USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM
PROCUREMENT AND SUPPLY MANAGEMENT

FISCAL YEAR 2018
QUARTER 1 REPORT

October 1 to December 31, 2017

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-I-15-00004

CONTENTS

ACRONYMS

3PL	third-party logistics
3TC	lamivudine
ACT	artemisinin-based combination therapy
ADD	agreed delivery date
ALu	artemether-lumefantrine
APE	absolute percent error
API	active pharmaceutical ingredient
ART	antiretroviral therapy
ARTMIS	Automated Requisition Tracking Management Information System
ARV	antiretroviral
ASAQ	artesunate + amodiaquine
BI&A	Business Intelligence & Analytics
BMGF	Bill and Melinda Gates Foundation
BOA	basic ordering agreement
BPA	blanket purchase agreement
CARhs	Coordinated Assistance for Reproductive Health Supplies
CDC	U.S. Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
COA	certificate of analysis
CYP	couple years of protection
DCP	decentralized commodity procurement
DD	direct drop
DMPA IM	generic depot medroxyprogesterone acetate intramuscular
DMPA SC	depot medroxyprogesterone acetate subcutaneous
DQA	data quality assessment
DRC	Democratic Republic of the Congo
ECF	emergency commodity fund
EID	early infant diagnosis
eLMIS	electronic logistics management information system
EUV	end-use verification
FASP	forecasting and supply planning
FP	family planning
FP VAN	Family Planning Visibility and Analytics Network
FTC	emtricitabine
FY	fiscal year
GAD	goods availability date
GDSN	Global Data Synchronization Network
GHSC-PSM	Global Health Supply Chain-Procurement and Supply Management
GHSC-QA	Global Health Supply Chain-Quality Assurance
GHSC-RTK	Global Health Supply Chain-Rapid Test Kit
GS1	Global Standards 1
HSCSS	health supply chain systems strengthening
ICASA	International Conference on AIDS and STIs in Africa
IDIQ	indefinite delivery, indefinite quantity contract
IUD	intrauterine device
JMS	Joint Medical Stores
KPI	key performance indicator

LabEQIP	Laboratory Efficiency and Quality Improvement Planning
LLIN	long-lasting insecticide-treated net
LMIS	logistics management information system
LPV/r	lopinavir/ritonavir
LZN	lamivudine, zidovudine, nevirapine
M4All	Medicines for All
M&E	monitoring and evaluation
MAPE	mean absolute percent error
MCH	maternal and child health
MIS	management information system
MNCH	maternal, newborn, and child health
mRDT	malaria rapid diagnostic test
NCR	non-conformance report
NFO	non-field office
NLZ	nevirapine/lamivudine/zidovudine
NMCP	National Malaria Control Program
OC	oral contraceptive
OFDA	Office of Foreign Disaster Assistance
OGAC	Office of the Global AIDS Coordinator
OHA	Office of HIV/AIDS
OI	opportunistic infection
ORS	oral rehydration salts
OSD	overages, shortages, or damages
OTD	on-time delivery
OTIF	on-time in-full delivery
PCV	pneumococcal conjugate vaccine
PEPFAR	U.S. President's Emergency Plan for AIDS Relief
PFSA	Pharmaceutical Funds and Supply Agency
PMD	point mass distribution
PMI	U.S. President's Malaria Initiative
PO	purchase order
PoD	proof of delivery
PPMR	Procurement Planning and Monitoring Report
PPMR-HIV	Procurement Planning and Monitoring Report for HIV
PPMRm	Procurement Planning and Monitoring Report for Malaria
PQP	Prequalification of Medicines Programme
PRH	population and reproductive health
Q	quarter
QA	quality assurance
R&D	research and development
RDC	regional distribution center
RDT	rapid diagnostic test
RFP	request for proposal
RHSC	Reproductive Health Supplies Coalition
RO	requisition order
RTK	rapid test kit
RUTF	ready-to-use therapeutic food
SCOR	Supply Chain Operations Reference
SDN	solid drug nanoparticle
SDP	service delivery point

SMS	short-message service
SOP	standard operating procedure
SP	sulfadoxine-pyrimethamine
SPAQ	sulfadoxine-pyrimethamine + amodiaquine
SSA	semisynthetic artemisinin
SSWG	Systems Strengthening Working Group
TAF	tenofovir alafenamide fumarate
TBD	to be determined
TLD	tenofovir, lamivudine and dolutegravir
TLE	tenofovir, lamivudine and efavirenz
TO	task order
TWG	technical working group
UAV	unmanned aerial vehicle
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development
USD	U.S. dollars
VMMC	voluntary medical male circumcision
WASH	water, sanitation and hygiene
WHO	World Health Organization

EXECUTIVE SUMMARY

The USAID Global Health Supply Chain Program–Procurement and Supply Management project (GHSC-PSM) is pleased to present this report summarizing our work and performance for Fiscal Year 2018 (FY18) Quarter 1 (Q1). We describe here our work to provide life-saving commodities and to promote efficient and cost-effective health supply chains for the U.S. President's Emergency Plan for AIDS Relief, the U.S. President's Malaria Initiative, USAID's population and reproductive health program, and USAID's maternal and child health program. Having completed two years of operation, GHSC-PSM has put in place the building blocks to meet our objectives, and we are seeing the results of our new approaches.

GHSC-PSM Scale

Including deliveries made in FY18 Q1, over the life of the project, GHSC-PSM has delivered enough:

- Antiretroviral therapy (ART) to provide more than **2.2 million person years of HIV treatment**
- Antimalarials to treat more than **49.6 million infections**
- Contraceptives to provide **18.5 million couple years of protection**

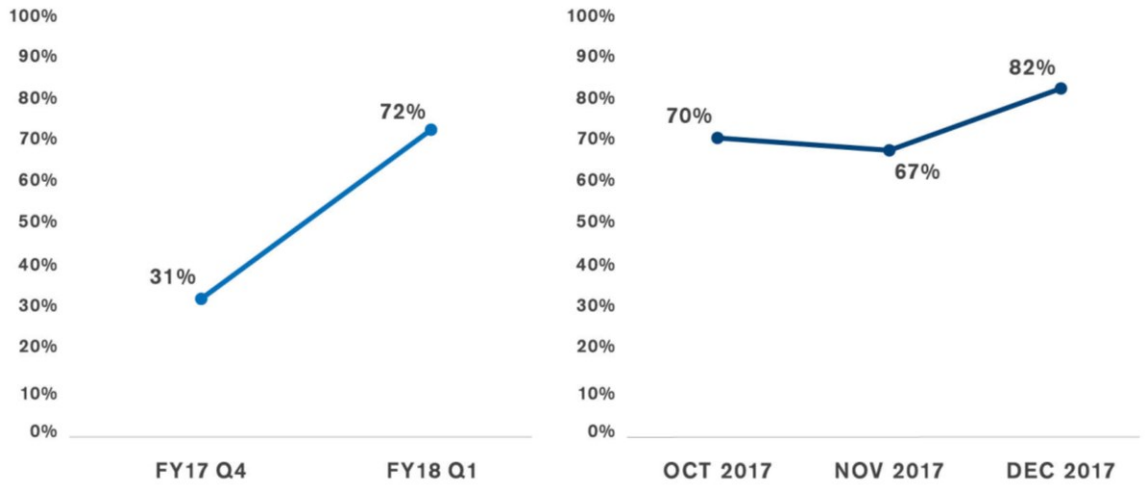
See Annex A for data calculation methodology.

GHSC-PSM Results

In this reporting period (October 1 to December 31, 2017), GHSC-PSM procured $257.2 million and delivered $175.7 million in health commodities. The treatment and prevention significance of just a sample of commodities delivered by GHSC-PSM over the life of our project is shown in the box above.

Actions taken to improve GHSC-PSM's overall on-time delivery (OTD) performance have clearly taken hold. OTD remains the best indicator of current performance, as it represents our performance against actual commitments in the quarter. As shown in Exhibit 1, for Q1, our **OTD rate was 72 percent**, reflecting a strong quarter-to-quarter increase from 31 percent in FY17 Q4. Our December OTD of 82 percent exceeded our December commitment of 60 percent. These significant improvements in timeliness were achieved in a quarter with a **37 percent increase in the volume of commodities delivered** over the previous quarter.

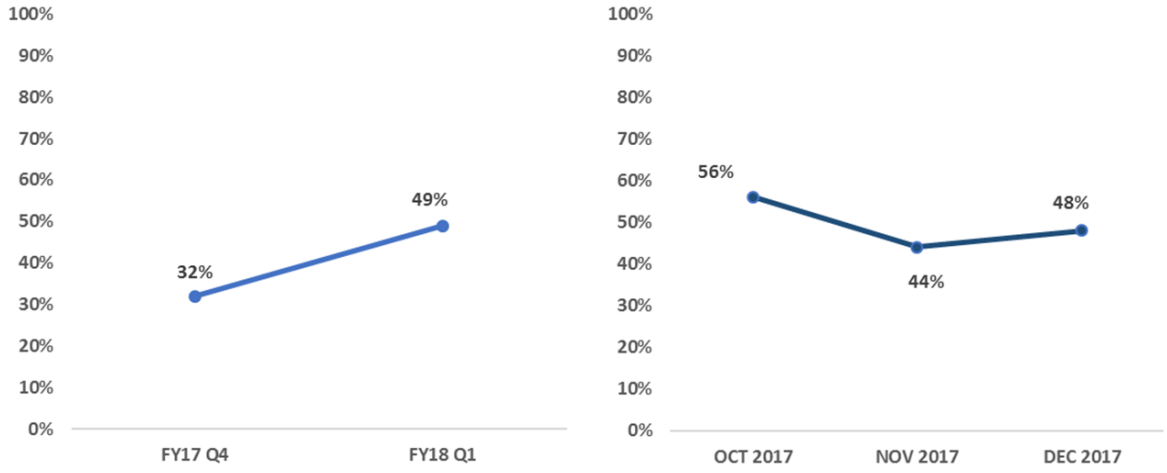
Exhibit 1. OTD by Quarter and Month



GHSC-PSM also significantly reduced the delivery backlog of undelivered line items by 69 percent from the end of last quarter. Our backlog is now less than 5 percent of all line items.

Our on-time in-full (OTIF) delivery rate was 49 percent, an improvement over our OTIF of 32 percent last quarter. (Please see Exhibit 2). OTIF reflects the number of deliveries that were both on time and in full as a percentage of all deliveries. OTIF is reduced as late line items from previous months are delivered. Our success in clearing our backlog this quarter did suppress our OTIF rate; nonetheless, that rate improved and will significantly increase now that the project's historic backlog is resolved.

Exhibit 2. OTIF by Quarter and Month



In addition to strong procurement and global supply chain performance, GHSC-PSM contributed to important U.S. government global priorities. In Q1, we:

- Provided strategic communications, a quantification tool, and a transition planning checklist to USAID and GHSC-PSM field offices to **support the scaling up of dolutegravir, in combination with tenofovir and lamivudine (TLD)**, the new first-line antiretroviral treatment

- Helped USAID introduce potential efficiencies in supply chains everywhere by **unifying standards** through our support for Global Standards 1

- Helped **establish secure supplies** of major diagnostic, preventive, and treatment commodities for HIV/AIDS, malaria, family planning (FP), and maternal and child health (MCH) to further progress toward global goals

- Used field office supply plans to identify country commodity requirements to **improve forward planning for procurements**

- Collaborated closely with commodity suppliers, other donors, and other implementing partners to **address urgent needs**

The Building Blocks

The strong results summarized above reflect what is now possible with all of GHSC-PSM's major building blocks in place.

Health Area Collaboration. Our HIV/AIDS, malaria, population and reproductive health, and MCH task order (TO) teams have productive relationships with the many relevant donors and innovators who are working together to help reach UNAIDS' 90-90-90 goals for HIV/AIDS, to eliminate malaria, and to meet the needs of families and women for FP and MCH commodities.

Global Supply Chain. GHSC-PSM moved beyond the action plan agreed upon with USAID to further refine staffing structures and processes in our global supply chain. All major elements of our supply chain infrastructure — a responsive management information system, an optimized network of regional distribution centers, and a state-of-the art fourth-party logistics delivery system — were fully functioning by the end of the quarter. Joint USAID/GHSC-PSM Commodity Councils are using in-depth analyses of market dynamics to inform strategic contracts for major commodities. We will continue to use market-based approaches to achieve innovative, cost-effective, and efficient solutions throughout our operations.

GHSC-PSM developed and initiated multiple strategies to minimize upstream risk for our clients. First, GHSC-PSM is increasing the use of regularly updated and validated country forecast and supply planning data across all health areas to enhance our preparedness and agility for commodity delivery. Second, we have defined robust commodity strategies and are negotiating long-term agreements based on aggregated country forecasts and supply planning data. In addition to helping suppliers manage production schedules more smoothly, these long-term agreements are helping GHSC-PSM achieve better prices and a more favored status for GHSC-PSM orders. Third, GHSC-PSM strategically pre-positions key products in regional distribution centers (RDCs) to facilitate quick order fulfillment. These RDCs carry a strategic buffer stock to enable GHSC-PSM to respond to emergencies. Finally, GHSC-PSM is evaluating vendor-managed inventory with selected suppliers as part of our larger inventory and order management strategy. Key elements of each of these components will be in place in Q2, as we seek to further mitigate delivery risk of key stock.

