication with the labs to ensure the labs understood the requirements of TO2 QA. It should be noted that all three primary pharmaceutical QC laboratories have increased their staff and equipment to improve lab throughput.
- Freight forwarder performance has remained steady since last quarter. A request for proposals for freight forwarders was released this quarter and awarded in April for a three-year period.

A14. Average vendor rating score - further score breakdowns by component

Commodity Suppliers					
	Result (Total Score)	Product Quality	Order Fullfillment (On Time In Full)	Invoicing Accuracy	Service
TO1 (n=					
TO2 (n=					
TO3 (n=					
All TOs					

QA Lab Vendors (TO2 Only)						
Criteria	Reliability (Timeliness of Service)	Responsiveness	Completeness (of Documentation)	Cost	Service	Total
Title	Does the lab provide on-time provision of completed test reports?	Does the lab provide prompt response after receipt of GHSC-PSM request for testing?	Frequency of modification to certificates of analysis (CoAs)	Submitted invoices for routine testing adhere to set IDIQ pricing	Qualitative: Adherence to other terms and conditions (not related to reliability, responsiveness, completeness, and cost)	
Weight	43%	15%	18%	15%	10%	100%
Average Score (n=3)	**82%**	**80%**	**97%**	**93%**	**80%**	**86%**

3PL Vendors (n=5)							
#	Component	Numerator	Denominator	Score	Indicator Weight	Component Weight	Weighted Score
1–Reliability (Timeliness of Service)						50%	36.3%
1a	Estimated ship date versus actual ship date (within 3 days)	Number of shipments during the reporting period for which the actual ship date was within 3 calendar days of the estimated ship date	Number of shipments during the reporting period	93%	20%		
		648	698				
1b	Port-to-door ship time reliability (Percentage of shipments that arrive within the required lead time for port-to-door shipping based on shipping lane and channel) (Disaggregated by ocean and air)	Number of shipments delivered during the reporting period which arrived within the approved window of the required lead time for the shipping lane per the GHSC-PSM lead time table	Number of shipments delivered during the reporting period				
	OCEAN (+7/-12 calendar days window)	66	138	48%	15%		
	AIR (+3/-10 calendar days window)	361	512	71%	15%		

3PL Vendors (n=5)							
#	Component	Numerator	Denominator	Score	Indicator Weight	Component Weight	Weighted Score
2–Responsiveness						20%	12%
2a	Percentage of shipments for which booking to waiver initiation cycle time was within 4 business days (waiver shipments only)	Number of waiver shipments during the reporting period for which the booking date to waiver initiate date period was less than or equal to 4 business days	Number of waiver shipments during the reporting period	30%	10%		
		254	844				
2c	Percentage of shipments for which booking was confirmed on time (within 2 business days)	Number of shipments booked during the reporting period for which booking was confirmed by the 3PL within 2 business days	Number of shipments booked during the reporting period	90%	10%		
		762	848				
3–Quality of Shipment						10%	10%
3a	Percentage of shipments delivered without OSD (overages, shortages, or damages) (cargo integrity) (when investigation finds 3PL at fault) (measure at end of investigation) historical	Number of shipments delivered without OSD	Number of shipments delivered during the reporting period	100%	10%		
		692	693				
4–Invoice Accuracy						10%	7%
4a	Invoice accuracy compared to contract price	Number of invoices received during the reporting period which had no (cost) rating errors	Number of invoices received during the reporting period	67%	10%		
		464	693				
5–Compliance						10%	8%
5a	Percentage of NCRs (non-conformance reports) adequately resolved within allotted timeframe (no NCRs = 100%)	Number of NCRs received for which an adequate response occurred within the allotted timeframe	Number of NCRs received	80%	10%		
		4	5				
						Total Score	**73.0%**

A15. Percentage of quality assurance investigation reports submitted within 30 calendar days of outcome determination

Measure Definition

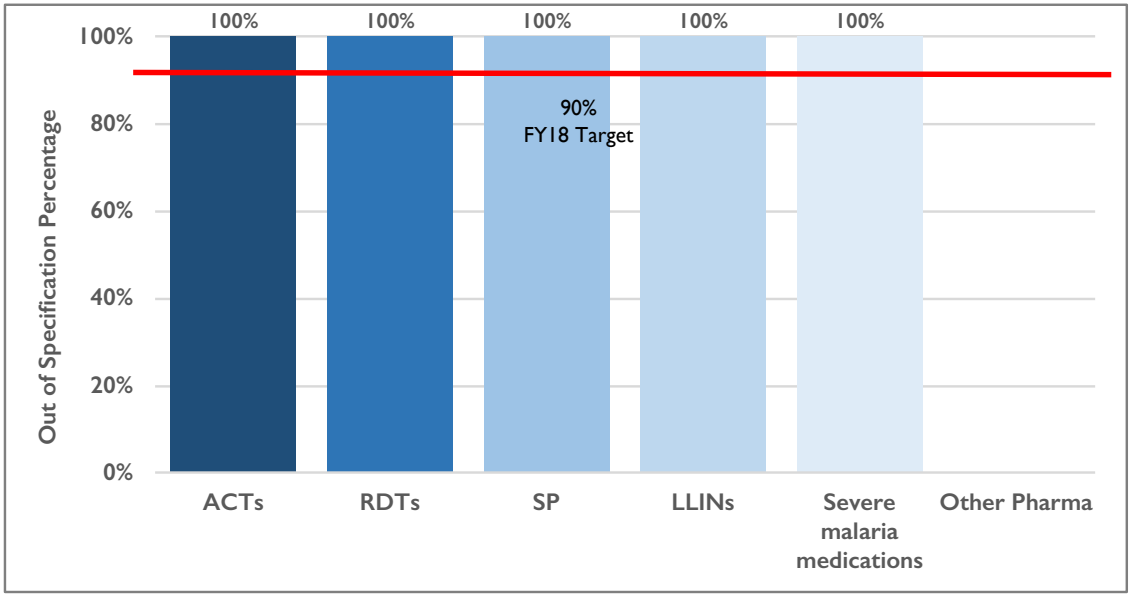
Numerator: Total number QA investigation reports submitted to PMI within 30 days of outcome determination

Denominator: Total number of QA investigation reports due during the reporting period

Purpose: This indicator measures the timeliness of GHSC-PSM submissions of QA investigation reports.

Task Order	FY18 Target	Achievement FY2018 Q1-2	Achievement Year to Date
TO1	N/A	N/A	N/A
TO2	90%	100%	100%
TO3	N/A	N/A	N/A
TO4	N/A	N/A	N/A

Indicator Performance FY2018 Q1-2



Analysis

- The GHSC-PSM Task Order 2 QA team had seven QA investigation reports due during the reporting period, all of which were submitted to PMI within the 30 day deadline.

Data Notes

- All QA investigations for TO2 are conducted by GHSC-PSM. All investigations for TOs 1, 3, and 4 are conducted via the USAID GHSC-QA contract. GHSC-QA may be contacted for out-of-specification data for these TOs.
- Target reflects anticipated average project performance for the full 2018 fiscal year (October 2017-September 2018).

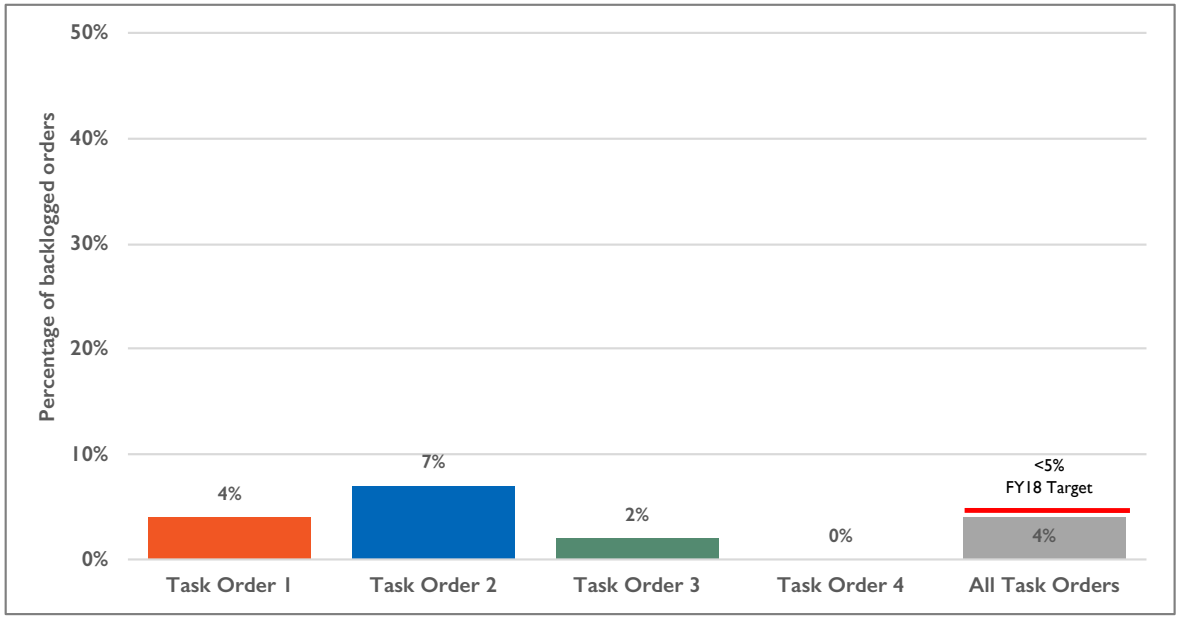
A16. Percentage of backlogged line items

Measure Definition

Numerator: Number of line items with an agreed delivery date (ADD) on or before the reporting period end date within a rolling 12-month period, that have not been canceled or put on hold and that are currently undelivered and late.
Denominator: 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 canceled or put on hold.
Purpose: Measuring and tracking backlogged items helps to prioritize and quickly resolve undelivered late orders to mitigate downstream impacts.

Task Order	FY18 Target	Achievement FY2018 Q2
TO1	NA	4%
TO2	NA	7%
TO3	NA	2%
TO4	NA	0%
All TOs	<5%	4%

Indicator Performance FY2018 Q2



Analysis

- Backlog percentage for the period is 4.3%, down from 4.8% in the previous quarter. This is in line with the target of 5% for FY2018 and has also begun to impact the project's OTIF results (see indicator A1a). On time, in full delivery has begun to rise, following a significant drawdown in the backlog in Q1. This suppressed OTIF performance for Q1, but has resulted in improvements for Q2. With the backlog remaining within the targeted level, we expect these OTIF results to be sustained.

Data Notes

- The total number of line items with agreed delivery dates in the last 12 months are as follows: Task Order 1 (including all condoms for any TO) - 4,596. Task Order 2 - 426. Task Order 3 - 428. Task Order 4 - 25.
- The project currently has 0 undelivered line items with an ADD before the 12 month period of this indicator.
- Targets reflect anticipated project performance by end of FY18 (September 30, 2018).

HIV	**Denominator** (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.)	Percentage of backlogged items
Task Order 1	4,596	4%
Adult ARVs	494	6%
Condoms	204	3%
Food and WASH	31	0%
HIV RTK		
Laboratory	2,697	3%
Other Non-pharma	484	5%
Other Pharma	282	16%
Other RTK	14	7%
Pediatric ARVs	231	4%
Prefab		
Vehicles and Other Equipment	13	0%
VMMC	146	1%

Malaria	**Denominator** (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.)	Percentage of backlogged items
Task Order 2	426	7%
ACTs	154	2%
LLIN	103	6%
Other Pharma	9	22%
RDTs	33	6%
Severe Malaria Medicines	45	24%
Sulphadoxine-pyrimethamine	21	24%
All Other Non-pharma	61	0%

PRH - Method Level	**Denominator** (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.)	Percentage of backlogged items
Task Order 3	428	2%
Combined Oral Contraceptives	20	0%
Copper-bearing Intrauterine Devices	12	0%
Emergency Oral Contraceptives		
Injectable Contraceptives	49	2%
Implantable Contraceptives	54	4%
Progestin-only Pills	7	0%
Standard Days Method	6	0%
All Other TO3 Products	280	2%

Maternal and Child Health	**Denominator** (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.)	Percentage of backlogged items
Task Order 4	25	0%
Laboratory	1	0%
Other Non-Pharma	1	0%
Other Pharma	23	0%

B1. Stockout rate at SDPs

Measure Definition

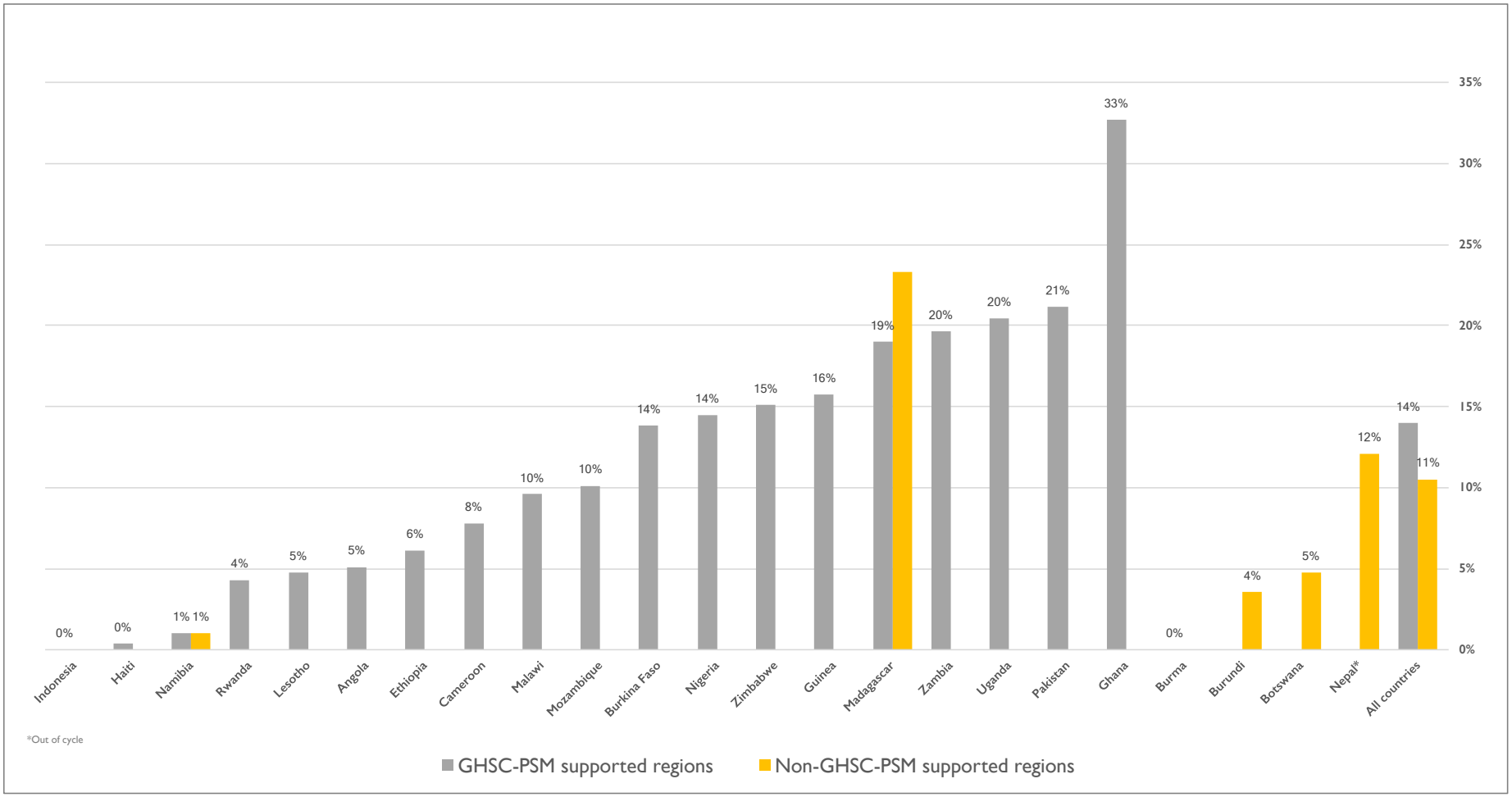
Numerator: Number of SDPs that were stocked out of a specific tracer product according to the ending balance of the most recent logistics report (or on the day of site visit).
Denominator: Total number of SDPs that reported/were visited in GHSC-PSM-supported countries that offer the tracer product.
Purpose: This indicator determines the prevalence of commodity stockouts (meaning either unavailable, or available but unusable due to damage or expiry) at facilities or service delivery points. In conjunction with other data, stockout information helps determine the location of bottlenecks in the supply chain. This enables GHSC-PSM to focus on those areas to reduce future stockouts.