Country Programs. GHSC-PSM operates field offices in 30 countries with 1,101 field-based staff. We also have headquarters-based staff who have supported procurement for 21 additional countries where we do not have field offices this fiscal year.

Systems Strengthening Approaches. Our technical strategies for strengthening in-country supply chains are enhancing countries' ability to deliver health commodities to their populations.

Moving into Q2, with insightful guidance from USAID, we are prepared to bring even greater innovation and efficiency to making health commodities available to people who need them around the world.

Section A

INTRODUCTION

A1. BACKGROUND

The USAID GHSC-PSM project connects technical solutions, experts, and proven commercial processes to promote efficient and cost-effective health supply chains worldwide. Our goal is to ensure uninterrupted supplies of health commodities to save lives and 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 (PEPFAR) to help reach the global 90-90-90 HIV/AIDS testing, treatment, and viral load suppression targets
- The U.S. President's Malaria Initiative (PMI) to reduce malaria deaths and substantially decrease malaria morbidity, towards the long-term goal of elimination
- USAID's population and reproductive health (PRH) program to ensure that key reproductive health commodities are available for safe and reliable family planning
- USAID's maternal, newborn, and child health (MCH) program to help prevent child and maternal deaths
- Other public health threats as they emerge, with support for Zika and Ebola at this time

Working across Africa, Asia, Central America, and the Caribbean, we operate in some of the world's most challenging environments to ensure that lifesaving health supplies reach those most in need.

The project purchases and delivers health commodities, offers comprehensive technical assistance to strengthen national supply chain systems, and provides global supply chain leadership. Since our launch, we have procured commodities for 56 countries, established 30 field offices, and provided technical assistance in supply chain functions in 40 countries.

GHSC-PSM is the largest project administered by USAID, integrating for the first time USAID's procurement and supply management activities across all health areas. It requires extensive communication and collaboration among hundreds of stakeholders; careful commodity forecasting and planning in dozens of countries; and detailed tracking and follow- up of several thousand transactions at any given moment. It also requires significant flexibility to meet requirements in widely diverse countries and changing environments.

A2. ABOUT THIS REPORT

We are pleased to present our performance report for FY18 Q1 (October 1 through December 31, 2017). This report summarizes significant achievements, key challenges, project performance, and adaptation in response to new demands and lessons learned.

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, the report is organized as follows:

- Section B summarizes major activities in each of the five health areas (HIV/AIDS, malaria, PRH, MCH, and other public health threats).

- Section C describes activities in each of the three main technical objectives (global commodity procurement and logistics, health supply chain systems strengthening, and global collaboration). Because our monitoring and evaluation (M&E) indicators are structured around our objectives, in Section C we also discuss key indicator results and describe lessons learned and ongoing adaptation to improve performance.

- Annex A provides our quarterly performance and context indicators.

Given the size and complexity of GHSC-PSM, this report reflects only a fraction of the effort the project makes 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, MCH, and other public health threats) during Q1.

B1. HIV/AIDS

In Brief

In FY18, GHSC-PSM **is procuring HIV/AIDS commodities for 38 countries.** Through technical assistance, we are **strengthening supply chains in 32 countries** with HIV/AIDS funding.

We **enhanced supply chain components** critical to the success of the UNAIDS 90-90-90 framework. We supported improved availability of HIV rapid test kits (RTKs); enhanced treatment by preparing for the transition to the new triple fixed-dose formulation of tenofovir, lamivudine, and dolutegravir (TLD); and built out network approaches to viral load scale-up.

Procurement of HIV/AIDS Commodities

FY18 Q1:
$171.8 million including $103.2 million in antiretrovirals (ARVs)

Life of Project:
$628 million including $405 million in ARVs

We have delivered enough ARVs to provide 2.2 million person years of HIV treatment.

GHSC-PSM supports the PEPFAR goal of controlling the HIV/AIDS epidemic. With PEPFAR funding, we worked to help countries achieve epidemic control under the UNAIDS 90-90-90 framework — 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.

To help achieve epidemic control, this fiscal year we will procure **commodities for 38 countries**. We also will provide technical assistance to **strengthen national supply chains and improve health commodity availability in 32 countries**. GHSC-PSM is actively supporting PEPFAR's strategy for 2017 to 2020, which focuses on 13 priority high-burden countries. The countries we are supporting with HIV/AIDS funding in FY18, including the 13 PEPFAR priority countries (indicated by an asterisk), are listed in Exhibit 3 on the following page.

Exhibit 3. 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	✓		Bangladesh	✓	
Botswana*	✓	✓	Cambodia		✓
Burundi	✓	✓	Indonesia		✓
Cameroon	✓	✓	Laos	✓	
Côte d'Ivoire*	✓		Papua New Guinea	✓	✓
Dem. Rep. of Congo	✓		Thailand	✓	
Ethiopia	✓	✓	Vietnam	✓	✓
Ghana	✓	✓			
Kenya* ^		✓	**CARRIBEAN/CENTRAL AMERICA**		
Lesotho*		✓	Bahamas	✓	
Malawi*	✓	✓	Barbados	✓	✓
Mali	✓	✓	Colombia	✓	✓
Mozambique	✓	✓	Dominican Republic	✓	
Namibia*	✓	✓	El Salvador	✓	✓
Nigeria	✓	✓	Guatemala		✓
Rwanda*	✓	✓	Haiti*	✓	✓
Senegal	✓		Honduras		✓
South Sudan	✓	✓	Jamaica	✓	✓
South Africa	✓		Panama		✓
Swaziland*	✓		Suriname	✓	✓
Tanzania*	✓		Trinidad and Tobago	✓	
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.*

Commodity Procurement

GHSC-PSM procures the following commodities for HIV/AIDS programs: ARVs; essential medicines, primarily consisting of cotrimoxazole and other medications to treat opportunistic infections (OIs); reagents for viral load, early infant diagnosis (EID), and CD4 testing; the consumables required to perform these tests; other reagents for general laboratory testing (chemistry hematology); and diagnostics for OIs. We also procure other HIV-related prevention commodities such as male and female condoms and personal lubricants, voluntary medical male circumcision (VMMC) kits, PrePex devices, and the injectable anesthetics used during VMMC procedures.

In Q1, GHSC-PSM **procured HIV/AIDS commodities totaling $171.8 million**. This includes **$103.2 million in ARVs**, which is enough to **provide more than 750,000 person-years of HIV treatment**. Over the life of the project, we procured enough ARVs to provide 2.2 million person years of HIV treatment.

Working to Achieve the First 90: Diagnosis

To support availability of RTKs needed to reach the first 90, HIV diagnosis, GHSC-PSM helped countries with RTK forecasting, quantification, and supply planning. We also helped countries resolve logistics issues to optimize distribution of kits. GHSC-PSM continued to work closely with the GHSC-RTK project (implemented by Remote Medical International) that is responsible for RTK procurement. We met weekly to review orders and ensure countries submit materials according to RMI's systems to ensure timely delivery of RTKs. GHSC-PSM continues to share planned orders from GHSC-PSM-supported countries with the GHSC-RTK project. We provided a **15-month visibility horizon for RTK supply plans** for nine countries (which account for more than 88 percent of the RTKs delivered by GHSC-RTK) to help that project plan its procurements and ensure test kit availability.

In October, GHSC-PSM conducted a **survey about HIV RTK supply chain issues**. We will use the information provided by the 22 countries that responded to identify the root causes of RTK supply chain challenges. This analysis will inform a strategy for strengthening RTK supply chains in several key GHSC countries. We will report those results by the next quarter.

Working to Achieve the Second 90: Treatment

To help achieve treatment goals, this quarter, GHSC-PSM supported the planned transition to TLD, strategic investments in ARV markets, and ARV innovation initiatives.

Transitioning to TLD

The World Health Organization (WHO) is recommending TLD as an alternative first-line regimen for its clinical benefits, including improved tolerability, higher antiretroviral efficacy, lower rates of treatment discontinuation, a higher genetic barrier to resistance, and fewer drug interactions than other ARVs. With PEPFAR encouragement, many countries supported by GHSC-PSM are transitioning to TLD in the coming 18 to 24 months.

Reflecting lessons from previous new product introductions, to support the rollout of TLD, GHSC-PSM is working to:

- Rapidly ensure product availability
- Minimize waste of legacy ARVs (tenofovir, lamivudine, efavirenz [TLE]; tenofovir, emtricitabine, efavirenz [TEE]; and lamivudine, zidovudine, nevirapine [LZN]) that countries already have in stock
- Prepare supply chains at GHSC-PSM headquarters and in countries to ensure commodity security and a smooth transition

GHSC-PSM will continue to work closely with USAID to develop and implement a **TLD Transition Strategy** that gets ahead of roll-out challenges. The strategy addresses forward planning, sourcing and supplier development, rapid order fulfillment, country support, and stakeholder collaboration. In Q1, we made progress against each of these components, as shown in Exhibit 4.

Exhibit 4. GHSC-PSM Multifaceted Support for Transition to TLD

Component	GHSC-PSM Q1 Activity
Forward planning	• Developed a tool to forecast TLD demand that will ultimately be used to track legacy ARV drawdown • Provided critical information about TLD and offered technical support to countries to develop their TLD supply plans • Developed a tracker of TLD supply and demand that is populated in real time by GHSC-PSM and USAID as countries come on board
Sourcing and supplier development	• Completed proactive communication with suppliers to discuss demand and to update capacity information • Developed and continue to regularly update a supplier registration tracking tool
Rapid order fulfillment	• Placed an emergency commodity fund order for 2 million units of TLD to be stored in our Dubai regional distribution center (RDC) • Procured more than 12 million bottles of TLD (including the 2 million units listed above) • Ordered TLD for Nigeria and Zambia

Field office support	• Sent briefs on TLD pricing and a clinical profile to field offices
	• Shared information with our country programs on:
	  ○ A pricing agreement between manufacturers and Unitaid and other donors
	  ○ PEPFAR's guidance on TLD transition
	  ○ Anticipated shelf life of TLD
	  ○ The importance of monitoring local registration by each manufacturer
	  ○ News of countries announcing their plans to transition to TLD in 2018

Procurement systems	• Added TLD to the GHSC-PSM catalog • Established a price for TLD that all countries will be charged • Revised the Global Supply Chain's order promise tool to include TLD • Educated all Global Supply Chain procurement staff on TLD
Stakeholder collaboration	• Held meetings with the Clinton Health Access Initiative (CHAI) regarding TLD • Participated in the Office of the Global AIDS Coordinator (OGAC) webinar on TLD • Participated in the multidonor Programme Advisory Committee meeting • Participated in the Annual ARV Large Buyers and Sellers Forum and Global Fund ARV Strategy meeting in Cape Town, November 14 to16, 2017

A growing number of countries are transitioning to TLD in 2018. To date, nine countries — Côte d'Ivoire, Haiti, Mozambique, Nigeria, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe — included TLD in the supply plans that they submitted to GHSC-PSM in December. These supply plans informed GHSC-PSM's orders for TLD. Our early orders:

- Helped give manufacturers confidence in the market to **justify scale-up of production**

- Will allow GHSC-PSM countries to be **early recipients of this important medicine**

Transitioning to a new treatment requires **significant coordination between the many players** involved in HIV/AIDS programs in any given country. GHSC-PSM is heavily engaged in the extensive in-country coordination required for such a transition. For example, in Mozambique**,** we are working with USAID, the Global Fund, the HIV program, the National ART Committee, and the Optimize project to address programmatic, clinical, and supply chain issues associated with the transition.

Strategic Sourcing
The ARV Commodity Council completed a sourcing strategy and solicitation approach for ARVs this quarter. Our strategy of entering into long-term agreements with suppliers will leverage firm pricing and volume forecasts to **promote competition**, facilitate ordering efficiencies to **reduce cycle time**, and enable simpler weighted average cost management. These results will be felt as GHSC-PSM concludes new contracts under the strategy in coming quarters.

For the transition to TLD, GHSC-PSM's strategic sourcing activities included:

- Placing an emergency commodity fund order for TLD for RDC buffer stock

- Placing proactive purchase orders for TLD stock designed to encourage supplier scale-up and ensure product availability

- Collaborating closely with USAID to encourage supplier scale-up and ensure balance between supply and demand

Strategic Investments in ARV Markets
On November 2 and 3, at the ART Optimization Programme Advisory Committee meeting, GHSC-PSM led discussions with CHAI on required trials for **tenofovir alafenamide fumarate, or TAF**. GHSC-PSM and CHAI helped the Programme Advisory Committee understand specific decisions that will need to be made regarding the next important first-line product, TAF, and whether it should be combined with lamivudine (3TC) or emtricitabine (FTC). These decisions and global coordination could significantly impact market efficiencies and the cost of TAF, which is expected to be the highest-volume ARV product from 2020 onward.