Overall Stockout Rate Achievement

Task Order	FY2018 Q2	Year to Date
TO1	9%	8%
TO2	16%	16%
TO3	18%	17%
All TOs	15%	14%

▸ Targets for this indicator are set at the country level

Overall Stockout Rate by Country



Out-of-cycle countries are not counted toward overall totals.
Stockout rates presented are for all key products offered in each country, irrespective of the funder of those products.
Note also that GHSC-PSM does not provide technical support to all levels of the supply chain in all countries.

B1. Percentage of SDPs with stockouts of tracer products

	Countries	Angola	Botswana Non-GHSC-PSM-supported	Burkina Faso	Burma	Burundi Non-GHSC-PSM-supported	Cameroon	Ethiopia	Ghana	Guinea	Haiti	Lesotho	Madagascar	Madagascar Non-GHSC-PSM-supported	Malawi	Mozambique	Namibia	Namibia Non-GHSC-PSM-supported	Nigeria	Rwanda	Uganda	Zambia	Zimbabwe
HIV	Task Order 1	0%	5%		0%	4%	8%	8%	17%		0.2%	5%			5%	5%	1%	1%	8%	3%	19%	11%	11%
	First-line Adult ARVs	0%	0%		0%	3%	8%	1%	12%		1%	0%			0%	1%	0%	0%	4%	0%	11%	3%	6%
	Second-line Adult ARVs	0%	0%		0%	4%		4%	18%		0%	5%				2%	0%	2%	4%	1%		7%	6%
	First-line Pediatric ARVs	0%	16%		0%	5%	3%	5%			1%	4%			4%	2%	7%	2%	4%	0%	19%	7%	13%
	First RTKs	0%	4%			7%	8%	9%	5%		0%	5%			3%	19%	0%	2%	5%	4%	8%	6%	16%
	Second RTKs	0%	9%			4%	12%	15%	10%		0%	6%			9%	26%	0%	0%	7%	10%	13%	4%	16%
	Tie-breaker RTKs							23%				7%					0%	0%	21%		22%		22%
	Male Condoms**	0%	7%			3%		8%	38%		0%	5%			9%	29%	0%	0%	14%	1%		19%	4%
	Female Condoms**	0%				4%						3%			8%	42%	0%	0%	12%	4%		11%	5%
	EID Consumables		0%					12%											5%	0%			
	EID Reagents		0%					5%				0%				0%			0%	0%	0%	9%	0%
	Viral Load Consumables				0%														4%	33%			
	Viral Load Reagents		0%		0%			0%				33%				0%			0%	0%	0%	0%	0%
	Ready-to-use Therapeutic Foods (RUTF)							18%				7%									54%		
Malaria	Task Order 2	12%		14%		4%		6%	42%	9%			13%	19%	11%	25%			20%	8.1%	12%	20%	21%
	First-line ACTs (AL 6X1)	14%		15%				6%		8%					4%	21%			21%	9%		18%	21%
	First-line ACTs (AL 6X2)	0%		23%				7%		7%					11%	26%			14%	6%		24%	27%
	First-line ACTs (AL 6X3)	0%						8%		5%					17%	34%			21%	8%		21%	35%
	First-line ACTs (AL 6X4)	11%						5%	35%	7%					9%	28%			19%	9%		26%	12%
	First-line ACTs (AL inability to treat)	0%		10%				2%		3%					3%	3%			6%	0%	0%	4%	2%
	First-line ACTs (AS/AQ 100/270mgx3)			15%		3%							11%	20%					28%				
	First-line ACTs (AS/AQ 100/270mgx6)			12%		3%							9%	18%					30%				
	First-line ACTs (AS/AQ 25/67.5mg)					3%			72%				9%	11%					26%				
	First-line ACTs (AS/AQ 50/135mg)					4%			63%				6%	15%					18%				
	Rapid Diagnostic Tests for Malaria	30%		17%		5%		4%	21%	5%			12%	12%	4%	12%			15%	8%	6%	10%	13%
	Sulphadoxine-pyrimethamine (SP)	0%		8%		5%			24%	9%			33%	29%	19%	29%			18%		17%	22%	10%
	LLINs			7%		4%				21%			24%	49%	13%				18%				

* Out of cycle

** Male and female condoms are reported under both TOs 1& 3.

B1. Percentage of SDPs with stockouts of tracer products

	Countries	Burundi Non-GHSC-PSM-supported	Ethiopia	Ghana	Guinea	Haiti	Madagascar	Madagascar Non-GHSC-PSM-supported	Malawi	Mozambique	Nigeria	Pakistan	Rwanda	Uganda	Zambia	*Nepal (FY18 Q1)
PRH**	Task Order 3	3%	5%	41%	25%	0%	28%	28%	12%	24%	11%	21%	3%	36%	29%	12%
	Copper-bearing Intrauterine Devices	2%	2%		22%	0%	50%	43%	7%	25%	8%	28%	2%		31%	
	Calendar-based Awareness Methods					0%	47%	59%					3%			
	Male Condoms* **	3%	8%	38%	13%	0%	23%	27%	9%	29%	14%	19%	1%		18%	8%
	Female Condoms* **	4%					53%	50%	8%	42%	12%		4%		44%	
	Injectable Contraceptives	2%	3%	38%	17%	1%	14%	12%		3%	7%	20%	1%	36%		7%
	Depot Medroxyprogesterone Acetate 104 mg/0.65 mL		3%							64%						
	Depot Medroxyprogesterone Acetate 150 mg Vial, SR	2%		38%	17%	1%	14%	12%	13%	13%	9%	20%	1%	36%	31%	7%
	Norethisterone Enanthate										10%				42%	
	Implantable Contraceptives	2%	9%	41%	18%	1%	35%	30%			20%		13%			
	Etonogestrel 68 mg/Rod, 1 Rod Implant	2%	9%				35%	30%	7%		17%		7%		21%	
	Levonorgestrel 75mg/Rod, 2 Rod Implant		4%	41%	18%	1%			10%	14%	18%		6%		35%	
	Combined Oral Contraceptives	3%	4%	47%	27%	2%	20%		20%	16%	11%	18%	1%		22%	21%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg + Fe 75 mg, 28 Tablets/Cycle	3%	4%	47%	27%	2%	20%	18%				18%	1%		22%	21%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg 28 Tablets/Cycle								20%	16%	11%					
	Emergency Oral Contraceptives	5%	6%						17%	13%						
	Levonorgestrel 0.75 mg, 2 Tablets	5%	6%						17%	13%						
	Levonorgestrel 1.5 mg, 1 Tablet															
	Progestin-only pills	4%	7%		50%		30%	30%	14%	34%	10%		1%		39%	
	Levonorgestrel 30 mcg 35 Tablets/Cycle	4%	7%		50%		30%	30%	14%	34%	10%		1%		39%	

* Out of cycle

The PRH "method level" **(in bold) refers to the percent of facilities stocked out of all products the facility offers within a given method. A stockout at the "product level" refers to the number of sites stocked out of that particular product (depending on what is offered at a particular facility). A facility could be stocked out of one product and not stocked out at the method level.

***Male and female condoms are reported under both TOs 1 & 3.

B1. Stockout rate - granular-level analysis

Analysis

Overall stockout rates saw a slight uptick this quarter from 12 to 14 percent. However, this was likely due to shifts in the number countries reporting and in the products they report. Guinea and Zimbabwe both reported within the current cycle for the first time this quarter and Ghana was unable to report this indicator last quarter but began reporting again this quarter. All three countries had stockout rates higher than the average.

Out of the twenty countries that reported both this quarter and last, seven reduced their stockout rates this quarter, three more had no change, four had a 1 percentage point or less increase, while the remaining six countries had increases of 3 percentage points (Pakistan, Uganda, and Burkina Faso), 4 points (Rwanda and Zimbabwe), 7 points (Zambia), and 9 points in Mozambique. Mozambique's increase was due in part to additional reporting systems coming on line to now enable reporting on malaria and family planning products.

Stockouts of HIV/AIDS products, at 8 percent, continue to be approximately half the rate of those of malaria and family planning products (16 and 15 percent, respectively).

Country Analysis	
Angola	Angola has reported a marked decrease in stockouts from last quarter, from 23 percent down to just 5 percent. Looking more closely, there were no stock outs of any HIV products this quarter with only malaria products reporting stockouts at 12% of SDPs. Three malaria products were responsible for this performance, namely 2 presentations of AL and rapid diagnostic tests. First-line ARVs have now experienced no stockouts for an entire year. This can be largely attributed to the transfer and exchange of ARVs among the nine supported SDPs.
Botswana	First and second line adult ARVs reported no stockouts this period, as a result of adequate central-level stocks, timely replneishing to SDPs, and close management in pursuit of 90-90-90 targets. Five sites reported stockouts of pediatric ARVs, due in some cases to a failure by facilities to place orders on time. Stocking of male condoms improved this quarter, following a national shortage in FY2018 Q1. Procurements and deliveries from PEPFAR and UNFPA both served to alleviate this shortage.
Burkina Faso	Burkina Faso's stockout rate increased slightly from 11 percent last quarter to 14 percent this quarter. The largest increase came from ACTs (6x2) going from 11 to 23 percent stocked out, which in turn brought the "inability to treat" rate from 5 to 10 percent. Stockouts of RDTs increased from 5 percent to 17 percent due to delays in deliveries from other donors and the switch from a push to a pull system for all products, including free of charge commodities such as RDTs. GHSC-PSM will request that the National Malaria Control Program send a reminder to all regions and districts regarding implementation of the pull system, and the project will help to monitor its implementation.
Burma	Burma maintains its debut performance from last quarter, with a second sequential quarter of no stockouts of HIV-tracer products. The early warning system continues to function well in the ART hospitals managing ARVs. Next quarter there are plans to expand stock monitoring to the remaining viral load laboratories.
Burundi	Stockout rates for Burundi are generally low, averaging four percent or less across task orders. GHSC-PSM is working with the central medical store, CAMEBU, and the district health offices to improve inventory management, timely reporting and resolution of SDP stockouts, and prevention of stockouts through improved ordering.
Cameroon	Data are reported from supportive supervision visits this quarter. While reporting is gradually improving, the reporting rate for the quarter is still generally low. As a result, data are reported from supportive supervision visits this quarter. The GHSC-PSM team is continuing to strengthen district teams and SDP staff on best practices, especially related to ordering.
Ethiopia	Ethiopia's overall stockout rate stayed largely the same, falling slightly from 6.7 percent to 6.1 percent this quarter, due primarily to stockouts of HIV/AIDS products reducing slightly from 8.6 percent to 7.8 percent. However, the rate remains higher than the country's end-of-fiscal-year 2018 target of 5 percent. Rapid test kits showed the largest improvement, with stockouts falling from 14 to 9 and 26 to 15 percent for first and second RTKs, respectively. However, RTK distribution is not integrated into the national integrated pharmaceutical logistics system, and therefore facilities do not report consumption data using the standard form, resulting in under-reporting. GHSC-PSM in Ethiopia continues to implement measures to target improvements in facility stock availability, including advocating in coordination platforms at the national level, strengthening lab commodity supply management, working closely with logistics officers at the zonal and regional health bureau levels, and strengthening the feedback mechanism to facilities on data quality and logistics management.

Country Analysis	
Ghana	Ghana's stockout data comes from an early warning system (EWS), which generally sees a low reporting rate, and this quarter was no exception with a nearly 30 percent decline in the number of SDPs that reported compared to FY 17 Q4, which is the last time this indicator was reported for PSM Ghana. Though the stoc out rate this quarter increased slightly from 29 percent in FY 17 Q4 to 33 percent this quarter, GHSC-PSM Ghana believes this is not representative due to the low reporting rates and the fact that distribution of health commodities has improved in the country.
Haiti	Haiti reduced its already low stockout rate of 1.8 percent last quarter to 0.4 percent this quarter. Stockouts of HIV/AIDS products showed a large reduction from 3 percent to 0.2 percent, with rates for nearly all products decreasing. A key factor in this achievement was the lack of stockouts of any tracer product at the central warehouse, driven by an increase in GHSC-PSM's on-time delivery rate to Haiti.
Indonesia	Indonesia is reporting this indicator for the first time, and reported on five SDP facilities for most used 1st line ARV, two SDPs for most used 2nd line ARV, and one SDP for 1st line pediatric ARV. All SDPs were in Jakarta. None of the SDPs were stocked out for the commodities they offer.
Madagascar	Madagascar's overall stockout rate stayed constant from last quarter at 19 percent. Stockouts of malaria products increased slightly from 11 to 13 percent due to shipment delays by other donors. PMI is not the primary funder of malaria commodities in Madagascar, but complements other funding if any gaps exist. The malaria stockout rate was driven by increased stockouts of the adult, child, and infant formulations of AS/AQ from 4 to 9 percent, 4 to 11 percent, and 6 to 9 percent respectively; however, stockouts of the toddler formulation were reduced from 8 to 6 percent. Stockouts of family planning products stayed constant at 28 percent due to shipments from another donor that were expected in July 2017 but did not arrive to the country until January 2018. PMI is only procuring family planning products for the community level in Madagascar. However, community level consumption data are not yet integrated into the existing HMIS. Future plans to correct this situation are: 1) organize emergency shipments of commodities to facilities, once delivered by the other donors; 2) preposition malaria commodities in anticipation of cyclones and heavy rains; and 3) capacitate stock managers through trainings and formative supervisions to correctly estimate needs and submit timely requistions to the central medical stores for a continuous resupply.
Malawi	Average stockout rates at the task order level remained relatively steady from the previous quarter, due to sustained monthly commodity distribtion to health facilities and redistribution efforts across the country. Notable changes at the product level include an increase in injectable contraceptives stockouts, from 3 to 13 percent, and improvements in stocking for female condoms, emergency contraceptives, oxytocin, and oral rehydration salts.
Mozambique	With the implementation of SIGLUS, Mozambique was able to report on TOs 2, 3, and 4, as well as first and second RTKs under TO1, for the first time from a small, but growing, group of health facilities where the system is implemented. As a result, the overall stockout rate for Mozambique increased from 1 percent in FY18 Q1 to 10 percent in FY18 Q2. The stockout rate for TO1, which has always been reported on, increased slightly from FY 18 Q1 (1 percent) to FY 18 Q2 (5 percent). This was driven by the addition of first and second RTKs, as well as female and male condoms. Those four products (RTKs and condoms) saw higher stockout rates than the tracer products previously reported, driving up the overall TO1 stockout rate.
Namibia	Only 1 out of 57 facilities reported a stockout of first RTKs, an improvement from a stockout rate of 6 percent in Q1. GHSC-PSM coordinated a stop-gap distribution of RTKs procured by GHSC-RTK in March to high-burden regions supported by USAID partners. Stockouts of pediatric ARVs and 2nd line adult ARVs impacted only one and two sites, respectively.
Nigeria	For a second quarter in a row, Nigeria's overall stockout rate reduced slightly, this time from 15 percent in FY18 Q1 to 14.5 percent this quarter. Stockouts of HIV products (TO1) increased slightly from 7 percent last quarter to 8 percent this quarter, driven mainly by stockouts of "tie-breaker" RTKs, which increased from 17 percent to 21 percent. Stockouts of malaria products fell slightly from 21 percent to 20 percent following a shipment of ACTs received in October, but stockouts for AS/AQ remains high.Service providers have continued to prefer prescribing AL to treat malaria, and as such the quantities of AS/AQ have been scaled down and thus increased AL supplies, reflecting the low "inability to treat" stockout rate for all AL presentations, which at 6 percent is lower than last quarter. Stockouts of family planning products were within the acceptable range, although increasing from 8% to 11%, driven by an increase in implantable contraceptives, combined oral contraceptive, and condom stockouts.
Nepal	Nepal reported an overall stockout rate of 12.1 percent this quarter, this is an increase from 8 percent last quarter. This was largely driven by stockout rates of combined oral contraceptives which reported a 21 percent stockout rate. GHSC-PSM is examining if reporting procedures may be affecting some of these stockout rate figures and hopes to see them improve in the coming quarters.

Country Analysis	
Pakistan	During the quarter, Pakistan's overall stockout rates at SDPs increased slightly to 21 percent. Stockout rates for copper-bearing IUDs have slightly increased to 21 percent. GHSC-PSM is working to expedite inspection of these products so issuance can commence to address the stockouts. Stockouts have largely remained steady across the three supported provinces. GHSC-PSM's provincial team is working closely with PWD department and the CW&S to expedite the distribution of copper IUDs to avert stockouts at SDPs.
Rwanda	Rwanda saw an increase in stockout rates at SDPs this quarter from close to 0% last quarter to 4% this quarter. This increase in the overall stockout rate at SDPs is driven mainly by an increase in stockouts for TO2 and TO3 products. For TO3, implantable contraceptives experienced a high stockout rate due to the increased use and acceptance under the postpartum family planning (PPFP) strategy, where according to the eligibility criteria of PPFP, implants are the first choice of family planning methods.
Uganda	Uganda experienced an increase in stockout rates at the SDP level this quarter (20 percent) compared to last quarter (18.6 percent), primarily driven by high stockout rates of TO1 and TO3. There has been an increase of 22 percent in stockout rates for TO3 commodities (i.e., depoprovera) at SDP level, caused by a prolonged stockout at central level. GHSC- PSM has ordered depoprovera, which is expected to be delivered around May 2018. For TO1, SDP stockout rates were high for pediatric ARVs and HIV RUTFs. Stockouts rates for pediatric ARVs were high due to a 74 percent increase in the number of new pediatric clients.
Zambia	Overall, the stockout rate for Zambia this quarter was 20 percent. Stockouts of SP were high (22 percent) due to a central level stockout. However, the ALu "inability to treat" rate remains relatively low at 4 percent. A large contributing factor to stockouts in Zambia is the recent change in the central medical store's distribution schedule from monthly to bi-monthly. While the time between distributions increased, the required minimum and maximum months of stock at facilities remained constant. GHSC-PSM is advocating with the central medical stores to align the distribution schedule with facility minimum and maximum stock requirements, and addressing other problems such as skipped distribution routes. Additional measures to improve stock availability include continuing to collaborate with district health pharmacists to provide technical assistance to facilities in timely reporting and accurate capturing of data and use of other pack sizes as the central medical store awaits several GHSC-PSM and Global Fund shipments expected in May.
Zimbabwe	Stockout rates increased for the majority of commodities, due mainly to limited distribution from the central level. Stockouts of legacy adult first line ARV and pediatric ARV products are also increasing as these regimens are being replaced. Stockout rates for these products will improve as coverage of the new regimens increases. Low central level stocks of mRDTs have also triggered rationing of facility-level supplies. Reports from the field have suggetsed that this has resulted in increased consumption and stockouts of ACTs as sites use presumptive/clinical diagnosis to identify malaria cases. Despite this, inability to treat with AL remains below 2 percent.

Data Notes

- Stockout rates presented are for all key products offered in each country, irrespective of the funder of those products.
- GHSC-PSM does not provide technical support to all levels of the supply chain in all countries.
- GHSC-PSM defines a "supported region" as an administrative unit which is: a) immediately below the central level, b) receiving "sustained" support from the project, meaning that it has one or more ongoing work plan activities, and c) these activities can be expected to have some eventual influence on facility-level supply chain outcomes. Countries where not all of these conditions apply to any region will be considered "non-GHSC-PSM-supported." Only SDPs that fall within "GHSC-PSM-supported" regions are included in task order level, overall country level, or project level results reporting, as these SDPs are considered to be within the reach of GHSC-PSM's influence.

B2. Percentage of stock status observations in storage sites where commodities are stocked according to plan, by level in supply system (tracer products)

Measure Definition

Numerator: Number of stock status observations for a tracer commodity that were within the designated minimum and maximum quantities at storage sites.
Denominator: Total number of stock status observations for a tracer commodity at storage sites.
Purpose: This indicator checks to see if the supply chain system is functioning as it was designed by tracking if both the central level and subnational level medical stores can maintain the designated quantity of stock (months of stock between min and max levels) to treat patients or to distribute to treatment facilities or secondary distribution centers. This metric can help locate bottlenecks within the system which prevent patients from receiving needed commodities and/or result in stockouts or expiries.

Task Order	Achievement FY2018 Q2	Year to Date
TO1	34%	33%
TO2	24%	24%
TO3	15%	17%
TO4	13%	21%
All TOs	23%	24%

▸ Targets for this indicator are set at the country level

Indicator Performance

		Central	Sub-National Level 1
HIV	**Task Order 1**	42%	34%
	First-line Adult ARVs	68%	55%
	Second-line Adult ARVs	42%	46%
	First-line Pediatric ARVs	38%	42%
	First RTKs	41%	28%
	Second RTKs	45%	25%
	Tie-breaker RTKs	56%	17%
	Male Condoms	29%	11%
	Female Condoms	32%	17%
	RUTF	0%	0%
	EID Consumables	11%	100%
	EID Reagents	27%	100%
	Viral Load Consumables	44%	100%
	Viral Load Reagents	60%	100%
Malaria	**Task Order 2**	**15%**	**24%**
	First-line ACTs (AL 6X1)	15%	18%
	First-line ACTs (AL 6X2)	15%	25%
	First-line ACTs (AL 6X3)	16%	16%
	First-line ACTs (AL 6X4)	16%	22%
	First-line ACTs (AS/AQ 100/270mgx3)	9%	19%
	First-line ACTs (AS/AQ 100/270mgx6)	0%	22%
	First-line ACTs (AS/AQ 25/67.5mg)	0%	22%
	First-line ACTs (AS/AQ 50/135mg)	10%	19%
	RDTs for Malaria	33%	19%
	Sulphadoxine-pyrimethamine (SP)	16%	24%
	LLINs	14%	65%

*Stocked according to plan rates presented are for all key products offered in each country, irrespective of the funder of those products.
The PRH "method level" **(in bold) refers to the percent of facilities stocked out of all products the facility offers within a given method. A stockout at the "product level" refers to the number of sites stocked out of that particular product (depending on what is offered at a particular facility). A facility could be stocked out of one product and not stocked out at the method level. Method level aggregations represent the total number of observations for each stock status summed across all tracer products within that particular method.

		Central	Sub-National Level 1
PRH	**Task Order 3**	27%	15%
	Injectable Contraceptives	29%	21%
	Depot Medroxyprogesterone Acetate 104 mg/0.65mL	40%	26%
	Depot Medroxyprogesterone Acetate 150 mg Vial, SR	29%	20%
	Norethisterone Enanthate	0%	12%
	Implantable Contraceptives	32%	12%
	Etonogestrel 68 mg/Rod, 1 Rod Implant	27%	13%
	Levonorgestrel 75mg/Rod, 2 Rod Implant	30%	17%
	Combined Oral Contraceptives	24%	17%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg +Fe 75 mg, 28 Tablets/Cycle	26%	8%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg 28 Tables/Cycle	0%	13%
	Emergency Oral Contraceptives	28%	0%
	Levonorgestrel 0.75 mg, 2 Tablets	42%	16%
	Levonorgestrel 1.5 mg, 1 Tablet	0%	16%
	Progestin-only Pills	21%	13%
	Levonorgestrel 30 mcg 35 Tablets/Cycle	11%	3%
	Copper-bearing Intrauterine Devices	10%	10%
	Calendar-based Awareness Methods	50%	11%
	Male Condoms	33%	10%
	Female Condoms	35%	11%
MCH	**Task Order 4**	7%	13%
	Oxytocin (10 IU Injectable)	0%	10%
	MgSO4 (50% Injectable)	0%	11%
	Injectable Gentamicin	0%	11%
	ORS+zinc (Together)	0%	5%
	Chlorhexidine Gel	20%	24%
	Amoxicillin (125 mg or 250 mg Dispersible Tablets)	33%	22%
	Zinc (Alone)	0%	9%
	ORS (Alone)	0%	16%

B2. Percentage of stock status observations in storage sites where commodities are stocked according to plan, by level in supply system (tracer products for out-of-cycle country - Nepal)

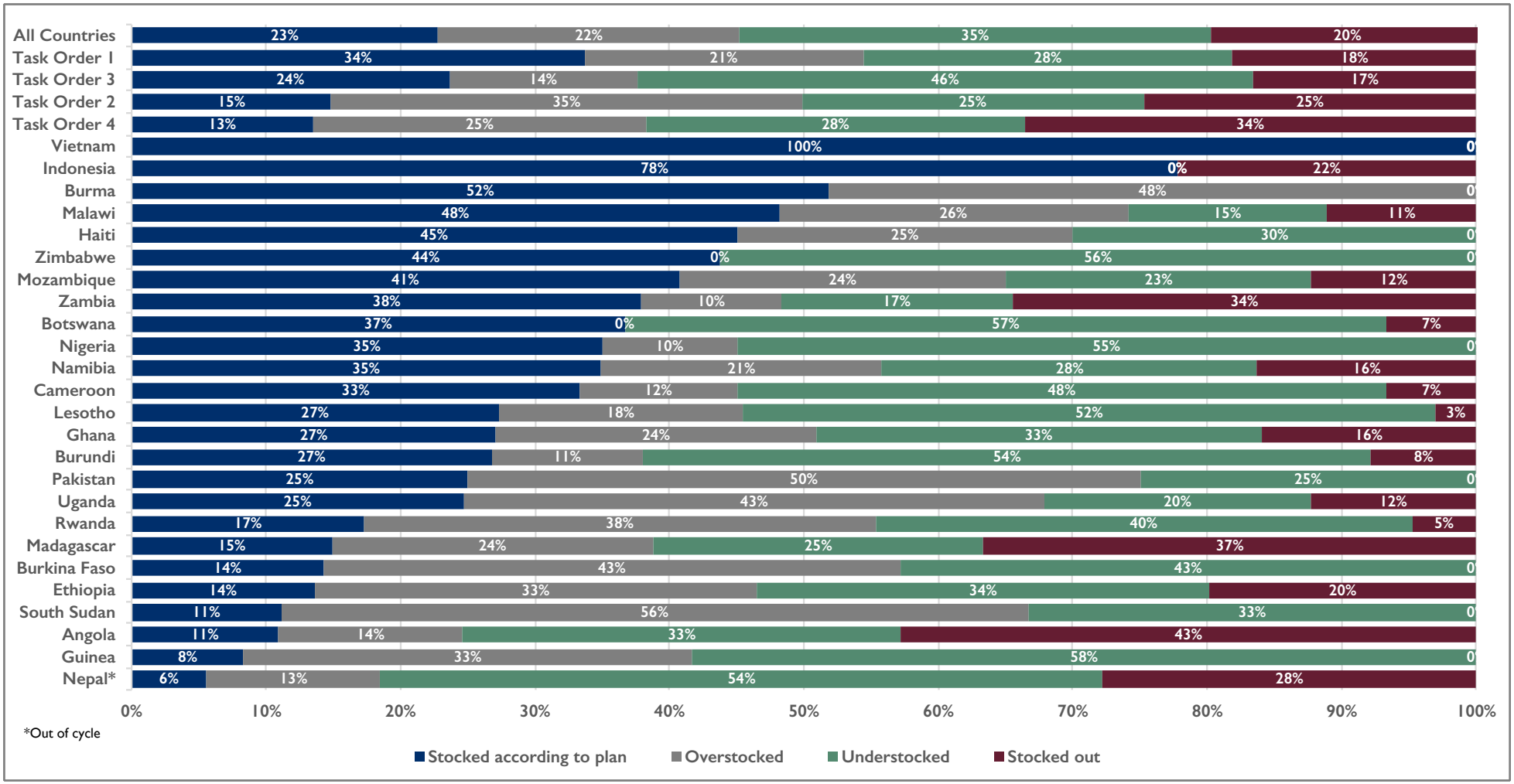
Indicator Performance

		Central	Sub-National Level 1
PRH	**Task Order 3**	38%	0%
	Injectable Contraceptives	100%	0%
	Depot Medroxyprogesterone Acetate 104 mg/0.65mL		
	Depot Medroxyprogesterone Acetate 150 mg Vial, SR	100%	0%
	Norethisterone Enanthate		
	Implantable Contraceptives	0%	0%
	Etonogestrel 68 mg/Rod, 1 Rod Implant		
	Levonorgestrel 75mg/Rod, 2 Rod Implants	0%	0%
	Combined Oral Contraceptives	0%	0%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg +Fe 75 mg, 28 Tablets/Cycle	0%	0%
	Emergency Oral Contraceptives		
	Levonorgestrel 0.75 mg, 2 Tablets		
	Levonorgestrel 1.5 mg, 1 Tablet		
	Progestin-only Pills		
	Levonorgestrel 30 mcg 35 Tablets/Cycle		
	Copper-bearing Intrauterine Devices	0%	0%
	Calendar-based Awareness Methods		
	Male Condoms	100%	0%
	Female Condoms		

*Stocked according to plan rates presented are for all key products offered in each country, irrespective of the funder of those products.
**The PRH "method level" refers to the percent of facilities stocked out of all products the facility offers within a given method. A stockout at the "product level" refers to the number of sites stocked out of that particular product (depending on what is offered at a particular facility). A facility could be stocked out of one product and not stocked out at the method level.