GHSC-PSM helped the Antiretroviral Procurement Working Group address pediatric ARV supply and demand challenges. We are conducting a supply plan review to analyze pediatric ARV procurements at risk, countries' current demand profile, and supplier capacity. We will use these data to **increase the security of pediatric ARV supplies**. Specifically, GHSC-PSM may increase the buffer stock of pediatric ARVs in our RDCs and is encouraging countries to consider the global shortage of LPV/r when developing their next supply plans.

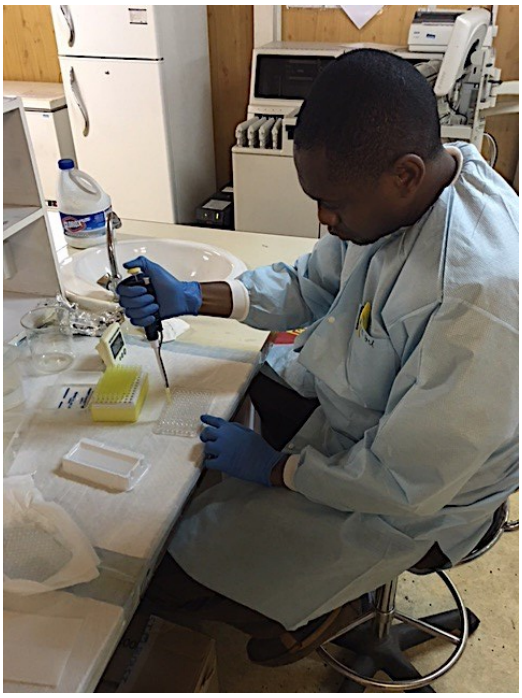
Support for Innovation in ARVs
November 8 and 9, GHSC-PSM presented on the HIV epidemic, ARV market trends, and work with the Medicines for All Institute (M4All) to reduce the cost of ARV manufacturing at the M4All Global Health Summit in Richmond, Virginia. We **provided data that will inform Institute**

decisions on 2018 research and development (R&D) priorities. GHSC-PSM also continued to provide technical support to the M4All steering committee in Q1.

In early November, GHSC-PSM hosted a meeting of USAID, the University of Liverpool (which is a partner in USAID's Project Optimize), and the Medicines Patent Pool to consider the university's unique emulsion-templated freeze-drying **solid drug nanoparticle (SDN) formulation**. SDNs could provide more bioavailable formulations of critical ARVs, reducing dosages and thus side effects and costs, while maintaining a potency equal to that of more traditionally formulated tablets and capsules.

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 measures the amount of HIV genetic material in the patient's blood and reports how many copies of the virus are present. Monitoring a patient's viral load will indicate whether a patient's treatment is effective, as shown by a decrease in the amount of HIV genetic material present in their blood. A suppressed viral load also decreases the likelihood of transmitting HIV to a partner, which is critical to stemming the epidemic.



Laboratory technician in Nigeria preparing patient sample for HIV confirmatory testing using enzyme-linked immunosorbent assay (ELISA).
Photo credit: Matt Wattleworth

Countries must put in place multiple components, including laboratory infrastructure, human resources, supply chain, and quality systems to successfully scale up viral load monitoring. GHSC-PSM helps countries **optimize their laboratory networks** to address viral load scale-up challenges. In Q1, GHSC-PSM continued to support in-country capacity to use the Laboratory Efficiency and Quality Improvement Planning (LabEQIP) software tool, an easy-to-use tool that visualizes laboratory network performance. To date, LabEQIP is in use in Nigeria, Rwanda, and Zambia. Mozambique has been trained in LabEQIP, and we are working to coordinate an optimization workshop there. In early November, GHSC-PSM **oriented key partners from multiple countries in LabEQIP use** in a workshop in Uganda. Participants from USAID, the U.S. Centers for Disease Control and Prevention (CDC), ministries of health, national laboratories, and implementing partners from Cameroon, Kenya, Malawi, Swaziland, Tanzania, Uganda, and Zambia attended. GHSC-PSM is working with USAID and CDC to plan a strategic implementation of LabEQIP over 2018 based on a prioritization scheme.

GHSC-PSM also worked closely with Opian, the developer of the ForLab software used in **quantifying laboratory supplies**, to update the software and prepare for the release of ForLab v2.0. This updated software will make it easier to support national forecasts across disease areas and will enable users to build forecasts using morbidity data.

Working with the lab Commodity Council, GHSC-PSM developed a strategic sourcing approach to **ensure cost-efficient procurement of laboratory equipment and commodities**. The benefits of our approach are summarized in the box at right. Our approach includes a long-term agreement for current equipment with pricing for the next 12 months. We also are using a reagent rental agreement, an alternative to purchasing for new equipment expansion that shares risk with suppliers.

Benefits of GHSC-PSM's Lab Strategic Sourcing Approach

Our approach should lead to:

- Improved utilization of viral load machines
- Greater cost efficiencies
- Improved coordination and visibility with GF
- Improved pricing visibility and transparency
- A more competitive supplier market

Preparations for Better Global Stock Management

The next few years will bring rapid change in the supply of HIV/AIDS commodities. New ARVs, such as TLD, are arriving on the market to replace older regimens, necessitating careful management of the transition. HIV self-testing could introduce new products and suppliers, transforming the HIV test kit market.

To help supply chain managers respond to market changes, GHSC-PSM worked with USAID to **establish a platform and data-gathering tool focused on HIV/AIDS**. Modeled on similar tools developed for reproductive health (the Procurement Planning and Monitoring Report, or PPMR) and malaria (PPMRm), PPMR-HIV provides donors with data on stock status for first- and second-line adult and pediatric ARVs and for HIV RTKs. During this quarter, we piloted the tool in Cameroon, Ghana, Tanzania, and Zambia. The PPMR-HIV's data collection platform, global dashboard, and country dashboard will enable supply chain managers to **better forecast need, maintain adequate stock, time shipments, and communicate emergency needs** to USAID and other global procurers. GHSC-PSM plans to expand the number of countries using the system, expecting to double the users in the coming quarter.

Support for Voluntary Medical Male Circumcision

GHSC-PSM provides procurement support to PEPFAR's VMMC program. In November, we helped Tanzania — one of PEPFAR's largest VMMC programs — conduct VMMC commodity quantification for the first time in five years. USAID, CDC, Department of Defense, and all the implementing partners in the country collaborated with GHSC-PSM to develop the national quantification. This activity yielded a much-needed **national forecast and supply plan for VMMC commodities for Tanzania**.

We also developed guides and tools to assist countries with their VMMC procurements. These include a **VMMC quantification guide and tool** that walk programs through a basic quantification exercise, as well as a **VMMC Reference Guide** that highlights GHSC-PSM commodity offerings and explains how to collaborate with GHSC-PSM.

From a supply side, GHSC-PSM has developed a **new long-term procurement strategy for VMMC commodities** that should decrease procurement lead times with our suppliers. The new long-term contracts should be in place by FY18 Q3.

Strategic Sourcing of Condoms

GHSC-PSM negotiated supply contracts with male condom and personal lubricant suppliers,[1] including for provision of vendor-managed inventory (VMI) services. When finalized, these new contracts will:

- **Deliver cost savings** through product pricing and VMI services
- **Improve leverage with suppliers**
- **Mitigate supply risk**
- Provide an **expanded product portfolio** to support social marketing partners

HIV/AIDS Supply Chain Trends

GHSC-PSM partnered with GHSC-RTK to **host a well-received satellite session on trends in HIV/AIDS supply chains**, including for HIV RTKs and self-tests, two key ARVs (dolutegravir and pediatric lopinavir/ritonavir), and viral load scale-up, at the 19th International Conference on AIDS and STIs in Africa (ICASA) in Côte d'Ivoire. The session drew more than 80 participants. It focused on how local decisions impact global markets and promoted an advocacy agenda to help influence local decision making. For example, participants learned how flexible-testing algorithms could contribute to a **healthier HIV RTK market by increasing supplier competition and lowering prices**.

Collaboration with GHSC-QA

GHSC-PSM works closely with the USAID GHSC companion project for quality assurance (GHSC-QA, implemented by FHI 360) that provides quality assurance for HIV/AIDS, FP, and MCH commodities delivered by GHSC-PSM. In Q1, we worked together to better **align and integrate our procurement processes with QA mechanisms**, including prequalification programs, complementary procedures (for example, for recalls), development and maintenance of standard operating procedures (SOPs), and coordination of quality control testing and order management, when needed.

In Q1, GHSC-PSM worked with GHSC-QA to **increase the lists of products that are deemed eligible for procurement by GHSC-PSM**. GHSC-QA issued a list of in-vitro diagnostics that are quality assured and eligible for GHSC-PSM procurement. As requests come in for new in-vitro diagnostics products, GHSC-QA will conduct the necessary review and update the list of eligible products. We also worked with GHSC-QA to document minimum QA requirements for procurement of laboratory commodities.

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[1] Note that these products are also used for PRH programs.

B2. MALARIA

In Brief

In FY18, GHSC-PSM **is procuring malaria commodities for 28 countries.** Through technical assistance, we are **strengthening supply chains in 24 countries** with malaria funding.

We **started up operations in Sierra Leone**, one of PMI's new focus countries.

GHSC-PSM supported large-scale **long-lasting insecticide-treated net (LLIN) campaigns** in Ethiopia, Ghana, Mozambique, and Nigeria. These nets will provide **protection from malaria for tens of millions of people** in these countries.

We ensured **commodity security of artemether-lumefantrine (ALu), a critical antimalarial**, by leveraging our stockpile for countries in need.

Procurement of Malaria Commodities

FY18 Q1:
$67.5 million

Life of Project:
$195.7 million

We have delivered enough antimalarials to treat more than 49.6 million infections.

Under the PMI-funded malaria TO, 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 $67.5 million for 28 countries**. Through technical guidance, we also are **strengthening national supply chains and improving health commodity availability in 24 countries**. The countries we support are listed in Exhibit 5.

To support **PMI's new country program in Sierra Leone**, in Q1, GHSC-PSM completed a scoping trip to Sierra Leone to meet with key in-country counterparts. The goal was to obtain a deeper understanding of that country's public health supply chain system needs and to engage stakeholders in identifying technical priorities. Through these meetings, the project reached consensus on key next steps for commodity procurement and technical assistance, as captured in the Malaria Operational Plan FY 2017 for Sierra Leone.

Exhibit 5. 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	✓	✓	Nigeria	✓	✓
Cameroon	✓	✓	Rwanda	✓	✓
Côte d'Ivoire	✓		Senegal	✓	
Dem. Rep. of Congo	✓		Sierra Leone	✓	✓
Ethiopia	✓	✓	South Sudan	✓	✓
Ghana	✓	✓	Tanzania	✓	
Guinea	✓	✓	Uganda	✓	✓
Kenya ^	✓	✓	Zambia	✓	✓
Liberia	✓	✓	Zimbabwe	✓	✓
Madagascar	✓	✓			
ASIA					
Burma	✓	✓			
Cambodia	✓	✓			
Laos		✓			
Thailand	✓	✓			

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

Country Support

GHSC-PSM provided wide-ranging supply chain support in 24 countries in Q1. Among other activities, we helped countries balance stocks and better use information to ensure availability of malaria commodities.

As an example, GHSC-PSM's end-use verification (EUV) survey in Burkina Faso provided critical information on the availability and use of antimalaria medicines and commodities at public health facilities there. The survey identified overconsumption of ALu 6x1 and 6x2, which is used for malaria case management in children under five, at health facilities. This was leading to ALu shortages of these presentations in the health system. We presented these findings to the Secretary General of the Ministry of Health, who concluded the shortages were due to health providers' lack of adherence to prescription and treatment guidelines. As a result of guidance from the Secretary General, providers stopped overprescribing ALu, which is **stabilizing the status of ALu stock**.

GHSC-PSM teamed with Madagascar's *Direction de Lutte contre le Paludisme* in training stock managers in remote areas to estimate their needs and reinforced the importance of submitting requisitions on time. We oriented stock managers on the basics of supply chain management, data collection and analysis, and calculation of commodity needs according to consumption trends. We also trained stock managers to use an automated Excel dashboard for better visibility into stock levels. As the Central Medical Store, SALAMA, delivers only twice a year to inaccessible regions, accurate forecasting and supply planning (FASP) are critical to ensuring

these regions have the right supplies on hand in the right quantities. With treacherous roads making it difficult to reach some districts of Madagascar in rainy season, which is when risk of malaria increases, **this training helped ensure life-saving commodities will be available** when needed (see box).