		Central	Sub-National Level 1
MCH	**Task Order 4**	0%	4%
	Oxytocin (10 IU Injectable)	0%	0%
	MgSO4 (50% Injectable)	0%	0%
	Injectable Gentamicin	0%	25%
	ORS+zinc (Together)	0%	0%
	Chlorhexidine Gel	0%	0%
	Amoxicillin (125mg or 250mg Dispersible Tablets)	0%	0%
	Zinc (Alone)	0%	0%
	ORS (Alone)	0%	0%
	PCV Vaccine		

B2. Percentage of stock status observations in storage sites, where commodities are stocked according to plan, by stock status (countries)



B2. Stocked according to plan - granular-level analysis

Analysis

- GHSC-PSM compiles indicator data for all countries in which the project maintains a field office, regardless of the extent of the project's engagement in the country. Therefore, the results in a given country for a specific point in time are not solely a consequence of GHSC-PSM's activities, but rather reflect the many stakeholders and elements that influence in-country supply chain performance.
- Overall, 23 percent of tracer products were stocked within the minimum and maximum levels at storage sites this quarter. This is a slight decrease from 26 percent last quarter.
- Tracer products were more likely to be stocked according to plan at the central level for HIV, PRH, and MNCH products (TO1: 42 percent central and 34 percent subnational 1; TO3: 27 percent central and 15 percent subnational 1; TO4: 25 percent central and 18 percent subnational 1). Malaria products were more likely to be stocked according to plan at the sub-national level 1 (TO2: 15 percent central and 24 percent subnational 1).
- HIV products were stocked according to plan 34 percent of the time, a slight increase from last quarter (33 percent). First line ARVs were stocked according to plan 68 percent of the time at the central level and 55 percent of the time at the subnational level. Second line ARVs and first line pediatric ARVs both showed a slight decrease in stocked according to plan to 49 percent and 47 percent, respectively. Viral load reagents being stocked according to plan showed an increase from 47 percent to 60 percent but viral load consumables showed a decrease over last quarter from 70 percent to 44 percent. EID consumables and reagents showed a marked decrease from last quarter, dropping to 11 percent and 27 percent, respectively.
- Malaria products were stocked according to plan 23 percent of the time, similar to last quarter's 25 percent. The products most likely to be stocked according to plan include include malaria rapid diagnostic tests (33 percent central level, 19 percent sub-national level 1), AL 6X2 (15 percent central level, 25 percent sub-national 1 level), and AL 6X4 (16 percent central level, 22 percent sub-national 1 level).
- PRH products were stocked according to plan 15 percent of the time, a decrease from 19 percent in the previous quarter. The products most likely to be stocked according to plan include depot medroxyprogesterone acetate 104 mg/0.65 mL (40 percent central level), levonorgestrel 0.75 mg, 2 tablets (42 percent central level), levonorgestrel 75mg/rod, 2 rod implant (30 perecent central level), and calendar-based awarenss methods (50 percent central level).
- MNCH products were stocked according to plan 13 percent of the time, a marked decrease from 29 percent last quarter. The products most likely to be stocked according to plan include amoxicillin (125 mg or 250 mg dispersible tablets) (38 percent central level, 22 percent sub-national level 1), and chlorhexidine gel (25 percent central level, 25 percent sub-national level 1).

Data notes

- Q2 data do not include subnational level 2 observations as the data were deemed not complete enough to be included.
- Stocked according to plan rates presented are for all key products offered in each country, irrespective of the funder of those products.

B2. Stocked according to plan - country-level analysis

Country Analysis	
Angola	Angola has reported an increase of sites observed, namely provincial and central level, as stocked according to plan from 5 percent to 11 percent. Stockouts have slightly increased to 43 percent, compared to 38 percent last quarter due to an effort to keep facilities stocked rather than storing buffer at the provincial level. At the central level, the only HIV tracer product stocked out was female condoms. For malaria products, stockout rates for SP and RDTs rose to 15 percent and 28 percent, respectively. A major driver of stockout rates this quarter were PRH products, which at the provincial level had 47 percent of 540 stock observations marked as stocked out due to stockouts at the central level and a lack of MoH procurements.
Botswana	The most commonly used first and second line adult ARVs were stocked according to plan throughout the reporting period. Other HIV products, including pediatric ARVs, RTKs, and lab products, were generally understocked due to procurement and delivery delays. Issues related with delayed procurement processes are expected to improve over the subsequent quarter through a robust supply planning and close monitoring of stock status, with the technical assistance of the seconded staff to CMS.
Burkina Faso	Burkina Faso's stocked according to plan rate fell from 29 percent to 14 percent; however, this represented a shift to overstocking, while understocking remained constant at 43 percent, with no stockouts at storage sites. Additionally, only central level data are included: district level data were not available in time for reporting.
Burma	This quarter Burma reported a decrease from 83% to 52% of sites stocked with minimum and maximum levels this quarter. The remainder of sites have been observed to be overstocked. This phenomenon is directly related to the National AIDS Program preparing to accept a transfer of patients that were previously treated by NGO implementing partners. These stock observations will adjust to appropriate levels once consumption of these transfer patients are incorporated into consumption data.
Burundi	About one quarter of stock observations in Burundi were stocked according to plan this period, while more than half of observations were understocked. Observations for many HIV products at subnationa sites were not reported, due to difficulties in determining accurate consumption. GHSC-PSM is working with the national HIV/AIDS program to better define the most appropriate parameter for calculating average consumption.
Cameroon	Stocked according to plan status improved slightly for first line adult ARVs and pediatric ARVs since the previous quarter. Second line adult ARVs were understocked and stocked out, but a close substitute was available to mitigate the impact on patients. RTK performance was generally low, with high rates of understocking. Inventory management at the national and regional levels remains a focus of GHSC-PSM's technical assistance.
Ethiopia	Ethiopia had a consistently low stocked according to plan rate, at 14 percent this quarter, down from 16 percent last quarter. Stockouts increased from 14 to 20 percent, and understocking from 30 to 34 percent. Stocking to plan is substantially higher at the central level (22 percent) than at the regional level (13 percent); however, understocking is more pronounced at the central level (44 percent) than at the regional level (32 percent). At the central level, 60 percent of malaria stock observations and 50 percent of MCH observations were stocked out. These numbers were reduced at the regional level (25 and 28 percent, respectively). It could be fairly concluded from the low facility stockout rates that more stock was pushed to facilities to accommodate seasonal variation of some commodities and programmatic changes like the appointment spacing model implementation. In addition, procurement is not in accordance with the min-max inventory system as it was designed. Several measures are being taken to improve warehouse stocking, including addressing product shortages at the central level, supporting the Pharmaceuticals Fund and Supply Agency (PFSA) to strengthen its inventory management system, working closely with PFSA hubs and regional health units to improve data quality at facilities and storage sites, and supporting PFSA to triangulate consumption and service data during the refill process.
Ghana	Ghana submitted data for January and February 2018 for this indicator. Overall, the rates for all stock statuses remained fairly consistent with the previous quarter, with the largest difference being the stocked out rate, which saw a 6% decline from 22% in FY18 Q1 to 16% in FY18 Q2. This drop in the stockout rate can be attributed to the streamlining of distributions from the central to regional levels and the fact that the stock report is increasingly being used to inform decision-making.

Country Analysis	
Haiti	Haiti improved its stocked according to plan rate from 42 to 45 percent. However, understocking also increased from 12 to 30 percent, slightly more among family planning products. For HIV/AIDS products, only male condoms were understocked. The understocking of condoms is due to a new Ministry of Health strategy to prioritize long-term family planning methods, and therefore reducing the required stock levels for products such as condoms. GHSC-PSM will continue to monitor the evolution of the USAID mission's recent strategy shift from consumption-based procurement to a quota-based system for stock replenishments, as well as the new Ministry of Health strategy regarding the prioritization of long-term family planning methods.
Indonesia	Indonesia is reporting this indicator for the first time and was able to report on three tracer products—most used 1st line ARV, most used 2nd line ARV, and most used 1st line pediatric ARV. All observations for the most used 1st line ARV and 2nd line ARV were stocked according to plan; however 1st line pediatric ARV was only stocked according to plan 33% of the time (1 of 3 observations). The rest of the observations were marked as stocked out. As a result, Indonesia saw an overall stocked according to plan rate of 78% and a stockout rate of 22%.
Madagascar	Madagascar maintained its 15 percent rate of stocked according to plan at the central and regional level since last quarter, while stockouts increased from 30 to 37 percent. Stockouts were 18 percent for malaria products, 36 percent for family planning products, and 81 percent for maternal and child health products. For malaria products, stocking according to plan improved at the district level from 19 to 23 percent, particularly in the zones where GHSC-PSM provides support. However, at the central level products are all understocked or stocked out. Stockouts of family planning products, as previously noted, are in part due to late deliveries by other donors, particularly a shipment that arrived six months late. For maternal and child health products, there is not yet a consistent mechanism of procuring, and for now a push distribution of free MCH commodities is being organized based on stock available in country. GHSC-PSM has mobilized reources, and first shipments are expected in June and July and later in the year. At the central level, the project will focus on ensuring adherence to the supply plans in the timing of placing orders and coordinating with other family planning partners to address stock imbalances through re-distribution and emergency orders.
Malawi	Indicator performance is generally strong for HIV and PRH products, at 67 and 75 percent for each task order respectively. Malaria products had higher rates of overstocking, while MNCH products (ammoxicillin 250 mg, zinc, and ORS) were stocked out at the central level. Deliveries for TO2 and TO3 over the next few months are expected to sustain stocks through FY2018.
Mozambique	Overall, the rates for all stock statuses remained consistent with the previous quarter, with the stocked according to plan and understocked rates remaining the same from last quarter at 41% and 23%, respectively. Meanwhile, the overstocked rate increased by 2% to 24%, and the stocked out rate decreased by the same amount, to 12%.
Namibia	Overall results improved from the previous quarter, from 18 to 35 percent of observatations stocked according to plan in Q2. Stockouts of first RTKs and pediatric ARVs flipped to overstocks during the quarter, as new orders arrived. MoHSS allowed a limited procuremnet mandate to the central medical stores, which resulted in faster order processing and improved stockholding. However, delayed ARV procurements limit CMS's ability to plan deliveries. GHSC-PSM is reviewing options for providing procurement support.
Nepal	Nepal's storage data refer back to stock status observed in October, in order to align with data reported for indicator B1. This quarter, Nepal has changed its approach to calculating sites that are stocked according to plan. The change is in how average monthly consumption (AMC) is calculated, which impacts appropriate minimum and maximum stock levels. Now, issue data for up to four quarters (as available) is divided by the corresponding number of months, to generate a more even AMC value. This quarter, 6 percent of facilities were stocked appropriately between minimum and maximum levels. Additionally, major warehouse reorganizations occurred this quarter, which improved storage conditions, organization of commodities, and use of storage space. These improvements should improve the performance of this indicator in the coming quarters.
Nigeria	Nigeria once again reported no stockouts at the central level for any products and had an increase in the percentage of commodities stocked according to plan, from 24 percent in Q1 2018 to 35 percent in Q2 2018. Nigeria did see several products that were understocked, including RDTs. RDTs were understocked due to a delay in the PMI procurement of RDTs which previously accounted for the availability of RDTs from other donors. Shipments of RDTs for FY18 are currently planned for April 2018 and August 2018.

Country Analysis	
Pakistan	Overall, sites stocked according to plan have increased to 25 percent in the supported provinces of KP, Punjab, Balochistan, and Sindh. The system that generates SMS/email alerts generated by the LMIS to rapidly alert supply chain actors of actions needs to optimize distribution is helping but additional support is needed. GHSC-PSM is working with provincial governments to expedite procurements and streamline distribution. This should help improve performance on this indicator next quarter.
Rwanda	Overall, Rwanda saw a slight increase in products that were stocked out (2 percent in Q1 FY18 to 5 percent in Q2 FY18), and a decrease in products that were stocked according to plan (36 percent in Q1 FY18 to 17 percent in Q2 FY18), while those that were overstocked increased (30 percent in Q1 FY18 to 38 percent in Q2 FY18). For TO2 specifically, malaria commodities were understocked at the central level during Q2 2018, with only a few days of stockouts for malaria RDTs and Artemether-Lumefantrine (AL) 6x3. January 2018 had more malaria cases in comparison to recent years, which contributed to the increase the stockout rates in TO2.
South Sudan	South Sudan, which is reporting for the first time, reported on three tracer products - male condoms, most used 1st line ARV, and first RTK - all of which had no stockout observations for the quarter. The stocked according to plan rate was 11 percent, which, though not reported, is a large decrease in the stocked according to plan rate from the previous quarter of 66 percent. The sharp decline in the stocked according to plan rate - and the fact that the overstock rate is 56 percent for Q2 - can be attributed to the fact that male condoms had an overstocked rate of 100 percent this quarter and the most used 1st line ARV had an overstocked rate of 67 percent, when both had a stocked according to plan rate of 100 percent last quarter.
Uganda	Stocked according to plan observations in Uganda decreased from 28 in Q1 2018 to 25 percent in Q2 2018, with a significant increase in commodities that are overstocked (36 percent in Q1 FY18 to 43 percent in Q2 FY18). For TO1 specifically, 44 percent of TO1 commodities were stocked according to plan compared to 36 percent in Q1 FY18, while both TO2 and TO3 decreased.The reduction in TO2 and TO3 stock status observations of stocked according to plan is explained by an increase of overstocked status and understocked status observations compared to last quarter. The increase in overstocked observations for TO2 can be attributed to lower than expected consumption of malaria tracer products.
Vietnam	Vietnam continues to have excellent performance in this indicator. This quarter they reported 100 percent of sites to be stocked according to plan.
Zambia	Stocked according to plan rates in Zambia increased from 32 to 38 percent since last quarter; however, stockouts have increased from 11 to 34 percent. Understocking was high among both malaria and family planning products. SP was centrally stocked out due to lack of a funding commitment. Furthermore, all maternal and child health tracer products were stocked out, due to a lack of funding commitment by the GRZ and other funders. It is also worth noting that the project has no funding committed for this task order. Regarding malaria products, several shipments are expected in May. For family planning products, GHSC-PSM is supporting the government to conduct redistributions to avoid facility stockouts.
Zimbabwe	Malaria products were generally understocked this quarter, with HIV products performing better. Delays from other partners may prevent some orders of ACTs and mRDTs from arriving in advance of the malaria season. To mitigate ACT shortages, PMI approved the use of savings to place emergency orders through GHSC-PSM, with some already received and some still pending.
Data Notes	
▸	

B3. Service delivery point (SDP) reporting rate to the logistics management information system (LMIS)

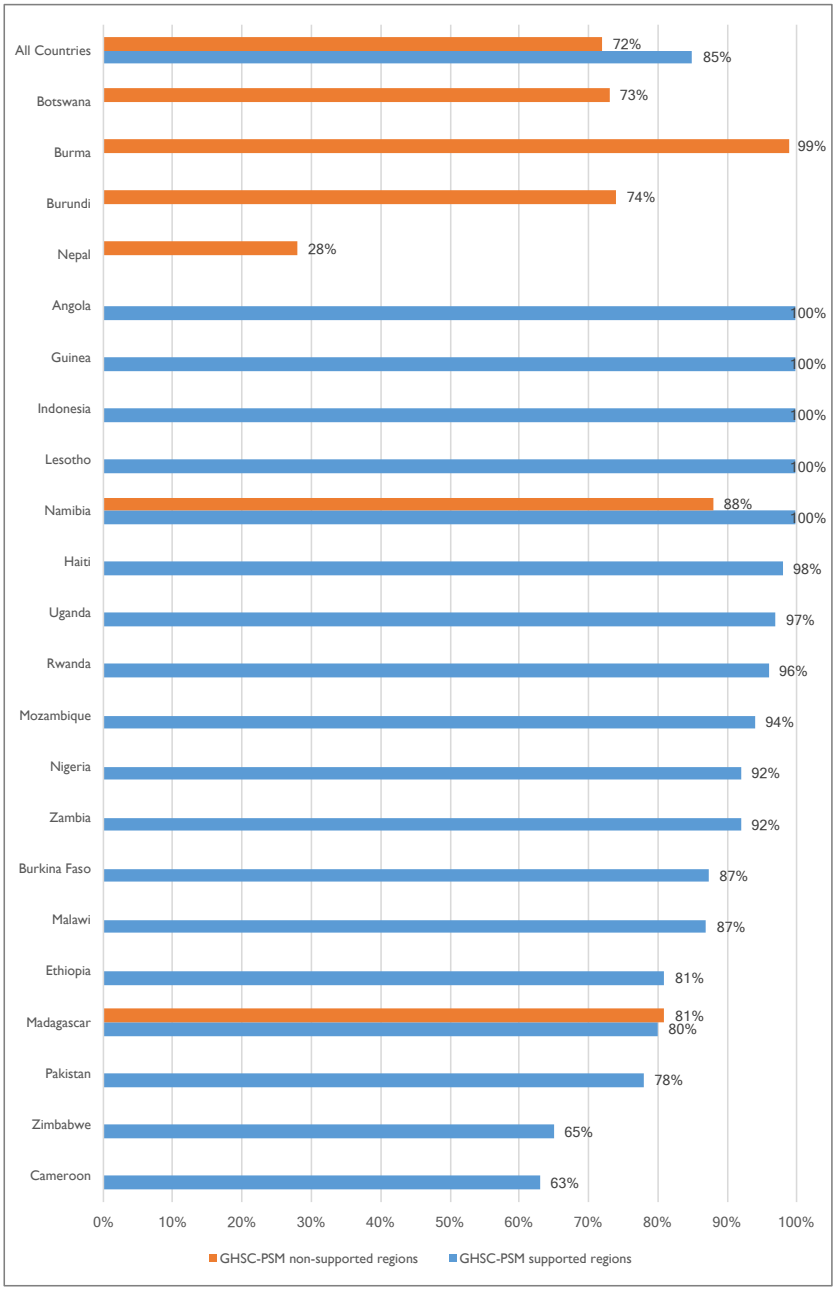
Measure Definition

Numerator: Number of SDPs whose LMIS report(s) or order form(s) were received at the central level within 30 days of the specified in-country deadline.
Denominator: The total number of SDPs in country that are required to report.
Purpose: This indicator determines whether timely SDP-level data are available to supply chain managers, who use these data for decision-making. It illustrates whether SDP data are flowing smoothly up through the LMIS without becoming stuck in bottlenecks along the way. Both timely submission of reports by the SDPs, as well as timely aggregation and/or data entry at any intermediate levels, are used to determine this indicator's performance.

Task Order	Achievement FY2018 Q2	Achievement Year to Date
TO1	88%	86%
TO2	89%	86%
TO3	82%	80%
TO4	80%	76%
All TOs	85%	82%

▸ Targets for this indicator are set at the country level

Indicator Performance



Analysis

- Five countries achieved a 100 percent LMIS reporting rate this quarter: Angola, Guinea, Indonesia, Lesotho, and Namibia. Malaria products (Task Order 2) were reported at the highest rate, at 89 percent, up from 83 percent last quarter.
- Madagascar registered a remarkable increase in its LMIS reporting rate from 43 percent last quarter to 80 percent this quarter. This can be attributed to increased formative supervision conducted with ministry officials, strengthening of the reporting system during MIS trainings, and periodic reviews of logistic data collection for decision-making and monitoring. GHSC-PSM will continue to support the main information systems to improve the quality of the data.
- Haiti saw a large improvement in its LMIS reporting rate from 79 to 98 percent this quarter, representing the highest level to date for the program in Haiti. This success can be attributed a number of factors including the new smartphone reporting system for family planning products, the significant involvement of regional monitors in the collection of reports, the new eLMIS system, the semi-annual data quality assessments by the M&E team, and the new Data Validation team's targeting of assistance to low-reporting sites.
- Burkina Faso's LMIS reporting rate increased from 78 percent to 87 percent this quarter, due in part to GHSC-PSM's provision of internet connection modems to all districts in the country last quarter.
- Botswana's reporting rate improved from 61 to 73 percent this quarter, attributed mainly to dedicated follow up from the logistics management unit. The rate is expected to improve further with the deployment of GHSC-PSM site monitors.
- Ethiopia's reporting rate fell from 90 to 81 percent this quarter, with HIV, malaria, and family planning products all showing about a 10 percent decline in reporting. Some of the contributing factors included inadequate support from administrative units to report on time, staff turnover and shortages, low commitment to write and submit reports, and security-related problems in some areas of the country. The project will work to identify SDPs that fail to report promptly and communicate this to regional pharmaceutical and health authorities for timely action.
- Cameroon continues to support the integration of low-volume sites into its reporting structure. Ongoing training and involvement of district teams in collecting and using logistics data has helped increase the reporting rate from 19 percent in Q1 to 63 percent in Q2.
- Zimbabwe's reporting rates increased this quarter, credited to stability in the ZAPS system as partners carry out ordering rounds on time. Zimbabwe is also reporting data from the current quarter for the first time this period as a result of improvments to the LMIS.
- Zambia also saw a strong boost to its reporting rate, credited to continued technical assistance to SDPs and close monitoring of eLMIS.
- Nepal's reporting rate is impacted by the country's federal structure, in which the reports must pass through two subnational administrative units before reaching the LMD. GHSC-PSM has recruited field support officers to help follow up on reporting, and is working with the LMIS unit at the LMD to find additional ways to improve timely reporting.

Data Notes

- **Targets for this indicator are set at the country level.**
- SDPs located in non-GHSC-PSM-supported regions are not included in the task order or project level totals reported at the top right.
- Certain countries have limited access to SDP data and report stockouts (B1) and reporting rates from a small number of sites. These include Angola (19 sites), Botswana (33), Indonesia (5), and Namibia (63). See the Denominator Annex at the end of this report for a complete listing of country denominators by task order.

B3. Service delivery point (SDP) reporting rate to the logistics management information system (LMIS)

Country SDP Reporting Rates by Task Order		Angola	Botswana - Not Supported	Burkina Faso	Burma - Not Supported	Burundi - Not Supported	Cameroon	Ethiopia	Guinea	Haiti	Indonesia	Lesotho	Madagascar	Madagascar - Not Supported	Malawi	Mozambique	Namibia	Namibia - Not Supported	Nepal - Not Supported
HIV	TO1	100%	73%		99%	72%	63%	81%		99%	100%	100%			86%	97%	100%	88%	
Malaria	TO2	100%		87%	99%	73%		81%	100%				95%	89%	90%	91%			
PRH	TO3					79%		82%	100%	97%			100%	100%	84%	92%			28%
MCH	TO4							79%					43%	54%	89%	95%			28%

Country SDP Reporting Rates by Task Order		Nigeria	Pakistan	Rwanda	Uganda	Zambia	Zimbabwe
HIV	TO1	95%		95%	96%	96%	66%
Malaria	TO2	96%		99%	97%	91%	65%
PRH	TO3	82%	78%	100%		91%	
MCH	TO4			89%		91%	

Data Notes

- Country and task order reporting rates are for service delivery points located in GHSC-PSM-supported regions, unless otherwise noted. Relevant regions for this indicator are the first subnational administrative units below the central level. A region is considered "supported" by GHSC-PSM if the project is providing sustained support to that region, meaning that it has one or more ongoing work plan activities directed at that region and can be expected to have some eventual influence on SDP-level supply chain outcomes there.
- Data for SDPs located in non-supported regions are excluded from the project- and task order-level summary totals reported on the previous page.
- Blank boxes in the tables above and to the left indicate that the associated task order is operating in the country, but that there is no LMIS for reporting or no GHSC-PSM access to reporting for that health element.

B6. Percentage of required supply plans submitted to GHSC-PSM during the quarter

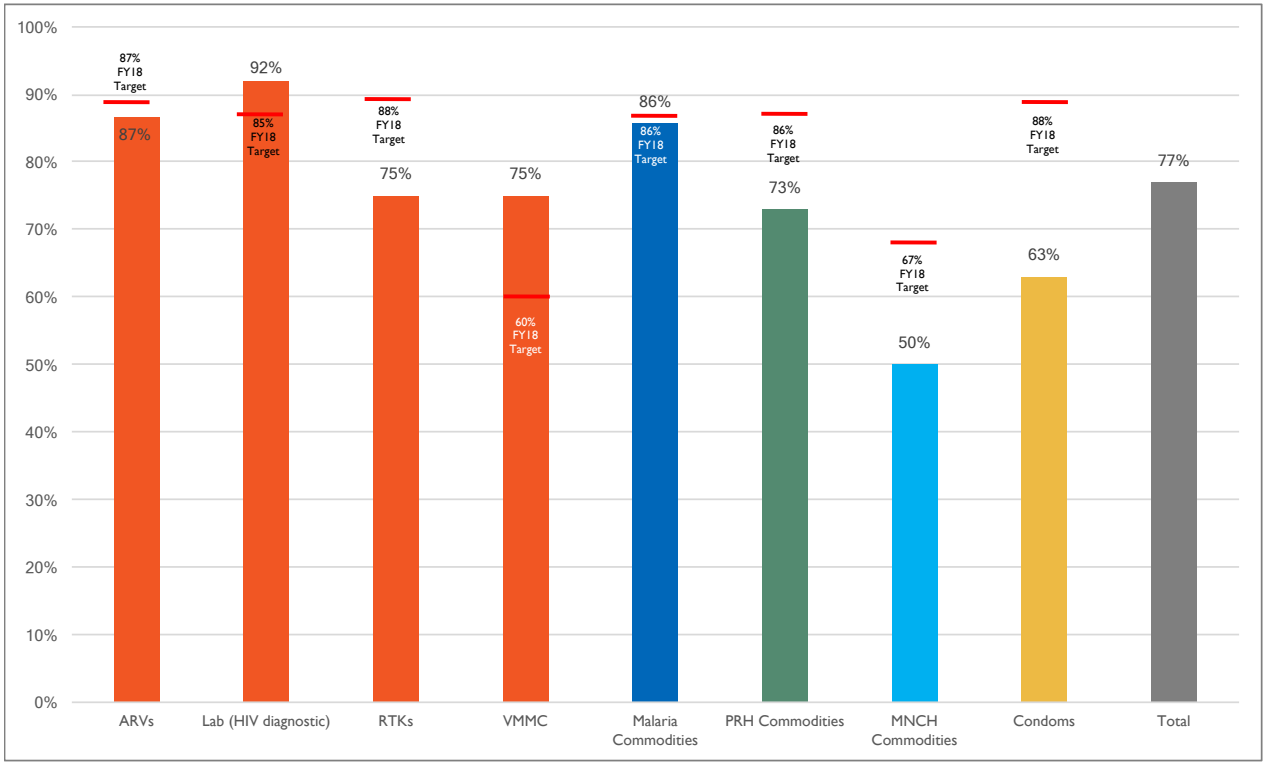
Measure Definition

Numerator: Number of required supply plans that were submitted to GHSC-PSM in the quarter.
Denominator: Total number of required supply plans.
Purpose: Regular visibility into country supply plans is integral to accurate forecasting, which is at the root of commodity security.

Achievement

Commodity Group	FY18 Target	FY2018 Q2	Year to Date
ARVs	87%	87%	90%
Lab (HIV diagnostic)	85%	92%	96%
RTKs	88%	75%	77%
VMMC	60%	75%	67%
Malaria Commodities	86%	86%	89%
PRH Commodities	86%	73%	73%
MNCH Commodities	67%	50%	50%
Condoms	88%	63%	61%
Total	N/A	77%	78%

Indicator Performance FY2018 Q2



Analysis

- During Q1, the Forecasting and Supply Planning (FASP) technical working group completed the supply plan expectation exercise, establishing the universe of country/commodity supply plans that are required quarterly. The outcome of this exercise is a verified reference point in determining supply plan expectations and a critical tool for the identification of countries on which to focus technical assistance to improve performance.
- Across all commodity groups, 72 quarterly supply plans were submitted, representing 72% of the Q2 expectation. This ranged from 87% of required supply plans submitted for ARVs, 86% for malaria commodities, and 77% for lab (HIV diagnostics), to 50% (3 of 6) for MNCH commodities.
- Tanzania did not submit supply plans this quarter as the country is currently going through their quantification exercise. The country expects to be able to submit the required plans for missing commodities in the next quarter.
- While the supply plan submission rates are down across all task orders, the raw number of supply plans submitted this quarter and the expected number of supply plans submitted has increased since the previous quarter.

Data Notes

- The required supply plans by commodity group and country are shown on the following page.
- Targets reflect anticipated project performance by end of FY18 (September 30, 2018).

B6. Percentage of required supply plans submitted to GHSC-PSM during the quarter

Commodity	Country	Submitted TO GHSC-PSM
ARV	Botswana	Yes
	Burundi	Yes
	Cameroon	No
	Côte Ivoire	Yes
	Democratic Republic of Congo	Yes
	Ghana	Yes
	Haiti	Yes
	Mozambique	Yes
	Nigeria	Yes
	Rwanda	Yes
	Tanzania	No
	Uganda	Yes
	Vietnam	Yes
	Zambia	Yes
	Zimbabwe	Yes
Lab	Burundi	Yes
	Cameroon	Yes
	Côte Ivoire	Yes
	Democratic Republic of Congo	Yes
	Ethiopia	Yes
	Haiti	Yes
	Mozambique	Yes
	Nigeria	Yes
	Rwanda	Yes
	Tanzania	No
	Uganda	Yes
	Zambia	Yes
	Zimbabwe	Yes
RTK	Botswana	Yes
	Burundi	Yes
	Cameroon	No
	Côte Ivoire	Yes
	Democratic Republic of Congo	No
	Ethiopia	Yes
	Ghana	Yes
	Haiti	Yes
	Malawi	No
	Mozambique	Yes
	Nigeria	Yes
	Rwanda	Yes
	Tanzania	No
	Uganda	Yes
	Zambia	Yes
	Zimbabwe	Yes
VMMC	Malawi	No
	Mozambique	Yes
	Uganda	Yes
	Zimbabwe	Yes

Commodity	Country	Submitted TO GHSC-PSM
Malaria	Angola	Yes
	Burkina Faso	Yes
	Burundi	Yes
	Ghana	Yes
	Kenya	No
	Madagascar	No
	Malawi	Yes
	Mozambique	Yes
	Nigeria	Yes
	Rwanda	Yes
	Tanzania	Yes
	Uganda	Yes
	Zambia	Yes
	Zimbabwe	Yes
PRH	Burundi	Yes
	Democratic Republic of Congo	No
	Ethiopia	Yes
	Ghana	Yes
	Haiti	Yes
	Kenya	No
	Madagascar	No
	Malawi	Yes
	Mozambique	Yes
	Nepal	Yes
	Nigeria	No
	Rwanda	Yes
	Tanzania	Yes
	Uganda	Yes
	Zambia	Yes
MNCH	Ghana	No
	Haiti	No
	Madagascar	No
	Mozambique	Yes
	Rwanda	Yes
	Zambia	Yes
Condoms	Côte Ivoire	No
	Democratic Republic of Congo	No
	Ethiopia	No
	Ghana	Yes
	Haiti	Yes
	Malawi	Yes
	Mozambique	Yes
	Nepal	No
	Nigeria	No
	Rwanda	Yes
	Senegal	Yes
	Swaziland	No
	Tanzania	Yes
	Uganda	Yes
	Zambia	Yes
	Zimbabwe	Yes

C1. Number of innovations (including operations research studies) that were developed, implemented, or introduced and are related to health commodity market or supply chain best practices

Measure Definition

Number of innovations: An innovation refers to new technologies, new products, new approaches, and/or operational research studies developed, implemented, or introduced during the period of reporting.

Task Order	Achievement FY2018 Q2	Achievement Year to Date
TO1	1	4
TO2	1	2
TO3	3	5
TO4	1	1
Cross-Cutting	4	7
All TOs	10	19

▸ Target not required for this indicator.