Securing Supply for Hard-to-Reach Areas with Improved Supply Planning

In Madagascar, 18 remote districts benefited from an initiative to improve supply planning. Thanks to this initiative, the district pharmacies placed their orders on time so the central medical store could deliver products as scheduled, thus **mitigating the need for emergency distributions to largely inaccessible regions** during the rainy season.

During the past year, Zimbabwe's National Pharmaceutical Company (NatPharm) has faced difficulties in meeting order processing and delivery deadlines using the Zimbabwe Assisted-Pull distribution system. GHSC-PSM conducted a warehouse and inventory optimization exercise to help improve the operational efficiency of the health commodity supply chain in Zimbabwe. The team recommended that NatPharm institutionalize warehouse management best practices to **minimize warehouse clutter and remove expired stock**. This change will ensure that NatPharm will **meet its target dates for order processing and delivery**. In the coming year, GHSC-PSM will continue to work with NatPharm to better balance its supply and processes within its warehouse network.

Distribution Support

In Q1, many countries launched large-scale LLIN campaigns as a key prevention strategy in anticipation of malaria season. LLIN campaigns often occur in three-year cycles, in keeping with the average net lifespan. These are massive initiatives to ensure beneficiaries, particularly in high-impact areas, receive the nets they need before the rainy season, generally requiring close collaboration with community leadership. While the actual distributions can last just a few weeks, logistics and supply planning, procurement, and pre-positioning the nets takes months.

Under the direction of PMI, GHSC-PSM **started campaigns in Ethiopia, Ghana, and Nigeria** and prepared for routine antenatal care distribution in **Mozambique** in Q1. In **Ethiopia**, the GHSC-PSM team helped complete the first round of a massive LLIN distribution campaign. During the campaign, UNICEF distributed 4.1 million nets (on behalf of PMI) to regional woredas in Amhara, Benishangul-Gumuz, Gambela, and Oromia states. GHSC-PSM supported the **distribution of 3.5 million of these nets directly to health posts and beneficiaries.** As many of these health posts were difficult to reach, we used every means at our disposal to ensure the nets arrived on time. GHSC-PSM contracted the transport of the nets by truck, boat, camel, donkey, and even human labor (walking the nets to health posts) when necessary so that the nets could be distributed to beneficiaries.

Camels walk for up to eight hours carrying LLINs to a health post in Ethiopia. *Photo credit: Mulugeta Mebratu Erku*

In **Ghana**, GHSC-PSM assisted the NMCP in **piloting point mass distribution of LLINs** in the Volta region, distributing 4,238 LLINs. With the NMCP, we monitored the supply and distribution of these LLINs from storage points at the subdistrict level to the community and finally to the client. Based on our observations, we recommended that, before future distributions, logisticians receive orientation to ensure that they are versed in appropriate documentation and use of monitoring tools. These lessons learned will inform logistics and supply chain decisions during the nationwide implementation of point mass distribution in Q2 FY18.

In Q1, GHSC-PSM began receiving **shipments of more than 1.5 million LLINs** to support the Mozambique NMCP's program to distribute LLINs to pregnant women. We warehouse LLINs in our own warehouses at the regional level and then transport these nets to Ministry of Health provincial warehouses. In three provinces, GHSC-PSM organizes transportation down to lower levels. In Q1, GHSC-PSM **began transporting more than 600,000 LLINs** to regional warehouses, provincial stores, districts, and health centers. This will help the government of Mozambique provide LLINs to 95 percent of pregnant women enrolled in antenatal care, reducing risk of malaria infection during pregnancy.

Emergency Support

Malaria is an acute disease with the rapid onset of life-threatening consequences in susceptible populations. Malaria outbreaks typically follow increased rainfall and natural disasters, such as flooding. These outbreaks prompt increased demand for malaria commodities, often resulting in emergency commodity procurements. In the last quarter, GHSC-PSM's supply chain demonstrated the **agility and flexibility to secure and deliver emergency malaria commodities** for countries that needed them.

In our RDC in Belgium, GHSC-PSM maintains PMI's malaria stockpile of a relatively small cache of artemisinin-based combination therapies (ACTs) so they can be quickly allocated to countries

based on need. In October, on behalf of PMI, GHSC-PSM **tapped the stockpile to deliver urgently needed ALu to Zimbabwe** at the beginning of its malaria season. Another donor was having challenges with procuring commodities, delaying its shipments by several months. GHSC-PSM filled the gap to cover consumption during the delay.

In Q1, GHSC-PSM **fulfilled an emergency order for ACTs for Nigeria through the stockpile**. Elevated consumption had led to critically low levels of all presentations of ALu at the central level. To fill the gap, PMI authorized procurement of additional ALu through GHSC-PSM. While GHSC-PSM's procurement was critical in mitigating the imminent stockout, it could not fulfill the entire need. To bridge the gap, GHSC-PSM in Nigeria worked with health facilities to ration supplies and maintain lower quantities of buffer stock. We continue to track this situation closely and to find ways to **ensure continuity of treatment while stocks remain low**.

In December, in response to an emergency order for malaria RDTs from Malawi, GHSC-PSM **reallocated an order of RDTs** from Kenya. Kenya was canceling its order and the product was ready at the manufacturer. Insight into product pipelines and country stock status gives the project **the ability to be flexible** in meeting country commodity needs.

Commodity Procurement and Sourcing

GHSC-PSM's provision of malaria commodities in Q1 included procurement, sourcing, QA, and data management to support transfer/redistribution of stocks, as summarized below.

Procurement

GHSC-PSM procured $67.5 million in malaria commodities this quarter.

Aligning Procurement Policy with WHO Programmatic Changes

In Q1, GHSC-PSM continued **tracking the global transition to the WHO-Prequalification of Medicines Programme (PQP)**, as this transition will impact PMI procurement policy, as well as the eligibility of suppliers and products for which we intend to enter into long-term contracts. We are working closely with PMI and vendors to ensure that operations are not impacted by WHO's programmatic changes, which affect how procurers define minimum eligibility criteria for RDTs and LLINs.

Sourcing

In Q1, GHSC-PSM executed a contract that enables GHSC-PSM to negotiate directly with the supplier of a critical severe malaria treatment. The benefits of this approach are summarized in the box at right. For ACTs, we **developed a new ALu sourcing strategy** designed to optimize value from routine and emergency orders and reduce sourcing cycle time. For prevention, we developed a new sulfadoxine-pyrimethamine + amodiaquine **(SPAQ) contracting and sourcing strategy** involving advanced order placement and a contingency stockpile. These efforts are expected to positively impact the project's ability to position commodities in advance of next year's seasonal malaria chemoprevention season.

Better Sourcing Yields Multiple Benefits

GHSC-PSM's new contract for a severe malaria treatment bypasses the wholesaler, yielding the following benefits:

- Reduces sourcing and QA cycle time by an estimated four to six weeks per order
- Reduces costs

Quality Assurance

GHSC-PSM is responsible for ensuring the quality of malaria commodities that we deliver to countries.[2] In Q1, the GHSC-PSM QA team cleared a total of 49 shipments, of which 81.6 percent were within the range of pre-established QA lead times. Lab capacity challenges remain in testing products within agreed lead times for ASAQ, SP, and SPAQ.

To reduce the amount of time required for malaria product quality assurance, GHSC-PSM is diversifying our lab testing network to more efficiently perform QA. Also, we are working to provide labs with better pipeline forecasts to improve their ability to program their testing schedules and prevent bottlenecks. The lab expansion will be implemented in Q2, and progress will be shared in the next report.

Visibility to React Quickly

To better manage commodity budgets and ensure the right product arrives at the right time and in the right quantity, GHSC-PSM manages the PPMRm on behalf of PMI. The PPMRm provides quarterly data on central-level stock availability for critical malaria commodities in 23 countries. In this reporting period, through PPMRm data, GHSC-PSM identified an overstock of artesunate injectable in Ghana. Artesunate injectable is used to treat severe malaria, a life-threatening condition that progresses rapidly if treatment is not administered quickly. Burkina Faso was in dire need of artesunate injectable, with its next shipment scheduled to arrive in January. Working with PMI, we **reallocated artesunate injectable stock from Ghana to Burkina Faso and Ethiopia** (which had a shortage). Also, PMI and GHSC-PSM noted an overstock of SP in Guinea. Based on this information, we redirected the SP to the RDC to be held in the stockpile for reallocation to another country and **avoid potential wastage**.

Global Strategic Engagement

Due to the scale, scope, and complexity of malaria as a global health challenge, it is essential to recognize the interconnectedness of our work across sectors and the importance of collaboration. By sharing information, resources, activities, and capabilities, we can achieve things together that we could never achieve alone. Since the start of the project, GHSC-PSM has engaged with groups that are actively addressing malaria commodity production and procurement challenges.

Novel approaches to manufacturing semisynthetic artemisinin
GHSC-PSM and PMI, through the provision of select technical assistance and input, collaborate with the Bill and Melinda Gates Foundation (BMGF) to develop a complementary source of nonseasonal, high-quality, and affordable artemisinin. This is needed because artemisinin is

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[2] Quality assurance for HIV/AIDS, FP, and MCH commodities procured by GHSC-PSM is provided by the GHSC-QA contract, which is implemented by FHI 360.

extracted as a natural (vegetal) source, leading to increased risk due to crop failures that contribute to the highly volatile market, with subsequent variability in availability and pricing. In Q1, our process chemist participated in the second round of BMGF **evaluations to fund novel manufacturing approaches for cost-effective semisynthetic artemisinin (SSA).**[3] We helped assess applicants' ability to achieve cost-effectiveness at scale as part of the evaluation. BMGF will make public the selected grantees at a later date.

B3. POPULATION AND REPRODUCTIVE HEALTH

In Brief

FY18, GHSC-PSM **is procuring FP commodities for 21 countries.** Through technical assistance, we are **strengthening supply chains in 20 countries** with PRH funding.

GHSC-PSM played a **global leadership role** as chair of the Reproductive Health Supplies Coalition (RHSC) Systems Strengthening Working Group. This included managing selection of the group's proposal for the coalition's relaunched Innovation Fund.

To address core priorities, we **tracked contraceptive security**, **enhanced visibility of FP stocks, streamlined in-country data visibility efforts**, and **assessed commodity packaging requirements.**

Procurement of FP Commodities

FY18 Q1:
$17.4 million

Life of Project:
$43.7 million

We have delivered enough contraceptives to provide 18.5 million couple years of protection (CYP).

The PRH TO serves as the primary vehicle through which USAID procures and provides FP commodities for USAID health programs; offers technical assistance to improve supply systems and contraceptive security in partner countries; and provides technical leadership to strengthen the global supply, increase financing, and introduce new FP commodities. This quarter, GHSC-PSM **procured $17.4 million in FP commodities[4] for 21 countries**. We also worked to **strengthen national supply chains and improve health commodity availability in 20 countries**. The countries we support are listed in Exhibit 6.

[3] Written about in the Q4 report page 125, advocacy table.

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

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

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

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

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 services; knowledge management in response to program needs; and support to the field in implementing effective and sustainable PRH programs. We provide examples of our work in these areas below.

Track Contraceptive Security

GHSC-PSM manages the Contraceptive Security Indicators survey to help program managers, advocates, and decision makers track country progress toward contraceptive security. USAID and GHSC-PSM recently **updated the contraceptive security survey instrument** to strengthen its methodology and to increase the breadth of data collected, **particularly for the private sector**. This quarter, GHSC-PSM disseminated the survey to nearly 50 countries. Data collection and validation efforts continued throughout the quarter. The survey looks at a variety of factors that contribute to contraceptive security, including political context and commitment, financial capital, partner coordination, capacity, client demand and utilization, and commodity availability. The updated version also addresses pharmaceutical quality and private sector contributions. Survey findings are used by program managers, advocates, and decision makers in countries and the global health community to monitor progress toward contraceptive security, inform program planning, and advocate for improved policies and resources.

Collaborate with Global Stakeholders

GHSC-PSM chairs the RHSC Systems Strengthening Working Group. This quarter, as chair, we managed the process for selecting and submitting a working group proposal to the coalition's Innovation Fund. We managed consideration of 11 ideas, ranging from country-level policy change, supply chain assessment, and gender in supply chain to unmanned aerial vehicles (UAVs), online post-service training, and establishment of training standards. We put forward one idea

focused on **developing a reproductive health-specific tool for supply chain costing** to the Innovation Fund's review committee and currently are developing this idea into a proposal.

Enhance Visibility of Data on Family Planning FP Supplies

In Q1, GHSC-PSM analyzed data on in-country stock levels collected through three mechanisms: PipeLine, PPMR, and DevResults. The main objective of this analysis is to avoid stockouts and use the data for decision making within our Global Supply Chain. One direct application is the prioritization of orders for countries with risks of stockouts at the national level. We also supported use of these data by other groups, namely, the Coordinated Assistance for Reproductive Health Supplies (CARhs) and the RHSC Coordinated Supply Planning Group. To illustrate the benefits of this information sharing, as part of our regular review of country supply plans as a member of the RHSC Coordinated Supply Planning Group, GHSC-PSM identified risk of a stockout of two-rod implants in Ghana. Through coordination with group members, **additional resources were mobilized**, as summarized in the box at right.