Description of Innovation		
Global/Country	Type of Innovation	Brief Description
TO1		
Cameroon	New Approach	The GHSC-PSM team in Cameroon has implemented a new strategy to improve reporting and stock availability. WhatsApp groups have been created at the district level to send reminders on reporting and refill order deadlines and to share information on supply chain management.Through this forum, products are redeployed to sites with risk of stockout.
TO2		
South Sudan	New Technology	GHSC-PSM South Sudan developed a database to capture and monitor the distribution of LLINs based on a robust documentation system that ensured an error-proof delivery of these LLINs to eight of the ten former states of South Sudan seamlessly.
TO3		
Pakistan	New Technology	The main objective of Quarter 2 was to simplify the functionalities and make LMIS more user-friendly and provide strategic support. To do this, GHSC-PSM Pakistan obtained a license for Microsoft Power Business Intelligence tool to allow users to extract intelligence by manipulating large data sets. Gartner (the leading research company) positioned Microsoft Power BI as leader in BI tools. It runs under Microsoft 365 License. The challenge of implementing MS Power BI was the need to have a license for each single user. Sustainability was the challenge. The MIS team took the challenge and used MS Power BI in LMIS using the technology iFRAME. With this initiative, only one license is consumed and it allows all LMIS users to use MS Power BI without any licensing.

Description of Innovation		
Global/Country	Type of Innovation	Brief Description
Haiti	New Approach	GHSC-PSM Haiti implemented a new approach to reporting family planning product data. The aim of this new strategy is to enable remote family planning sites that do not have the necessary IT equipment (internet, computers, electricity, etc.) to be able to report their data on time. For the implementation of this strategy, a smartphone with an application and internet has been given to the sites belonging to the network: we are at 70 sites for the moment. The platform (the system) notifies the date and time of receipt of each report. This enables us to access site-level data at the end of the reporting period in time for analysis and decision-making.
South Sudan	New Approach	GHSC-PSM South Sudan, for the first time, assisted the government of South Sudan in locally packing reproductive health commodities into kits targeted for specific end users, and aided an integrated distribution of these commodities to target counties using the existing supply system that ensured that commodities go to the right end users.
TO4		
Pakistan	New Approach	GHSC-PSM Pakistan assisted the department of health KP, Sindh, and Balochistan in formulating a long term (five years) forecasting of MNCH VEML commodities, which will essentially guide the decision-makers in setting up the provincial system for regular updates of forecasts and introduce supply planning process for MNCH commodities. The morbidity method was used for the said forecasting process. This was implemented in three provinces, using a unique approach in each.
Cross-Cutting		
Zambia	New Approach	PSM Zambia, through the OSS team, worked with MSL to develop a tool which will serve both as planning and monitoring tool of the donor support at MSL management level. The tool is being used to capture the support MSL is receiving in the 2018/2019 calendar fiscal year from EU, UNDP, CHAZ, and MoH-Global Fund. The tool will highlight the activities which are supported by each individual organization, and this will be the basis to identify potential areas of overlap for the purposes of streamlining such activities to ensure they become synergistic. This tool aims to capture the objectives, activities, and status of the cooperating partners' technical and financial support to MSL. Through the use of this tool, medical stores and its partners will be empowered to coordinate all donor support to optimize the scarce resources for the intended results of increasing availability of essential health commodities through an uninterrupted supply chain. It is therefore envisioned that productivity in MSL will be enhanced through this self-regulated peer review mechanism, depending on the information which will be provided by the tool for better high-level decision-making. It is expected that the use of this tool by MSL and its partners will eventually lead to efficient use of the scarce government and donor resources, eliminate partner duplication of efforts, promote coordinated support for MSL by partners, and promote and enhance synergism among partners. The ultimate goal is to create sustainable systems through increased information sharing and coordination.

Description of Innovation		
Global/Country	Type of Innovation	Brief Description
Rwanda	New Approach	This quarter GHSC-PSM Rwanda introduced a more efficient, integrated approach to streamline quantification across multiple public health programs (HIV/AIDS, Malaria, MCCH, TB and Essential medicine). Prior to implementing the new integrated approach, health programs were conducting their own quantification exercises at various time periods, resulting in inefficiencies in planning and funding mobilization. Now GHSC-PSM Rwanda is supporting the implementation of harmonized quantification processes which look at health commodities that are cross-cutting among different health programs, instead of siloed quantification exercises.
Mozambique	New Technology	GHSC-PSM Mozambique helped develop a temperature and humidity monitoring survey for the warehousing and transport of medical commodities: 1. Temperature monitoring activities will take place for at least two months and will give a better understanding of temperature excursions affecting medicines from production sites down to beneficiaries. 2. During phase 1 of the pilot, the regional warehouses of Zimpeto, Matola, and Nampula were equipped with temperature and humidity devices. The data are available on a website (https://www.saclient.com). 3. Three 3PL transporters subcontracted by GHSC-PSM for transportation service between regional warehouses and provincial warehouse were equipped with devices. The 40-foot containers have five sensors (one outside, three inside on walls in the front, middle and back of containers, and two sensors within boxes).
Ghana	New Approach	GHSC-PSM Ghana has leveraged the Global Fund to support various supply chain interventions in Ghana, including initially the design, acquisition, implementation, and rollout of a nationwide LMIS. This contract has now been extended to include support for last-mile distribution in four non-USAID supported regions, and data management. This approach eliminates duplication of efforts and ensures cross-efficiencies in resource utilization.

C2. Number of people trained by supply chain functional area

Measure Definition

Number of people trained. "People trained" refers to any type of participant, student, or learner in a training event, regardless of its duration. People trained may refer to different categories of participants (e.g., physicians, nurses, social workers).
Purpose: This indicator measures supply chain training activity. It provides insight into whether the project is making progress toward its capacity-building objectives and can help track progress from one year to the next.

Task Order	Achievement FY2018 Q2	Achievement Year to Date
TO1	505	1,867
TO2	2,146	2,183
TO3	1,936	2,035
TO4	0	225
Cross-TO	3,015	4,894
All TOs	7,602	11,204

Indicator Performance

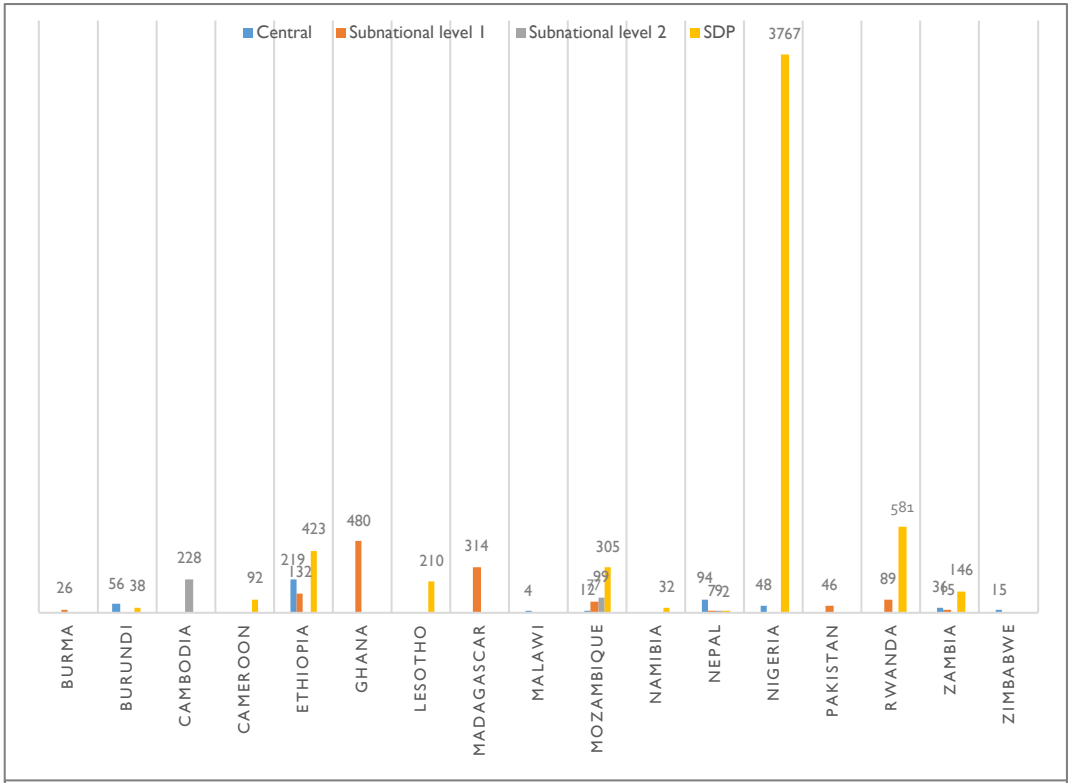
	C2. Number of people trained	Central	Subnational Level 1	Subnational Level 2	SDP
HIV	**Task Order 1**				
	Forecasting and Supply Planning	45			
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management		26	17	104
	Transportation and Distribution				
	MIS				267
	Governance and Financing				
	Human Resources and Capacity Development				21
	Monitoring and Evaluation				
	Strategy and Planning	25			
Malaria	**Task Order 2**				
	Forecasting and Supply Planning	16			
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management				1887
	Transportation and Distribution				
	MIS			228	
	Governance and Financing				
	Human Resources and Capacity Development		12	3	
	Monitoring and Evaluation				
	Strategy and Planning				
PRH	**Task Order 3**				
	Forecasting and Supply Planning	10			
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management				1880
	Transportation and Distribution				
	MIS			23	
	Governance and Financing				
	Human Resources and Capacity Development			23	
	Monitoring and Evaluation				
	Strategy and Planning				

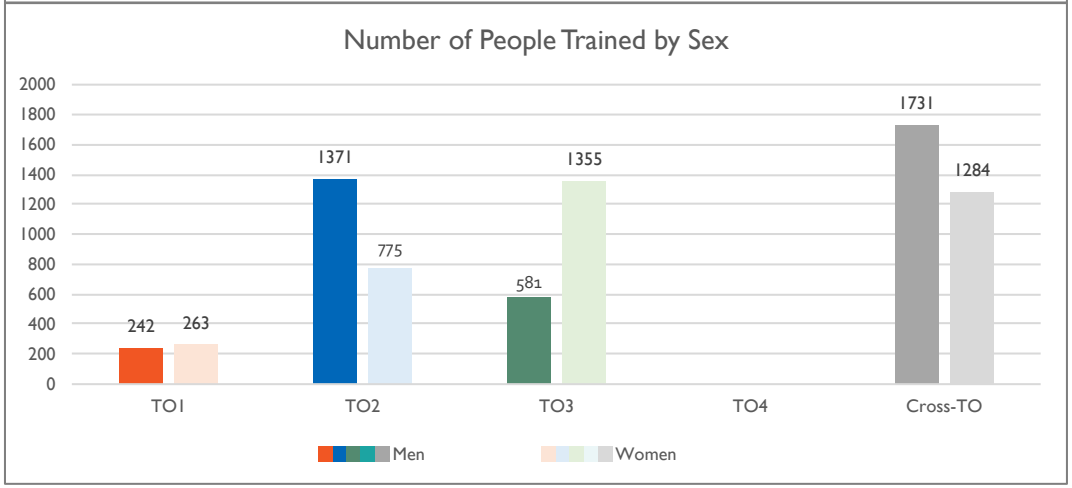
	C2. Number of People Trained	Central	Subnational Level 1	Subnational Level 2	SDP
MCH	**Task Order 4**				
	Forecasting and Supply Planning				
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management				
	Transportation and Distribution				
	MIS				
	Governance and Financing				
	Human Resources and Capacity Development				
	Monitoring and Evaluation				
	Strategy and Planning				
Cross-TOs	**Cross-TO**				
	Forecasting and Supply Planning	56			
	Procurement				
	Quality Assurance	27			77
	Warehousing and Inventory Management	48	524	29	707
	Transportation and Distribution		512		
	MIS	50	23	59	182
	Governance and Financing	167			346
	Human Resources and Capacity Development	36	43		125
	Monitoring and Evaluation	4			
	Strategy and Planning				

Data Notes

- The number of participants in trainings that were TO-specific are presented in the TO boxes, while trainings that covered multiple TOs are presented as such.
- To demonstrate the number of people trained by funding source, participants in trainings that covered multiple TOs were divided according to the TO funding split in each country. Those participants were added to the TO-specific participants to determine the number of people trained by funding source. These data are presented on the following page.
- Target not required for this indicator.

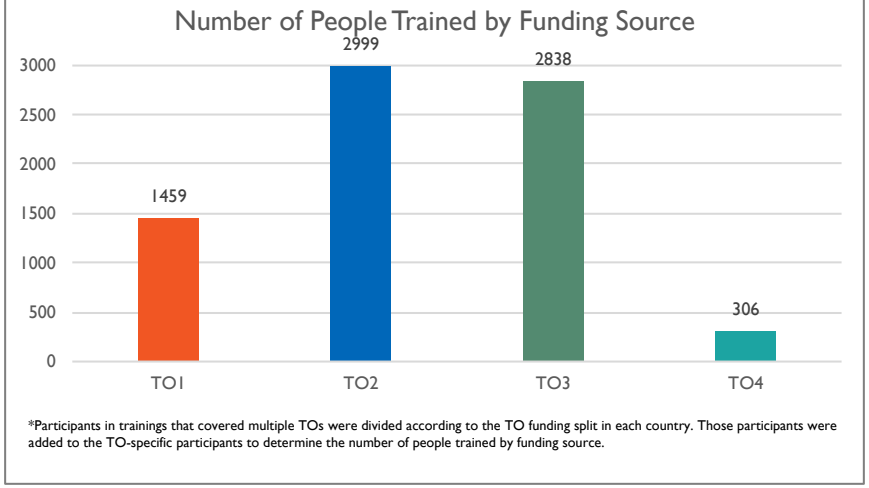
C2. Number of people trained by task order, country, sex, and funding source





Analysis

- The total number of people trained this quarter increased by 111 percent to 7,602 people trained. This increase was represented by several countries but primarily Nigeria.
- Most trainings covered topics specific to a task order (4,587). When examining trainings by funding source, 505 individuals were trained using TO1 funding, 2,146 with TO2 funding, 1,936 with TO3 funding, and none with TO4 funding.
- This quarter, Nigeria undertook a large-scale training initiative to significantly improve reporting practices at the SDP level for both population/reproductive health products and malaria products. 3,719 people were trained across 5 states; roughly one half in malaria products and one half in population/reproductive health products.
- Ethiopia trained a total of 773 health professionals in 5 thematic areas, at both the regional and facility levels. The training areas included warehouse and inventory management, auditable pharmaceutical transactions and services, HIV care, treatment, and prevention for pharmacists, drug information services, and gender equality in the supply chain health workforce.
- Madagascar notes that as of this quarter, where 314 additional logistics managers were trained, all of the regional and district health management teams have been trained in stock management. These resource persons are now available to build capacity of personnel at the district and commune levels.



*Participants in trainings that covered multiple TOs were divided according to the TO funding split in each country. Those participants were added to the TO-specific participants to determine the number of people trained by funding source.