Data Visibility Translates to Quick Action and Health Impact

Early identification of a near stockout of two-rod implants in Ghana resulted in shipments of 60,000 implants from the United Nations Population Fund (UNFPA) and 170,000 from USAID.

In real terms, this translates to:

- 805,000 CYP
- 230,000 pregnancies averted
- 116 maternal deaths averted
- 1,533 infant deaths averted

From October 1 to December 30, the GHSC-PSM PPMR team processed data from 64 country reports. Along with managing regular reporting, our PPMR team streamlined country data collection to minimize level of effort in the field and at headquarters and to improve data quality.

Based on data in the PPMR, GHSC-PSM worked with the CARhs group during this period to **expedite a shipment to Madagascar**. Also, through the CARhs group, we facilitated **a transfer of product from Burundi to Burkina Faso**. This action **prevented product expiration and ensured a reliable supply of commodities**.

GHSC-PSM's in-country data visibility efforts include helping conceive, plan for, and support the RHSC's Global Family Planning Visibility and Analytics Network (Global FP VAN). The request for proposal (RFP) to build the Global FP VAN's virtual collaborative platform, supported by GHSC-PSM, was posted to the coalition's website in November. GHSC-PSM facilitated **discussions of requirements with the bidders** beginning in December. In addition to supporting the contracting process, we helped **define roles and establish governance for data classification**.

Analyze Commodity Packaging Requirements for RH Commodities

In Q1, GHSC-PSM's PRH and HIV/AIDS teams launched a new joint activity to **assess USAID and UNFPA packaging requirements** for most TO3 commodities, along with condoms and lubricant. We will conduct a field survey to assess program needs and the potential impact of various packaging options on country supply chain operations and on costs of condoms and lubricants.

Commodity Procurement

GHSC-PSM supplied enough contraceptive methods to provide 6.4 million CYP this quarter, and 18.5 million CYP over the life of the project.

Transition to the Belgium Regional Distribution Center
After conducting a network optimization analysis, GHSC-PSM decided to reduce the number of RDCs from five to three (Dubai, Belgium, and South Africa). This new network is projected to save $38 million over six years through reduced warehousing and transportation costs across all health areas. That saving can be used to buy more health commodities for more people. GHSC-PSM started transitioning operations to the Belgium RDC in September 2017 for all FP commodities. Since October 2017, all RDC orders for FP commodities have been fulfilled from the Belgium RDC.

Address Importation Challenges
To address regulatory requirements (such as product registration) that can result in shipment delays, GHSC-PSM worked with USAID and manufacturers to gather registration documentation from manufacturers. We are **prioritizing registration issues** for strategic intervention, starting with assembling information on FP product registrations by country.

Manage One-off Procurements
GHSC-PSM regularly responds to country needs for products that are not in our product catalog. This quarter, we procured **pregnancy test kits** for Madagascar and **consumable kits for implants** for Ethiopia. We managed comprehensive procurement actions (e.g., released tenders, evaluated offers, negotiated contracts) to fulfill these one-off needs.

Sourcing

This quarter, GHSC-PSM made significant progress with sourcing FP commodities, summarized below:

- ***Sourcing strategy.*** GHSC-PSM developed a five-year FP sourcing strategy to address procurement in the near (one year), medium (three year), and long (five year) terms. The strategy integrates critical market intelligence, product and manufacturing knowledge, and USAID procurement history to inform sourcing objectives. It outlines category-specific risk and strategic initiatives **to deliver better value and mitigate supply risk**.

- ***Oral contraceptives***. We signed and executed a subcontract with one oral contraceptive (OC) supplier and furthered contract negotiations with two additional OC suppliers. This **diversified the supplier base**, which has been an important long-term goal for USAID.

- ***Injectable contraceptives***. We engaged with generic depot medroxyprogesterone acetate intramuscular (DMPA IM) suppliers currently in the WHO-PQM pipeline to address their progress toward achieving this critical quality milestone. We exercised the subcontract options with the current sole-source DPMA IM and DMPA subcutaneous (DMPA SC) supplier to **ensure continuity of supply** in the absence of other approved suppliers. Finally, we signed and executed a subcontract with **our first supplier** of norethisterone enanthate, a two-month contraceptive injectable.

- ***Contraceptive implants***. GHSC-PSM shifted our order fulfillment approach for one-rod implants. We now place purchase orders based on forecasts rather than signed mission orders to **mitigate future risk of supply interruption**. We placed our first stock order for replenishment into the Belgium RDC with the current supplier.

Country Support

Below, we highlight some of our work strengthening in-country supply chains for FP commodities this reporting period.

Emergency Procurement
In addition to ongoing procurement for 17 countries, GHSC-PSM began processing an **emergency order for FP products for Royhinga refugees** in Bangladesh.

Warehousing and Distribution
GHSC-PSM facilitated a **system design workshop for contraceptive mix kit delivery in South Sudan** with major implementing partners' logisticians and Juba-based management teams. At the workshop, we finalized the transportation modality of the kits and reached consensus on the contents, size, and types of contraceptive mix kits to be offered. GHSC-PSM continues to manage the contraceptive kitting operations for the quarterly Health Pooled Fund distribution mechanism scheduled for January 2018.

Management Information Systems
GHSC-PSM is implementing the **"Smartphone for Reporting" initiative** in Haiti to help FP site stock managers capture and submit logistics information from remote locations. The project provided a smartphone and trained FP stock managers to use the scanning function and internet module, as well as GHSC-PSM's user-friendly software. Initial results show that 21 of 37 sites submitted their reports on time for October, increasing to 27 sites (73 percent) for November 2017. The smartphone initiative **improved the timeliness of reporting and enabled more efficient and effective data collection**. Progressively, this tool will be extended to all sites for all health commodities.

B4. MATERNAL, NEWBORN, AND CHILD HEALTH

In Brief

FY18, GHSC-PSM **is procuring MCH commodities for 11 countries.** Through technical assistance, we are **strengthening supply chains in 15 countries** with MCH funding.

This quarter, we procured **$523,329 in MCH commodities**.

We provided **global technical leadership on the issue of oxytocin quality** by convening a meeting of technical experts from around the world.

We continued efforts to increase the **availability and use of data** on MCH commodity availability through contributions to the revised EUV survey.

Under the TO for maternal, newborn, and child health, GHSC-PSM works to help prevent child and maternal deaths by increasing access to quality-assured medicines and supplies for MCH. We provide global technical leadership on MCH commodities and ensure that supply chain considerations are included in global dialogue and initiatives. In Q1, GHSC-PSM focused on two key areas: commodity quality assurance, specifically related to oxytocin, and data availability.

GHSC-PSM **supports MCH programs in 19 countries (for procurement or systems strengthening support)**. The countries we support are listed in Exhibit 7.

Women seeking care for a sick child at a health center in Nepal. *Photo credit: Beth Yeager*

Exhibit 7. Countries Receiving Support from GHSC-PSM with MCH 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	✓	✓			
Mozambique	✓	✓			
Nigeria	✓	✓			
Rwanda	✓	✓			
Zambia	✓	✓			

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

While much of our effort is at the global level, we also are achieving progress at the national level, as shown in the box below.

Quality

In this quarter, GHSC-PSM focused heavily on quality assurance of maternal health products, including addressing challenges in safe storage and distribution of oxytocin. Oxytocin, the WHO-recommended medicine for preventing and treating postpartum hemorrhage, is a heat-sensitive product that requires refrigeration during distribution and storage. Limited excursions to room temperature may not compromise product quality; however, longer-term storage at or above room temperature is highly likely to result in product degradation. These characteristics have led to confusing and often conflicting guidance on how to appropriately manage oxytocin throughout the supply chain.

In collaboration with the RHSC, GHSC-PSM hosted a three-day technical consultation October 18 to 20, 2017, in Geneva, Switzerland. We brought together experts to discuss the complicated and sometimes unclear scientific evidence around oxytocin quality, **reach consensus on key points of evidence**, and **develop recommendations to promote safe storage and distribution practices** of oxytocin in low-resource settings. Building on

Advocacy to Improve Planning for MCH Commodities

In **Nepal,** the national quarterly supply plan historically included four MCH commodities (amoxicillin for treating pneumonia in children, oxytocin for managing postpartum hemorrhage, and ORS and zinc for treating diarrhea in children).

Extensive lobbying efforts led to the **addition of two MCH products to the national quarterly supply plan** starting in December 2017. These are:

- **Chlorhexidine gel** for preventing infection in newborns
- **Magnesium sulfate** for managing pre-eclampsia/eclampsia

work initiated by the U.N. Commission on Life Saving Commodities, more than 30 experts from WHO, UNFPA, manufacturers, international wholesalers of oxytocin, national governments, universities, donors, and their implementing partners participated. The expert group agreed on four key messages (see box below) and a set of recommendations designed to improve procurement, storage, and distribution practices for oxytocin for postpartum hemorrhage.

GHSC-PSM, in collaboration with the RHSC and PATH, co-hosted a workshop with maternal health advocacy experts in developing a messaging framework to reflect the messages and recommendations from the oxytocin technical consultation. We also presented the results of the technical consultative meeting at a conference on postpartum hemorrhage hosted by Gynuity Health Programs in December.

Safeguarding the Quality of Oxytocin

The group of experts on oxytocin convened by GHSC-PSM agreed on four key messages:

- Postpartum hemorrhage is the leading cause of maternal death worldwide. Oxytocin is the WHO-recommended first-line medicine for preventing and treating postpartum hemorrhage.
- Oxytocin is a heat-sensitive product that requires refrigeration during distribution and storage. Oxytocin must be stored at 2–8 degrees C, regardless of labelling.
- Agencies tasked with procuring oxytocin, whether at the international, national, or subnational level, should procure only quality-assured oxytocin labeled for storage at 2–8 degrees C, in 10 IU ampoules.
- Donors and divisions within ministries of health must collaborate to ensure that the quality of oxytocin is prioritized during procurement and throughout storage and distribution at the same level as other health commodities, such as vaccines for children.

GHSC-PSM continued to support use of the WHO-PQP, which is minimal for MCH products. GHSC-PSM aims to **assess and identify barriers to using the collaborative WHO-PQP procedure**. In Q1, we **reviewed the number of MCH products that received prequalification** through the collaborative registration process and drafted questionnaires for the upcoming assessment. In Q2, we will administer the questionnaires, analyze results, and develop recommendations to increase use of collaborative registration.

Finally, GHSC-PSM, through a subcontract with Concept Foundation, continued to develop the **draft guidance document for procuring quality-assured MCH commodities**. Concept Foundation and GHSC-PSM worked to finalize the commodity-specific section outline and to identify participants for an advisory group that will provide technical input to finalize the guidance document.

Data Availability on MCH Commodities

Another focal area of GHSC-PSM's MCH activities is to **increase availability and use of data on MCH commodities** at service delivery points. To this end, we assessed the feasibility of including MCH commodities in specific countries' EUV surveys and have moved forward in **integrating MCH products into the general EUV**. In the last quarter, GHSC-PSM drafted the MCH-specific survey questionnaire, programmed the survey into SurveyCTO, and created a rough draft of the EUV protocol. In Q2, we will finalize the protocol and develop accompanying field manuals and training materials. The revised EUV with the MCH module included will likely be piloted in April 2018.

B5. OTHER EMERGING HEALTH THREATS

In Brief

We made extensive **preparations for in-country distribution of mosquito repellent** to antenatal clinics in four countries for Zika prevention, and to facilitate delivery of repellent.

We also **procured personal protective equipment** (PPE) to be available for Ebola emergency responses.

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 Q1, GHSC-PSM supported countries dealing with Zika and procured equipment to be made available for Ebola emergencies.

Support for the Response to Zika

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 commodity procurement, logistics, and information support. We made **extensive preparations for in-country distribution of mosquito repellent** to Ministry of Health facilities and/or antenatal clinics in the Dominican Republic, El Salvador, Guatemala, and Honduras, in collaboration with other USAID programs such as ASSIST and third-party logistics providers. We also worked closely with our repellent supplier to ensure compliance with U.S. government quality guidelines and to help facilitate product registration and waivers through technical assistance provided from our in-country consultants.

GHSC-PSM also finalized a set of posters and brochures that provide guidance to health facility workers and pregnant women on **how to safely store, use, and dispose of mosquito repellent**. We translated these materials into Spanish and Haitian Creole, in close consultation with stakeholders, including ministries, USAID missions, and other USAID implementing partners.

Support for the Response to Ebola

GHSC-PSM worked with the USAID/Office of Foreign Disaster Assistance (OFDA) to assist in procuring personal protective equipment for implementing partners' use in Ebola emergency responses. This includes everything from gloves and face masks to coveralls. These items, which are part of a **kit for health workers to wear while they are treating Ebola patients**, will be stored in the GHSC-PSM Dubai RDC beginning in March 2018.