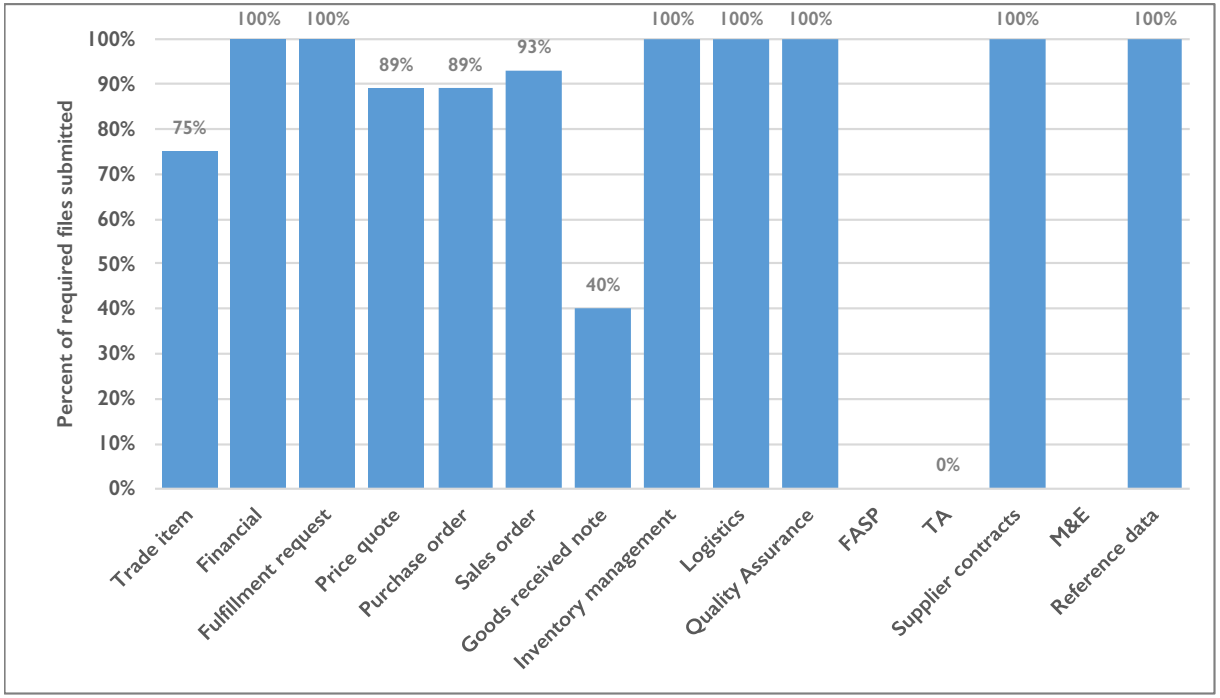
C4. Percentage of required files submitted to BI&A in the reporting period

Measure Definition

Numerator: Number of required files submitted to BI&A during the quarter.
Denominator: Total number of files required for submission to BI&A during the quarter.
Purpose: This indicator measures the completeness of GHSC-PSM's data submissions GHSC-BI&A. Required files and data elements fall into a wide range of categories, from purchase orders and fulfillment requests to forecasting and supply planning.

	FY18 Target	Achievement FY2018 Q2	Achievement Year to Date
All Task Orders	TBD	88%	82%

Indicator Performance



Analysis

- GHSC-PSM increased its data submission rate to BI&A this quarter. This includes new daily file submissions in the Price Quote, Purchase Order, and Sales Order content types. The QA team also began submitting data on TO2 out-of-specification findings for the first time.
- GHSC-PSM continues to work with GHSC-BI&A on defining submission formats and data element mapping for two content types: forecast and supply planning (FASP) and monitoring and evaluation (M&E). These files have been excluded from the indicator result while this work is ongoing. In the meantime, data in these areas are shared with USAID via other platforms. FASP files are submitted to BI&A on a quarterly basis and are accessible to USAID, which requirements are still being defined. M&E data are shared in quarterly performance reports, such as this one.

Data Notes

- The USAID Global Health Supply Chain Program-Business Intelligence and Analytics (GHSC-BI&A) mechanism is a data warehouse and analysis platform that integrates data across USAID's family of GHSC projects.
- Data requirements, including file types, data elements, submission formats, and frequency, are governed by the *BI&A Information Specification for Implementing Partners* (the "Infospec"). Exceptions may be specified by USAID.
- Four out of eight trade Item files named in the Infospec have been excluded from the indicator as "not applicable" to GHSC-PSM's current business processes.

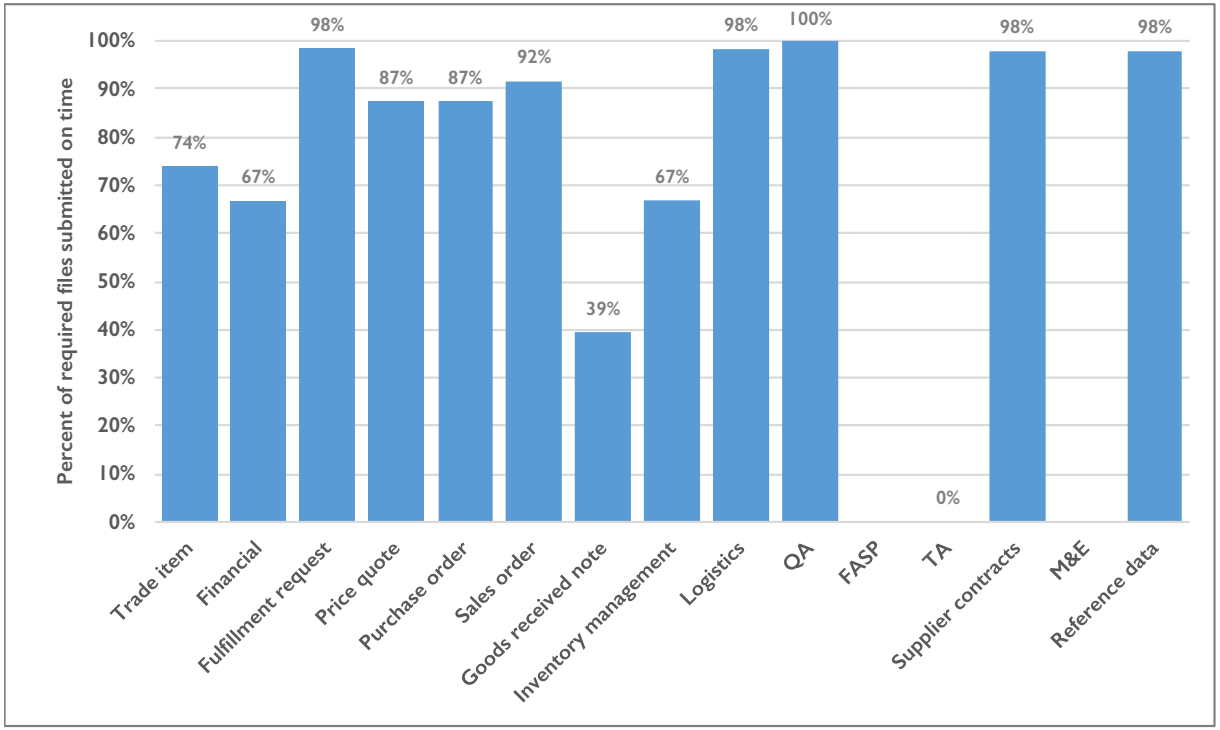
C5. Percentage of required files timely submitted to BI&A in the reporting period

Measure Definition

Numerator: Number of required files timely submitted to BI&A during the quarter.
Denominator: Total number of files required for submission to BI&A during the quarter.
Purpose: This indicator measures the timeliness of reporting to the BI&A. Depending on the information category, submissions can be due on a daily, monthly, or annual basis.

	FY18 Target	Achievement FY2018 Q2	Achievement Year to Date
All Task Orders	TBD	86%	82%

Indicator Performance



Analysis

- Data submission timeliness rose this quarter, from 77 to 86 percent. A technical error disrupted one daily transmission, but the error was resolved and the data feed resumed within one day. There was also a one-day delay in the submission of one monthly financial statement.
- All other required files submitted this quarter were submitted on time according to the timelines set in the BI&A *Information Specification for Implementing Partners* or USAID guidance.
- Please see indicator C4 for more details about required files and exceptions for the quarter.

Data Notes

- The USAID Global Health Supply Chain Program-Business Intelligence and Analytics (GHSC-BI&A) mechanism is a data warehouse and analysis platform that integrates data across USAID's family of GHSC projects.
- Data requirements, including file types, data elements, submisison formats, and frequency, are governed by the *BI&A Information Specification for Implementing Partners* (the "Infospec"). Exceptions may be specified by USAID.
- Four out of eight trade Item files named in the Infospec have also been excluded from the indicator as "not applicable" to GHSC-PSM's current business processes.

C7a. Percentage of product lost due to expiry while under GHSC-PSM control (product loss percentage)

Measure Definition

Numerator: Total value of product lost due to expiry during the quarter.
Denominator: Average inventory balance (in USD) during the quarter.
Purpose: This indicator tracks products lost due to expiry while in a warehouse controlled by GHSC-PSM, including global regional distribution centers and in-country medical stores. It is key for monitoring good warehouse and distribution practices, such as "first expired first out" (FEFO).

Indicator Performance

Task Order	Country	Supply Chain Level	Site of Loss	Tracer Category	Total Value of Loss (USD)	Loss Denominator (USD)	Loss Percentage
TO1 - HIV/AIDS	RDC	Global	Storage	Adult ARV, Pediatric ARV, Other Pharma	7,046	13,196,674	0.05%
TO1 - HIV/AIDS	Haiti	Central	Storage	Adult ARV	943,580	14,835,008	6.4%
TO1 - HIV/AIDS	Nigeria	Central	Storage	Lab products, ARVs	709,382	20,288,616	3.5%
TO1 - HIV/AIDS	Vietnam	Central	Storage	ARVs	1,235	3,997,369	0.03%

Analysis

- Expiries at the RDC were mainly ARVs transferred from the previous project for which there was little demand. Overall shelf life remaining for products at the RDCs remains in line with targets (see indicator A8).
- Haiti reported expiry of a large quantity of ARV stocks inherited from the previous project, which PEPFAR sites could not consume. Haiti continues its strategy of analyzing product close to expiry and identifying health sites that can accept the donated products.
- Nigeria reported expiries of CD4 reagents, viral load reagents, and ARVs. The team will review supply plans and consumption patterns of CD4 reagents to avoid further expiries.
- Vietnam reported minimal expiries of ARVs at the central warehouse.

Data Notes

- Losses are reported during the quarter that the loss value was determined, which may be later than the period when the loss occurred.
- Target not required for this indicator.

C7b. Percentage of product lost due to theft, damage, or other causes while under GHSC-PSM control (product loss percentage)

Measure Definition

Numerator: Total value of product lost due to theft, damage, and other causes during the quarter.
Denominator for losses in storage: Average inventory balance (in USD) during the quarter.
Denominator for losses in transit: Total value (in USD) of product delivered during the quarter.
Purpose: This indicator tracks products lost in a warehouse controlled by GHSC-PSM, in transit to such a facility, or in transit to the customer, within a specified time. Damage can occur due to human error such as lack of adherence to cold chain requirements, or unavoidable causes such as natural disasters.

Indicator Performance

Task Order	Country	Supply Chain Level	Site of Loss	Type of Loss	Tracer Category	Total Value of Loss (USD)	Loss Denominator (USD)	Loss Percentage
TO1 - HIV/AIDS	Tanzania	Global	Transit	Other (Missing product)	Laboratory	16,208	1,278,357	1.3%
TO1 - HIV/AIDS	Rwanda	Global	Transit	Damage	ARVs	1,169	5,724,721	0.02%
TO1 - HIV/AIDS	Nigeria	Global	Transit	Damage	ARVs	6,320	35,600,509	0.02%
TO1 - HIV/AIDS	Ethiopia	Global	Transit	Damage	Laboratory	65,184	17,664,385	0.4%
TO2 - Malaria	Zambia	Global	Transit	Damage	ACTs	3,124	1,889,628	0.2%
TO2 - Malaria	Rwanda	Global	Transit	Damage	ACTs, mRDTs, and Severe Malaria Medicines	2,325	2,034,934	0.1%

Analysis

- Loss incidents are generally small damages and losses in the course of delivery to the countries.

Data Notes

- Losses are reported during the quarter that the loss value was determined, which may be later than the period when the loss occurred.
- Target not required for this indicator.

C8. Number of global advocacy engagements in support of improved availability of essential health commodities

Measure Definition

Number of global advocacy engagements. This measures the number of engagements of any kind at the global level that involve improved availability of essential health commodities.

Task Order	Annual Target	Achievement FY2018 Q1-Q2	Achievement Year to Date
TO1	N/A	4	4
TO2	N/A	3	3
TO3	N/A	10	10
TO4	N/A	0	0
Cross-cutting	N/A	5	5
All TOs	N/A	22	22

Description of Advocacy Engagement	
Name of Engagement	Brief Description
Task Order 1 - HIV	
The CQUIN Learning Network: Partnering to Advance Differentiated Service Delivery (Maputo, Mozambique, February 12-15, 2018)	The Director of Forecasting, Supply, & Distribution Planning for GHSC-PSM in Mozambique, presented on the Differentiated Service Delivery challenges and supply chain solutions.
Medicines for All Steering Committee	The Market Dynamics Manager participates in the steering committee for M4All, providing key market insights for ARVs to help the chemistry lab at VCU develop their approach and advocate for the critical products to work on. She also spoke at their conference in Nov 2017 (see quarterly report narrative), advocating for improved chemistry manufacturing to support market health.
ICASA December 2017	The Market Dynamics Manager (see quarterly report) advocated the rational use of pediatric ARVs during a period of market turmoil driven by unexpected demand for improved formulations. Clement Ndongmo advocated for countries to adopt and apply the concept of rational lab networks and the use of the reagent rental model for viral load testing.
USAID Global Health Supply Chain Summit	GHSC-PSM's GS1 Global Standards Team Lead co-presented with MIS advisors from USAID and GHSC-BI&A on USAID's vision and strategy for global standards implementation.
Task Order 2 - Malaria	
RDT Global Task Force Meeting	GHSC-PSM supported PMI by providing analysis, presentation materials, and talking points to support discussions around RDT supply chain challenges, market health risks, and sourcing strategies. GHSC-PSM collaborated with CHAI to produce the analysis and presentation materials.
Global Fund Artemisinin Meeting	GHSC-PSM supported PMI by providing data, presentation materials, and talking points to support discussions about the global artemisinin market and global collaboration around procurement strategies.
CHAI LLIN Data Sharing	GHSC-PSM shared LLIN procurement data with CHAI (at the request of PMI), supporting BMGF in a LLIN market analysis to help inform their market strategy for PBO and next generation nets.