GHSC-PSM will serve as the procurement mechanism for OFDA and will provide inventory reports and create SOPs to guide decisions on when the PPEs should be released. OFDA will manage the logistics and shipment of the PPE items from the Dubai RDC when it needs to respond to an Ebola emergency. The PPE items may also be deployed in nonemergency situations should OFDA's implementing partners need the products.

Section C

PROGRESS BY OBJECTIVE

C1. GLOBAL COMMODITY PROCUREMENT AND LOGISTICS

In Brief

Across all health areas, 1,644 line items were delivered this quarter, with a value of **$175.7 million**. This represents a **37 percent increase** in deliveries since the previous quarter. On average, this means that GHSC-PSM **delivered a line item approximately every 81 minutes** this quarter.

72 percent of line items were delivered on time (OTD), based on the defined on-time window (within the period 14 days before or seven days after the agreed delivery date).

This quarter**, we procured $257.2 million** in health commodities. Procurement values have reached **$868.6 million for total life of project**.

At the end of Q1, **our backlog of 241 undelivered late line items is less than 5 percent** of line items committed in the last year. This represents a reduction of 69 percent from the end of FY17 Q4.

We **improved the structure of our global supply chain** and **streamlined our end-to-end processes** to reduce handoffs and positively impact OTD, cycle time, and cost.

We leveraged Automated Requisition Tracking Management Information System (ARTMIS) to improve and simplify **user-friendly order entry**, **improve data visibility**, and **enable supply chain analytics** to improve OTD and cycle time.

C1a. Activities, Achievements, Lessons Learned, and Adaptation

In the last three months, GHSC-PSM completed building out the organizational structure, staffing, systems, and processes to provide health commodities for USAID's, PEPFAR's, and PMI's health programs on an unprecedented scale. Major components of our global supply chain are summarized in the box at right.

The Global Supply Chain at a Glance

2,915 products provided by 239 suppliers in the catalog

Five international freight forwarders responsible for 600 shipping lanes

Three regional distribution centers stocked with inventory for rapid response

Summary of Improvements

In Q1, GHSC-PSM implemented a proven and aggressive program to improve our procurement and supply chain functions, and especially to improve OTD and reduce cycle time. We completed the following new activities:

- **Streamlined the end-to-end process to enhance efficiency and sustainability**, which included aligning our GHSC-PSM Global Supply Chain operational structure with a new commodities-based operating model. We formed commodity teams, each of which owns its respective procurement actions. Procurement specialists on the commodity teams oversee a particular commodity group, such as ARVs, lab, condoms, or essential medicines. Each procurement specialist owns and oversees the end-to-end process, which includes sourcing; order fulfillment; coordination with the QA, Deliver/Return, and country teams; and invoice payment.

- **Deployed a management system that includes daily standup meetings, ongoing order prioritization, and insight from country stock levels** to improve OTD and focus the workforce on the most critical orders. This approach incorporates an early warning stock system that captures in-country inventory levels and alerts GHSC-PSM when we may have a potential stock shortage. The information is built into a system that drives daily priorities. We implemented standup meetings to ensure a daily review of orders and on-time performance. These meetings provide Global Supply Chain leadership with an updated status for all orders. All commodity supervisors provide an update on their orders and take actions in collaboration with the leadership team to improve our on-time delivery.

- **Leveraged our supply chain information system, ARTMIS, as the sole source for all global level data and reporting**. We now have a better understanding of the supply chain workload and a more accurate order status. While we continue to assess and improve the quality of the data, this sole source of truth enables visibility of the same data inside and outside the program, including the USAID mission, field offices, procurement specialists, logistics managers, quality assurance, planning, and country programs. Also, we are using a common data source to conduct analytics for more effective decision making across our global supply chain.

- **Built and integrated analytical tools into our processes** to improve decision making and sustainability, including transportation Incoterms, mode selection, and freight estimation tools, to ensure consistency in our process. We also continued to enhance deployment of the order dashboard and of the order promise tool that estimates delivery time and provides the basis of our commitments to USAID missions.

- **Began migrating to a proactive supply system** through strategic sourcing and integrated demand/supply planning that will drive additional OTD reliability, sustainability, and more health for the money. We began to position the project to place supply orders that are more forward-looking and based on larger and earlier sets of demand data. In response to the forecasted increase in demand for the new ARV TLD, we initiated supply contracts for significant quantities even before

receiving orders from the field, with important benefits (see Section B.1). We will use a similar proactive ordering strategy for additional product categories over time.

Procurement and Deliveries

GHSC-PSM procured $257.2 million in commodities in Q1. In accordance with normal commercial practices, our supply chain focuses on line items as the basis for operational management and performance. We managed more than 6,000 line items in Q1, all of which are tracked and monitored at each step by our global supply chain team.

Further, we saw an **increase of 37 percent in the number of line items**, ending the quarter with 1,644 deliveries. This volume can be attributed to three factors: enhanced on-time deliveries, increased number of orders, and delivery of backlog items.

GHSC-PSM Volume

On any given day, GHSC-PSM has about 5,700 orders in process.

We implemented several improvements in our procurement process that enabled consistency and empowered our commodity teams who are responsible for end-to-end order management. We:

- **Increased responsibility of integrated supply chain managers** and commodity team supervisors in sourcing, procurement, and fulfilment of requisition orders.
- **Updated SOPs for procurement specialists** to ensure that all have clear and consistent guidance on day-to-day operations.
- **Delegated authority for small orders** to the Global Supply Chain deputy director for signing subcontracts below $150,000 **to streamline processes**. These small orders comprise **57 percent of all orders**. We also developed information and tools to streamline the review process, leading to **increased accountability** with the commodity procurement teams and improved quality of the sourcing documentation.
- **Aligned sourcing solicitations and subcontract templates** across all commodity cells.
- Continued streamlining sourcing and administrative processes to **reduce handoffs**.
- **Expedited strategic contracts** with suppliers for several commodity groups that will **minimize lead time on every order, enable healthy markets, reduce commodity unit costs, and reduce response cycle times**.

Decentralized Commodity Procurement

GHSC-PSM's procurement strategy seeks to reduce response/cycle times, lead times, and transaction costs; increase on-time deliveries; and balance price, delivery, and quality (i.e., achieve best value). Decentralized commodity procurement (DCP), which is procurement by a GHSC-PSM field office rather than headquarters, is a key component of this overall strategy. Field offices that have both longstanding involvement with USAID health commodity procurement activities and staff with strong procurement capabilities receive training on GHSC-

PSM procurement procedures. They can become eligible to conduct their own procurements from qualified suppliers for select HIV/AIDS products, primarily lab products and essential medicines. Countries eligible to conduct their own procurements are Burundi, Ethiopia, Haiti, Mozambique, Nigeria, Rwanda, Uganda, Zambia, and Zimbabwe.

Decentralized Procurement Hits Its Stride

The nine countries approved for DCP procured $23.5 million this quarter.

These comprised 38 percent (by number of orders) and 9 percent (by value) of all orders purchased under GHSC-PSM.

The DCP countries continued to procure commodities with commodity funds. **Most DCP countries increased the procurements they conduct** by expanding sourcing activities to include both local and international qualified vendors. Pilots are ongoing to expand numerous sourcing activities, including for lab commodities that do not require QC, condoms for Ethiopia, syphilis RDT kits for Mozambique, ready-to-use therapeutic food for Ethiopia, and various malaria lab-related items in Mozambique.

Deliver/Return Management

In Q1, the Deliver/Return team:

- **Implemented an automated supplier goods availability date (GAD) tool.** One of the challenges in achieving OTD has been suppliers' slippage in their agreed delivery dates to GHSC-PSM. To address this issue, we designed and deployed an automated tool that alerts suppliers to commitment dates and requests paperwork that will be required to clear customs. As a result, we have **seen improvement in supplier GAD commitments** in Q1, which, in turn, has helped **improve our OTD**.

- **Completed transition to a new regional distribution center network.** We completed migrating the five RDCs from the legacy contracts to three RDCs, located in South Africa, Belgium, and Dubai. This chain of regional warehouses is carefully calibrated to provide the best level of service for a demanding, life-critical supply chain. We managed this complex transition with no inventory buffers. Skillful execution meant there was **no interruption to or impact on customer orders**, and **no commodity wastage**.

- **Deployed an updated freight estimation tool.** As we have refined our warehouse and freight costs, we have enhanced our freight estimates so that missions will have a **more accurate view of the freight costs at the time of order**.

- **Published guidance on Incoterm**. Using the correct Incoterm **improves order visibility, reduces risk, and potentially reduces costs**. The new guidance on which Incoterm to choose considers various factors, such as country of origin, shelf life of product, and manufacturer. Through this guidance, GHSC-PSM has **better control of shipments, improved visibility, and reduced risk** for the project and the customer. This guidance is being incorporated into contracts negotiated with various suppliers.

- **Developed a tool that recommends shipment mode**. Earlier, the procurement specialists did not account for logistics-related constraints when selecting the mode of shipment. As a result, issues arose in delivering large shipments on time in full to some countries. The Deliver/Return team had to work with the third-party logistics provider to break down the large shipments into smaller sizes; request revisions to the documents, which the suppliers were reluctant to do; process waivers for multiple shipments; or stagger the shipment over an extended period based on waiver receipt and field need. GHSC-PSM created a tool that prescribes a maximum shipment size and recommends alternate modes of shipment between origin and destination. This tool will **increase the potential for on-time delivery in full and reduce freight costs and cycle times**.

- **Developed a logistics solution focused on Mozambique**. In the past, shipments to Mozambique underwent an elaborate predelivery process that included several administrative activities, such as securing an import waiver, requesting a Moz number, and conducting a pre-inspection before delivery. Items were not picked up from the suppliers until these formalities were completed. Furthermore, some suppliers were reluctant to allow pre-inspection of items on their premises. Our proposed solution requires all items to be shipped to the South Africa RDC, where they will be staged for pre-inspection. The Deliver/Return team will use the transit time to process some of the administrative requirements and thereby **reduce cycle time**. Once items arrive in the RDC, pre-inspection will be scheduled and, on completion, the items will be shipped from South Africa to Mozambique by truck, with a transit time of several days. Staging items in the RDC will allow for shipments to be consolidated, thereby **reducing costs**.

Integrated Demand and Supply Planning

The Demand and Supply Planning team made significant progress in Q1 in initiating the move toward an integrated planning and procurement process that is more forward-looking and less reactive to individual orders. When fully implemented, the new process will be **more responsive to field needs, increase frequency of OTD, reduce cycle times, and reduce costs** overall — primarily due to improved prices from suppliers in response to more stable and predictable order patterns. GHSC-PSM will first implement this new approach next quarter with high-volume ARVs, subsequently adopting it for other health commodities.

Commodity Councils

GHSC-PSM's cross-functional Commodity Councils lead strategic sourcing efforts designed to deliver better value to USAID and countries, improve cycle times, and support OTD. We have emphasized contracting strategies to increase the share of total procurement managed under long-term agreements and to reduce reliance on spot tendering. In Q1, the Commodity Councils continued to produce solid results for our seven primary commodity groups. In addition to awarding contracts as described in Sections B1 through B3, the Commodity Councils are actively engaged in developing several strategic contracts that will be finalized in coming quarters.

C1b. Project Performance

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

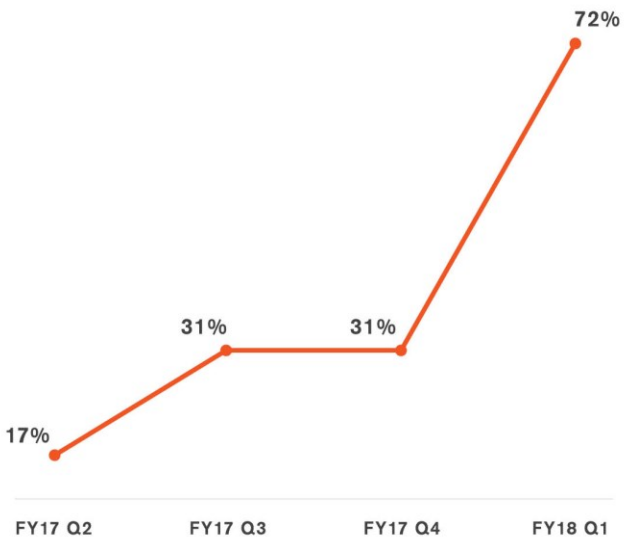
GHSC-PSM continues to measure on-time delivery in two ways:

- **On-Time Delivery** — the number of on-time deliveries as a percentage of **expected deliveries** in that period. OTD most accurately reflects recent performance.

- **On-Time In-Full Delivery (OTIF)** — the number of deliveries that are delivered on time and in full as a percentage of **actual deliveries** in that period. OTIF rates decrease as late orders from previous months get delivered (i.e., the higher the percentage of late orders delivered in a given period, the lower the OTIF).

On-Time Delivery

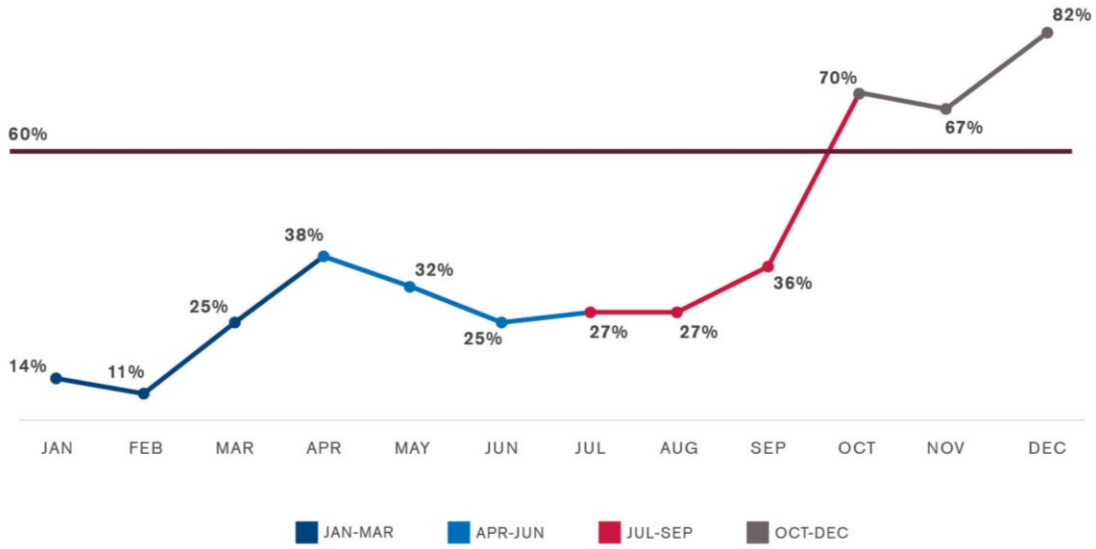
Exhibit 8. GHSC-PSM OTD by Quarter



As shown in Exhibit 8, our Q1 OTD of 72 percent is a significant improvement over the previous quarter's OTD of 31 percent. This improvement provides clear evidence that the Global Supply Chain's process improvements, such as the streamlined end-to-end process, application of the order promise tool, aggressive supplier management, enhanced management system, and targeted data analytics, are working.

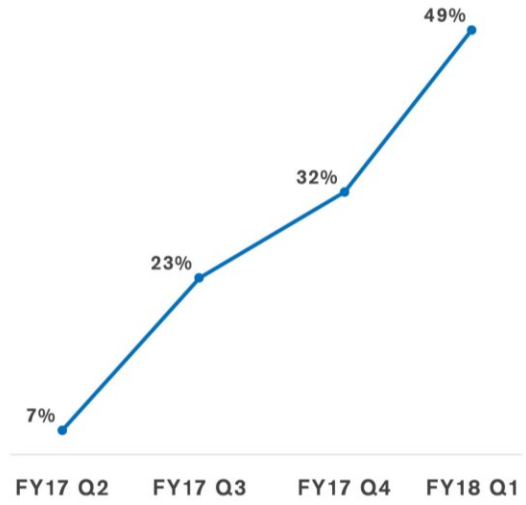
A deeper dive into the Q1 monthly data in Exhibit 9 reveals that the improvement has been sustained over each of the last three months, as the new process, management system, organization, and use of leading supply chain tools have stabilized. In short, the data demonstrate that we are getting far more precise in making commitments and better in meeting commitments.

Exhibit 9. GHSC-PSM On-Time Delivery by Month for Calendar Year 2017



The OTIF numbers also reflect marked improvement in Q1 to 49 percent[5], as shown in Exhibit 10. However, the magnitude of the improvement is masked by the sheer volume of backlog deliveries that also took place in the quarter, suppressing the results from commitments within Q1.

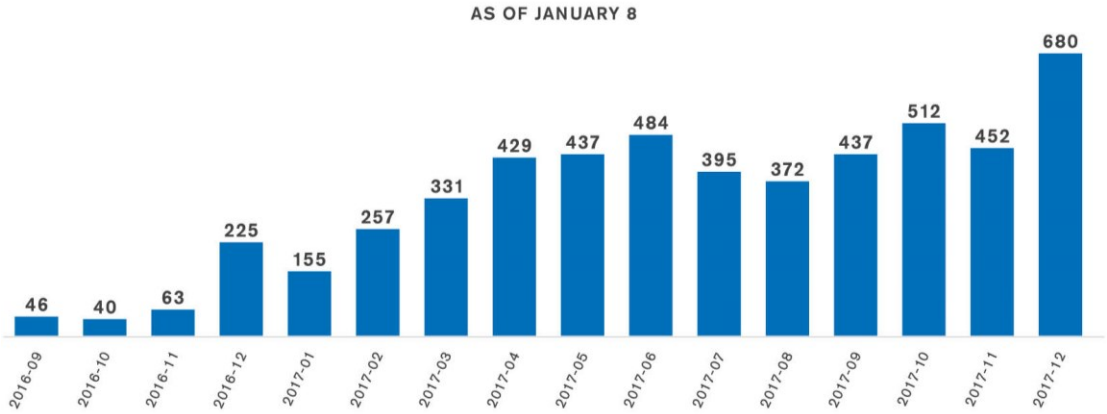
Exhibit 10. GHSC-PSM OTIF by Quarter



[5] OTIF depicts the degree to which the right products are delivered on time and "in full" — in the right quantity, as specified by the customer. The "in full" aspect of our OTIF rate for Q1 was 94 percent. Please see the definition on the preceding page.

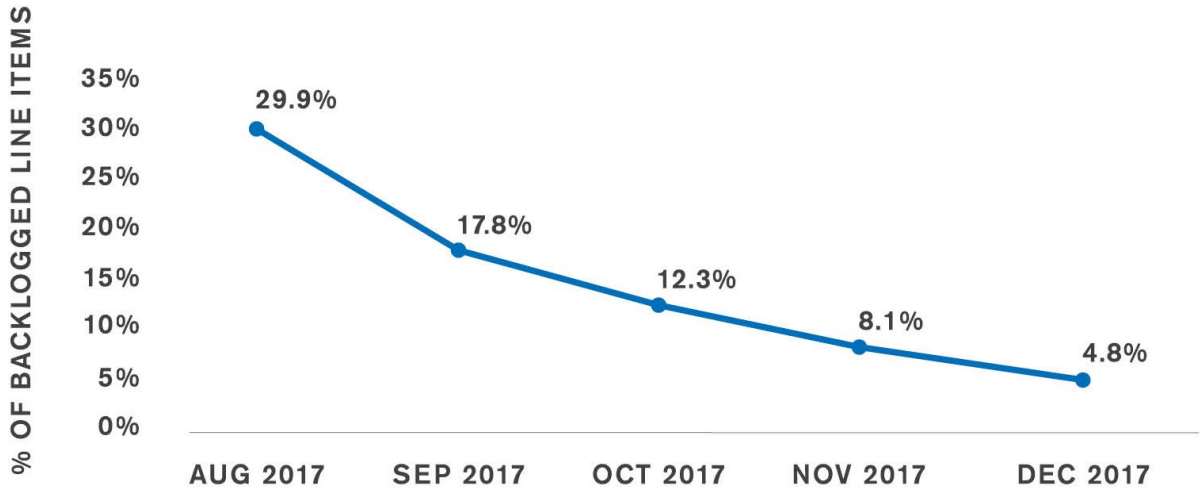
Our volume of line-item deliveries is outlined in Exhibit 11, which shows that our Q1 deliveries increased by 37 percent from FY17 Q4 and by 121 percent over the last three quarters. The increased volume of deliveries is due to delivery of late orders (backlog) and improvement in on-time deliveries.

Exhibit 11. GHSC-PSM Deliveries per Month



Another important indicator is our backlog indicator, reflecting undelivered late line items as a percentage of total annual commitments. We achieved our FY18 goal of 5 percent or less through the significant delivery of backlog in Q1 (please see Exhibit 12). In fact, we have reduced the backlog by 69 percent since Q4.

Exhibit 12. Backlog Percentage by Month

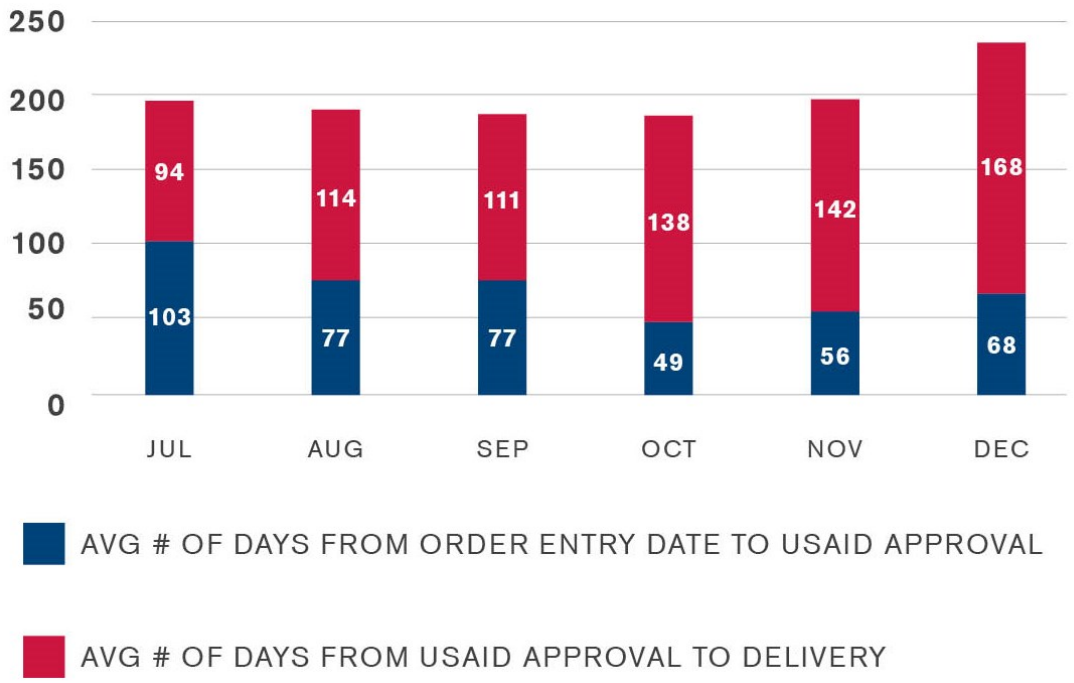


Cycle Time

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 receipt of goods by the recipient, in most cases 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.

While we have demonstrated strong progress on OTD, deliveries, and backlog, our end-to-end cycle times have not improved. This is due to many factors, including delivery of older backlog orders, focus on delivering in-process orders (versus early-stage processing), and longer manufacturing process times. We are also seeing longer cycle times as we begin to proactively initiate orders earlier through our supply planning efforts. While this is a positive step forward, often these orders are "on hold" in the middle of process since they are not urgently needed, and thus extend our cycle time. We will account for these strategic on-hold times in future quarters. With that said, cycle time reduction will be a key focus as we enter Q2, as it is critical to ongoing improvement in our OTD and costs.

Exhibit 13. GHSC-PSM Cycle Breakdown for Line Items by Delivery Month



C2. SYSTEMS STRENGTHENING TECHNICAL ASSISTANCE

In Brief

This quarter, the three Health Supply Chain Systems Strengthening (HSCSS) Technical Working Groups (TWGs) (Warehousing and Distribution, Workforce Development, and Forecasting and Supply Planning) **continued to refine and direct our technical approaches**, including management of the RFP for modular warehousing, planning for the first technical deep dive on workforce development, and establishment of a baseline of supply plan expectations. Also, the **Management Information System (MIS) TWG was launched** in October.

We have **1,101staff in 30 country-specific or regional field offices.** These staff interface with headquarters staff to facilitate procurement and provide technical assistance and training to host-country supply chain entities. In some cases, they are embedded within ministries (e.g., Lesotho) or directly manage parts of the national supply chain (e.g., Nigeria).

C2a. Activities, Achievements, Lessons Learned, and Adaptation

GHSC-PSM's country support work addresses two main needs:

- **GHSC-PSM procurement support** — facilitating orders of GHSC-PSM-provided commodities and delivery of those commodities to countries
- **Health supply chain systems strengthening** — building stronger in-country supply chains to maximize access to health commodities

Procurement Support

Country-specific procurement support involves interfacing with USAID missions to finalize orders, collecting and sharing current information on country processes and requirements for commodity importation, and interfacing with the variety of stakeholders and service providers to facilitate delivery. GHSC-PSM provided procurement support for 39 countries in Q1, including for 16 countries* (non-field-office countries) that we support remotely.

Country procurement support starts with our field offices. At the end of Q1, **1,101 field staff were providing procurement and other support in 30 country-specific or regional field offices**. These field office staff interface with the USAID missions, in-country logistics providers (such as customs agents), and GHSC-PSM Global Supply Chain headquarters staff to facilitate ordering and ensure open communication and coordination of procurement activities.