Description of Advocacy Engagement	
Name of Engagement	Brief Description
Task Order 3 - PRH	
Global Consultation on Family Planning Service Statistics	One of the mandates of the Track20 project is to explore how better use can be made of service statistics for annual family planning program tracking, develop tools to facilitate this, and build capacity in FP2020 countries to improve program planning and monitoring based upon existing data. The purpose of the consultation was to bring together many of these key organizations so that the larger community can have a better understanding of the roles, priorities, activities, accomplishments, and perspectives of the key players in the field so that progress can be accelerated and sustained in the future. GHSC-PSM presented on the platforms the project uses to collect family planning data.
People that Deliver Board Meeting	Global Collaboration Manager and the Project Director for HRH 2030 attended as board members representing the RHSC and Chemonics, respectively.
Global Family Planning Visibility and Analytics Network	Numerous GHSC-PSM staff participated in task forces associated with the launch of the Global FP VAN including the data-sharing and data-management task forces as well as the Steering Committee, technical task force and super user groups.
Coordinated Supply Planning group	TO3 Integrated Supply Chain Manager, Demand Planning analyst and other GHSC-PSM staff participated in monthly CSP calls.
Coordinated Assistance for Reproductive Health Supplies	The project's Procurement Planning and Monitoring Report (PPMR) administrators participated in monthly CARhs group phone calls and provided ongoing support to the group.
Consultation on Consumables for Long-acting Reversible Contraception	The Global Collaboration Manager, Task Order Directors, and Markey Dynamics Manager attended this consultation hosted by Jphiego.
Regional Meeting on Improving the Early Warning System for Contraceptive Security	The PPMR adminsitrators facilitated an interactive session on PPMR data quality as part of this three-day meeting hosted by the West African Health Organization.
Council of Chairs meeting	The Global Collaboration Manager attended this meeting as the Chair of the RHSC Systems Strengthening Working Group.
Avenir Health Meet and Greet	A meet and greet with Avenir Health was held at GHSC-PSM's office to review the Track20 project's family planning service statistics data analysis and opportunities for collaboration.
LNG-IUS Coordination Meeting	The Market Dynamics Manager and Analyst participated in discussion about the potential to bring this product into the public donor market
Task Order 4 - MNCH	
N/A	N/A

Description of Advocacy Engagement	
Name of Engagement	Brief Description
Cross-cutting	
Reproductive Health Supplies Coalition General Membership Meeting	Representatives from TO3, TO4, and Market Dynamics attended the meeting. The TO3 Global Collaboration Manager chaired the Systems Strengthening Working Group meeting and presented on two panels. TO3 Director presented on one panel while the market dynamics lead moderated a panel. The TO4 Director co-chaired the Maternal Health Supplies Causcus meeting.
Shelf-life memo for USAID to WHO	On behalf of USAID, GHSC-PSM developed draft language for a memo that will be used to advocate for a policy change from requiring a minimum percentage of shelf-life at importation to requiring a minimum months of shelf-life at importation.
Global Health Supply Chain Summit, Ghana 2017	The Market Dynamics Manager conducted a four-hour workshop on market health with participants from across Africa. The aim was to show country supply chain managers and policymakers how local decisions affect global markets and advocate for them to consider assessing market health and its impact going forward.
CPhI & Supplier Visits	GHSc-PSM's GS1 team lead met with suppliers to discuss the importance of the new global standards requirements to securing the GH supply chain and advocated for early adoption by Indian generics who have the capabilities to implement.
GS1 Healthcare Conference, Chicago 2017	Attended by seven representatives from across the GHSC-PSM project. New participants learned about the GS1 standard and the applicability to GHSC-PSM, in particular for strategic sourcing, health systems strengthening strategy, warehousing & distribuion, and information architecture. GHSC-PSM's GS1 team lead met with suppliers in support of piloting master data exchange for the GHSC Global Data Synchronization Network (GDSN) launch.

C10. Percentage of GHSC-PSM-procured or supported molecular instruments that remained functional during the reporting period

Measure Definition

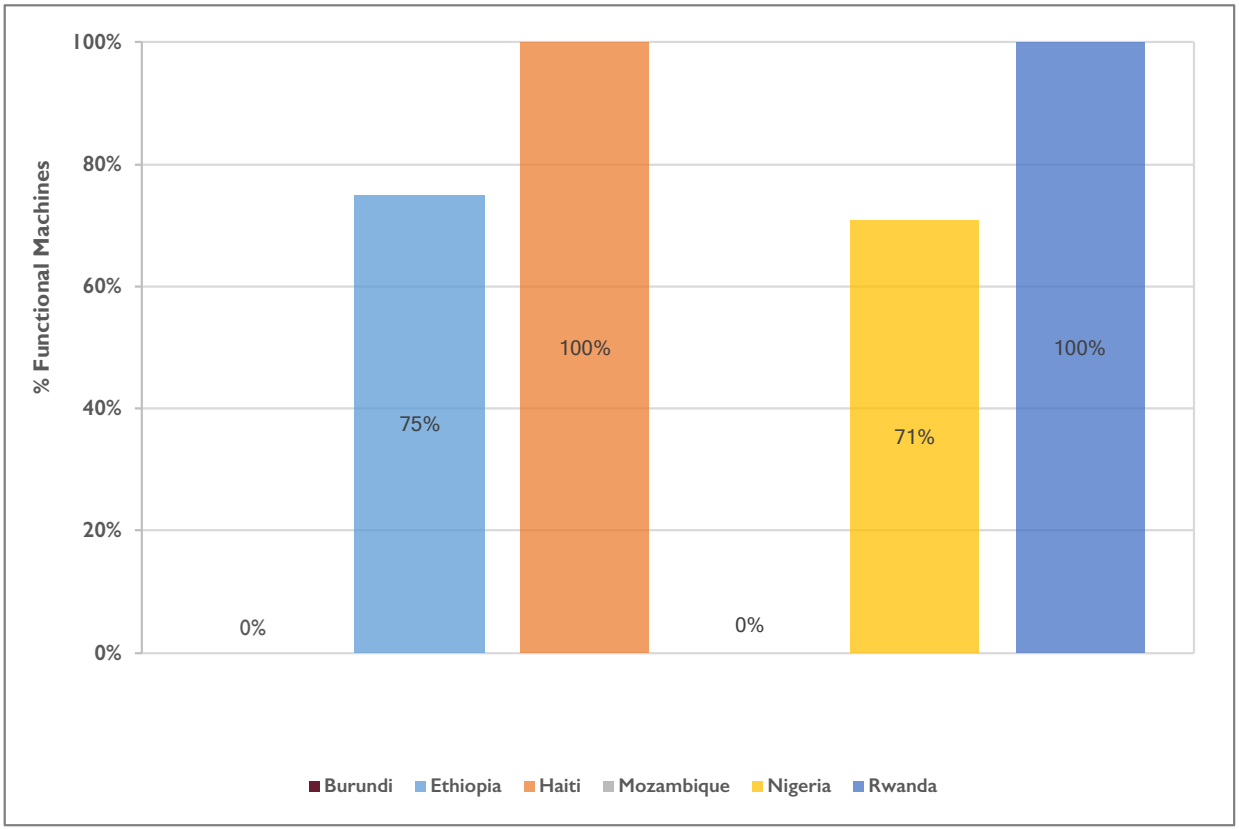
Numerator: Total number of GHSC-PSM-procured or supported molecular instruments that remained functional during the reporting period.

Denominator: Total number of molecular instruments in the country that were procured or are supported by GHSC-PSM.

Purpose: This indicator helps to understand potential impacts of supply chain activities on patient services, in this case specifically early infant HIV diagnosis and viral load testing for HIV patients. It reflects the effects of global procurement to influence service agreements and manufacturer response. It also can reflect whether in-country systems strengthening efforts are contributing to improved capacity to manage equipment in the health supply chain.

	Achievement	
	FY2018 Q2	Year to Date
TOI	72%	80%

Indicator Performance



Analysis

- Nigeria reported problems with ten machines this quarter, an increase from six machines last quarter. Four of the machines were on a faulty UPS, three problems were caused by hardware error, one was caused by a robotic head jam, and the remaining two by transfer head failure and inability to power on.
- Rwanda and Haiti continue to report excellent performance for this indicator, with all machines operational during the quarter.
- Mozambique reported poor performance on this indicator as all machines on the Abbott platform suffered a disruption of services. However the length of the service disruption only represents 6% of the possible instrument-days for the quarter.
- Burundi had outagess with all six molecular instruments this quarter; two were down for routine maintenance, while the remaining four machines were down due to a missing replacement part on back order.
- In Ethiopia, 15 out of 20 (75 percent) of molecular instruments were functional throughout the 2nd quarter, representing a decrease from 90 percent in the previous quarter. This was due to machine failures at Hawassa regional lab, Nekemt regional lab, and Jimma hospital, and a power outage at Gambella regional lab. Another location, Metukarl Hospital, was not ready to install the machine.

Data Notes

- Total number of supported instruments for each country is as follows: Burundi - 6; Ethiopia - 20; Haiti - 6; Mozambique - 4; Nigeria - 41; and Rwanda - 19.
- Targets for this indicator will be set in each country.

C11. Number of supply chain policies, regulations, strategies, or SOPs developed or updated with GHSC-PSM assistance	
Country	
Namibia	GHSC-PSM supported the Nutrition Assessment and Counseling Support program with the Primary Health Care Directorate of MOH to integrate the supply of therapeutic and supplementary food into the regular pharmaceutical supply system.
Data Notes	
▸ No target is required for this indicator.	

D. Denominator Annex

Countries	Angola	Botswana	Burkina Faso	Burma	Burundi Non-GHSC-PSM-supported	Cameroon	Ethiopia	Ghana	Guinea	Haiti	Indonesia	Lesotho	Madagascar	Madagascar Non-GHSC-PSM-supported	Malawi	Mozambique	Namibia	Namibia Non-GHSC-PSM-supported	Nigeria	Rwanda	Uganda	Zambia	Zimbabwe
B1. Stockout Rate at SDPs																							
Tracer Products																							
First-line Adult ARVs	8	32		3	688	71	1074	34		136	5	145			572	1306	15	42	2415	562	219	456	1131
Second-line Adult ARVs	8	32		3	108	23	156	33		136	2	137				442	15	42	522	562		404	1114
First-line Pediatric ARVs	5	32		1	324	43	818			136	1	129			561	1087	15	42	875	562	195	341	1090
First RTKs	9	23			806	80	292	40		136		135			595	165	15	42	2971	562	221	1905	1350
Second RTKs	9	23			695	78	213	31		136		128			586	139	15	42	2411	562	211	1872	1350
Tie-breaker RTKs							101					118					15	42	983		202		1350
Male Condoms	9	29			757		686	37		195		76			580	105	3	17	1420	590		1713	1390
Female Condoms	9				491							70			347	33	3	17	951	590		513	1365
Ready-to-use Therapeutic Food (RUTF)							511					125									144		
EID Reagents		6					19					1				5			22	6	1	11	3
EID Consumables		19					321												22	6			
Viral Load Reagents		13		1			19					3				19			23	9	1	12	8
Viral Load Consumables				1															23	9			
First-line ACTs (AL 6X1)	7		1943				610		503						622	164			2041	585		1737	1322
First-line ACTs (AL 6X2)	6		1943				620		503						617	156			2258	585		1731	1306
First-line ACTs (AL 6X3)	8						492		503						613	156			2004	585		1729	1309
First-line ACTs (AL 6X4)	9						753	37	503						619	162			2242	585		1739	1326
AL Inability to Treat	5		1943				825		503										2307	585	76	2034	1326
First-line ACTs (AS/AQ 25/67.5 mg)					723			36					861	774					1383				
First-line ACTs (AS/AQ 50/135 mg)					733			35					773	647					1211				
First-line ACTs (AS/AQ 100/270 mg x 3)			1943		732								726	651					1390				
First-line ACTs (AS/AQ 100/270 mg x 6)			1943		737								797	668					1412				
Rapid Diagnostic Tests for Malaria	10		1943		816		275	38	503				657	714	621	164			2265	585	84	1820	1173
Sulphadoxine-pyrimethamine (SP)	1		1943		709			38	503				530	416	586	134			1281		88	1654	661
LLINs			1943		744				503				452	375	422				1462				

*Out of cycle

Note: Gray-shaded cells represent one or both of the following situations: a) the task order is not funded in the country; or b) the indicator has been exempted from the country's monitoring and evaluation plan. Task orders left blank but with no shading represent non-reporting for other reasons, for example a temporary lack of data for the health element(s) or indicator.

D. Denominator Annex

Countries	Burundi Non-GHSC-PSM-supported	Ethiopia	Ghana	Guinea	Haiti	Madagascar	Madagascar Non-GHSC-PSM-supported	Malawi	Mozambique	Nigeria	Pakistan	Rwanda	Uganda	Zambia	Nepal* Non-GHSC-PSM-supported
B1. Stockout Rate at SDPs															
Tracer Products															
Injectable Contraceptives	736	1047	37	453	195	684	671	557	145	1551	10739	590	179		3097
Depot Medroxyprogesterone Acetate 104 mg/0.65 mL, Subcutaneous		1047							28						
Depot Medroxyprogesterone Acetate 150 mg Vial, Intramuscular	736		37	453	195	684	671	557	145	1528	10739	590	179	1664	3097
Norethisterone Enanthate										1488				603	
Implantable Contraceptives	701	1017	37	453	195	337	404		43	570		590			
Etonogestrel 68 mg/Rod, 1 Rod Implant		936				337	404	505		542		590		233	
Levonorgestrel 75mg/Rod, 2 Rod Implant	701	725	37	453	195			456	43	415		590		823	
Combined Oral Contraceptives	733	903	38	453	195	634	610	526	51	1419	10743	590		1619	3097
Levonorgestrel/Ethinyl Estradiol 150/30 mcg + Fe 75 mg, 28 Tablets/Cycle	733	903	38	453	195	634	610				10743	590		1619	3097
Levonorgestrel/Ethinyl Estradiol 150/30 mcg, 28 Tablets/Cycle								526	51	1419					
Emergency Oral Contraceptives	680	802						198	32						
Levonorgestrel 0.75 mg, 2 Tablets	680	802						198	32						
Levonorgestrel 1.5 mg, 1 Tablet															
Progestin-only Pills	683	727		453		331	413	414	44	1310		590		455	
Levonorgestrel 30 mcg, 35 Tablets/Cycle	683	727		453		331	413	414	44	1310		590		455	
Copper-bearing Intrauterine Devices	625	857		453	195	219	276	134	40	213	9110	590		194	
Calendar-based Awareness Methods					195	203	234					590			
Male Condoms	757	686	37	453	195	428	390	580	105	1420	10745	590		1713	3097
Female Condoms	491					227	261	347	33	951		590		513	

* Out of cycle

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D. Denominator Annex

Countries	Angola	Botswana (Non-GHSC-PSM-supported)	Burkina Faso	Burma (Non-GHSC-PSM-supported)	Burundi (Non-GHSC-PSM-supported)	Cameroon	Ethiopia	Ghana	Guinea	Haiti	Indonesia	Lesotho	Liberia	Madagascar	Madagascar (Non-GHSC-PSM-supported)	Malawi	Mozambique	Namibia	Namibia (Non-GHSC-PSM-supported)	Nepal	Nepal (Non-GHSC-PSM-supported)	Nigeria	Pakistan	Rwanda	Sierra Leone	Uganda	Vietnam	Zambia	Zimbabwe	B6 Only: Cote D'Ivoire	B6 Only: Democratic Republic of Congo	B6 Only: Kenya	B6 Only: Senegal	B6 Only: Swaziland	B6 Only: Tanzania
B2. Stocked According to Plan																																			
Task Order 1	144	30		27	254	60	190	154		12	9	33				12	252	43				10		247		36	6	9	10						
Task Order 2	570		7		901		115	220	7					415		14	252					10		155		18		6	6						
Task Order 3	459				7		161	176	5	8				424		16	288			19			12	217		27		8							
Task Order 4							138							195		12	252			35				155				6							
B3. LMIS Reporting Rate																																			
Task Order 1	9	33		3,458	1,121	862	1,494			149	5	148				690	1,400	15	48			3,304		590		291		2,074	1,434						
Task Order 2	10		2,224	3,755	1,121		1,467		503					1,117	1,050	690	164					2,414		590		646		2,236	1,434						
Task Order 3					963		1,458		453	220				796	750	690	145				4,105	1,940	13,839	590				2,236								
Task Order 4							1,448							908	810	690	157				4,105			555				2,236							
B6. Supply Plan Updates																																			
ARVs		1			1	1		1		1							1					1		1		1	1	1		1	1				1
Lab (HIV diagnostics)					1	1	1			1							1					1		1		1		1	1	1	1				1
RTKs		1			1	1	1	1		1						1	1					1		1		1		1	1	1	1				1
VMMC																1	1									1			1						1
Malaria commodities	1		1		1			1						1		1	1					1		1		1		1	1			1			1
PRH commodities							1	1		1				1		1	1			1		1		1		1		1			1	1			1
MNCH commodities								1		1				1			1							1				1							
Condoms							1	1		1						1	1			1		1		1				1	1	1	1	1	1		1

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