The **Non-Field-Office (NFO) team facilitated the timely delivery of health commodities** by offering high-quality procurement and logistics services to partners who want

access to GHSC-PSM's commodities but lack a local GHSC-PSM office.[6] Our Commodity Security team (CST) continued to work at the interface of our headquarters Country Programs, Global Supply Chain, and our field teams, linking with commodity security points of contact in each of our field offices. The CST supported **collection and reporting of stock-level information** for core TO1 products, which was critical for prioritizing orders, and supported regular reporting to USAID and OGAC.

Working to Ensure Reliable Supply

To ensure reliable supply of health commodities to those who need them, every step in the supply chain is critical. While GHSC-PSM is not responsible for providing last-mile delivery of health products,[7] we work hard to help ensure commodities are available at all levels. Examples of the variety of steps we took in Q1 to achieve this are provided in the text box on the following page.

Health Supply Chain Systems Strengthening (HSCSS) Technical Assistance

HSCSS technical assistance works to help build sustainable country capacity to provide the right health commodities where they are needed, when they are needed. Sustainability implies that local entities can manage an effective and cost-efficient supply chain. Our HSCSS ranges from providing training and technical assistance to host governments and other supply chain entities to, in a few cases, directly staffing supply chain offices.

GHSC-PSM provides HSCSS support in 40 countries. The extent of GHSC-PSM's HSCSS varies widely by country and, within countries, by health area.

GHSC-PSM is one of many players that work with host-country governments to provide needed health commodities and to strengthen in-country health supply chains. We work in close collaboration with key global stakeholders to create synergies between programs. In this way, we hope to **achieve impact beyond our limited technical support**. In Q1, we continued to coordinate support with many donors, including the Global Fund, UNICEF, UNDP, UNFPA, CHAI, and others.

GHSC-PSM **builds local supply chain capacity based on global best practices, addressing critical components** of a sustainable supply chain: strategy and planning; FASP; process improvement; warehousing and distribution; lab; waste management; quality assurance; MIS; governance and leadership; and workforce development. Exhibit 14 shows the most heavily subscribed supply chain elements being addressed by GHSC-PSM, and the percentage of country work plans that include this element for FY18.

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[6] The 16 countries currently supported by the NFO team are Afghanistan, Bangladesh, Benin, Chile, Colombia, Côte d'Ivoire, Democratic Republic of the Congo, Dominican Republic, Mali, Niger, Senegal, Sierra Leone, Swaziland, Tanzania, Togo, and Ukraine. Note that Mali and Sierra Leone are expected to transition out of the NFO team's portfolio as field offices are established there in the coming months.

[7] Nigeria and Haiti, where we deliver health commodities to all levels, are exceptions. Also, in Malawi, we are responsible for delivering U.S.-government-supported malaria and FP commodities to all levels.

Ensuring Country Commodity Security

GHSC-PSM field offices and consultants work diligently to make commodities available to those who need them wherever possible. Some examples of successful efforts in Q1 include:

- ***Commodity clearance facilitation***. In **Côte d'Ivoire,** GHSC-PSM's local commodity logistics consultant mobilized quickly to avert a potential central-level stockout of pediatric ARVs amid labor strikes and operational difficulties at the national airport. Our consultant verified the cold chain/chain of custody of a crucial shipment, documenting the process thoroughly with photos and reports. This paved the way for smooth customs and quality assurance clearance, avoiding a stockout.

- ***Close in-country collaboration.*** GHSC-PSM convenes the Partners' Logistics Committee for the Coordination of Reproductive Health and Contraceptive Commodities to improve supply chain efficiencies, close information gaps and, ultimately, improve contraceptive security throughout **Angola**. At these meetings, participants from the Angolan Ministry of Health, the UNFPA, USAID, the World Bank, Population Services International, WHO, and GHSC-PSM share their respective monthly inventories of supplies at the central medical store. Partners hold each other accountable for their work plans and brainstorm solutions to difficult logistics challenges. With greater and wider stakeholder participation, there is a larger possibility of public sector FP commodities being funded directly by the Ministry of Health or indirectly through the WHO's health systems strengthening project.

- ***Hands-on mentoring***. In **Uganda,** GHSC-PSM contracts Joint Medical Stores (JMS) to carry out storage and distribution of HIV commodities to 290 USAID-supported sites. Recognizing that bimonthly delivery of commodities to service delivery points provides opportunities to address supply chain issues, we prepared JMS to provide supportive supervision and mentoring of staff during the site visits. This hands-on approach has resulted in great improvement in availability of commodities and ordering rates. Analysis of facility reports at the end of October 2017 showed that all 17 ARVs were appropriately stocked; three of the five OI formulations were between desired maximum-minimum levels; and three of the four HIV test kit brands were between desired maximum-minimum levels.

- ***Improved visibility into inventories***. In **Rwanda,** GHSC-PSM conducted a data-cleaning exercise with 30 district pharmacies and 627 service delivery points to ensure that stock on hand in the system equaled the physical count and that consumption data were being updated in real time. Introduction of the Quality Management Improvement Approach at district pharmacies and service delivery points improved the electronic LMIS (eLMIS) utilization rate (from 25 percent to 95 percent) and helped reduce stockouts.

- ***Stock rebalancing***. In **Burma,** GHSC-PSM supported a national ARV stock monitoring workshop in December, chaired by the National AIDS Program, with 10 Global Fund subrecipients. Workshop participants reviewed inventory levels and then made decisions to rebalance stock among subrecipients to ensure continuous access to ARVs for HIV patients across the country.

- ***Mitigating measures***. In **Namibia,** lengthy government procurement processes have resulted in shortages of pharmaceuticals, including low-volume second- and third-line ARVs. The inaugural ARV tender under the newly established Central Procurement Board was extended, resulting in further delays. GHSC-PSM supported stock redistribution among health facilities and liaised with clinical mentors to change regimens for those items that were stocked out.

Exhibit 14. Focus of HSCSS in FY18 for Countries Receiving GHSC-PSM Technical Assistance

Supply Chain Element	Percentage of Country Work Plans that Include This Element
Forecasting and Supply Planning	91 % of work plans
MIS	91 % of work plans
Warehousing and Distribution	84 % of work plans
Procurement	72 % of work plans
Strategy and Planning	72 % of work plans
Laboratory	44 % of work plans

A sample of our HSCSS achievements in Q1 is provided on the following pages.

Forecasting and Supply Planning (FASP)

We work with countries to develop supply plans. The Global Supply Chain Plan team uses these validated supply plans to restock RDC orders and to aggregate commodity demand. In addition, the 18-month planning horizon facilitates the Global Supply Chain team's proactive order management process. At the country level, regular supply planning strengthens collaboration between donors and governments to ensure continuity of the supply of health products to programs by avoiding duplicative orders, enabling early identification of potential stock imbalances, and efficiently scheduling deliveries.

The FASP TWG established the universe of country/commodity supply plans that are required quarterly in response to the continuing growth in the number of GHSC-PSM-supported countries and expanding health portfolios. The scale of our country-level supply planning is shown in the box at right.

Scale of Support for Supply Planning

Our support for supply planning for the various health areas in the many countries we work in is on an unprecedented scale.

By the end of FY18, **GHSC-PSM will be managing almost 100 supply plans**.

These will address eight commodity groups across all relevant health areas.

In Q1, we received 78 out of 94 expected supply plans across all commodity categories. The FASP and Laboratory teams reviewed and validated 45 ARV, laboratory, and malaria supply plans in the quarter. In the coming months, we will review and validate VMMC, condom, FP, and MCH supply plans.

GHSC-PSM also works to build FASP management units in supported countries. These units systematically determine national health commodity requirements, estimate their costs, and coordinate fulfillment to support the continuous availability of commodities. This quarter, we supported a joint Ministry of Health and UNFPA workshop on FP quantification in **Haiti**, which generated two supply plans: one for the USAID-supported distribution channel and one for UNFPA's supply chain. In **Lesotho**, we provided technical input to the annual workshop for the quantification of ARVs and RTKs, and of laboratory, nutrition, family planning, and OI commodities, culminating in procurement plans for implementation by the government of Lesotho.

Management Information Systems

The MIS team manages the maintenance and upgrading of legacy MIS tools used by field offices, counterparts, and our own teams. The team revised the PipeLine Stock Monitoring and Procurement Planning software, a key tool that is used by all GHSC-PSM country programs. The

software now includes ARTMIS product codes and descriptions, facilitating data use throughout the project.

In **Cambodia**, the MIS team guided development of technical specifications for a national LMIS system and, in conjunction with national stakeholders, provided technical support to drafting an RFP and evaluating and selecting the LMIS vendor. In **Mozambique**, GHSC-PSM assisted the central medical store in upgrading its warehouse management software, known as "MACSwms," to the latest version, bringing in radio frequency capabilities for higher efficiencies in key warehouse functions. In **Angola**, we advised the national LMIS workshop in developing a roadmap for a national LMIS system. The workshop prioritized system requirements, standardized key process flows, identified pilot sites, and established technical working groups and governance processes that are critical to successfully implementing a national LMIS system. We also provided ongoing technical assistance to **Botswana, Burma, Guinea, Haiti, Kyrgyzstan, Malawi, Madagascar, Nepal, Pakistan, Rwanda,** and **Zambia** in their supply chain information systems.

Warehousing and Distribution

GHSC-PSM promotes systematic, data-driven decision making to optimize in-country warehouse networks and to increase efficiencies in warehousing and distribution operations. Achievements this quarter include:

Last-mile delivery picking and packing in action in the Nigeria Premier Medical Warehouse. *Photo credit: Carolyn Pryor*

- In **Mozambique**, we conducted a supply chain assessment and provided the central medical store with the tools to conduct "plan do check act" — the lean feedback loop — through a daily planner integrated with a weekly and quarterly labor report. Both tools were translated into Portuguese and form the foundation for future activity-based costing activities.

- In **Burkina Faso**, we created daily planning and self-assessment tools in French to use at the central medical stores in Ouagadougou.

- In **Indonesia**, we reviewed the third-party logistics provider for the potential to interface with the government's warehouse management system to extract data, provide inventory visibility to the supply chain, and create a suite of daily, weekly, and monthly reports.

- In **Zimbabwe**, we completed an inventory/warehouse optimization exercise with NatPharm, the parastatal responsible for warehousing and distributing health commodities, to help it address challenges with late deliveries and congested

warehouses. We proposed several analytical approaches to increase data visibility, enable better inventory management, and improve overall delivery.

On the global level, we completed the procurement process and selected a UAV manufacturer for implementation of our **UAV pilot**. Also, we inspected one supplier of small **modular prefabricated units** for storage in laboratories and clinics, and revised our contracting approach for such units to allow for contract flexibility. We also released an RFP in October for **warehouse engineering services.**

Laboratory

We work to ensure **national laboratory networks are optimized** to support the scale-up of routine viral load testing and achieve the 90-90-90 goals for HIV testing, HIV treatment, and viral load suppression, as well as other program goals. This quarter, we organized and conducted a regional workshop on LabEQIP, a tool that visualizes laboratory network performance in Entebbe, Uganda, described in Section B1. We oriented participants from USAID, CDC, ministries of health, national laboratories, and implementing partners from Cameroon, Kenya, Malawi, Swaziland, Tanzania, Uganda, and Zambia on LabEQIP at the workshop.

The team also represented GHSC-PSM at ICASA in Côte d'Ivoire and presented on the network approach and planning cycle for ensuring an uninterrupted supply of laboratory commodities and reagents. This satellite session was attended by key suppliers and manufacturers of viral load reagents/commodities, along with programmatic stakeholders.

Workforce Development and Leadership and Governance

Our workforce development efforts help public and private organizations that operate supply chains to develop human resources capacity and institutionalized systems for **ensuring high-performing, professional, and consumer-centered workforces**. Our governance work seeks to build supply chain systems led by a strong team with managerial capacity, institutionalized checks and balances, and **robust governance oversight with accountability and transparent financing.**

In Q1, we developed a **supply chain management community of practice**. GHSC-PSM also engaged with the International Association of Public Health Logisticians and worked with People that Deliver and USAID to revise the theory of change for human resources management within health supply chains in developing countries.

We facilitated a session on "Policy and Regulation on Pharmaceutical Products" at the Africa Health Business Symposium in Senegal. This session focused on **developing relationships between participating governments and the private sector** to further improve pharmaceutical policy and regulation.

In **Ethiopia**, we supported the initial scoping for a detailed human resources strategic plan for the Pharmaceuticals Fund and Supply Agency (PFSA), building on GHSC-PSM global approaches. The strategy and associated work plan present a systematic approach to professionalizing and developing the technical human resources in PFSA, with a strong emphasis on redressing gender inequality. At the University of Addis, we developed and delivered a module on "SCM Governance, Management, and Leadership."

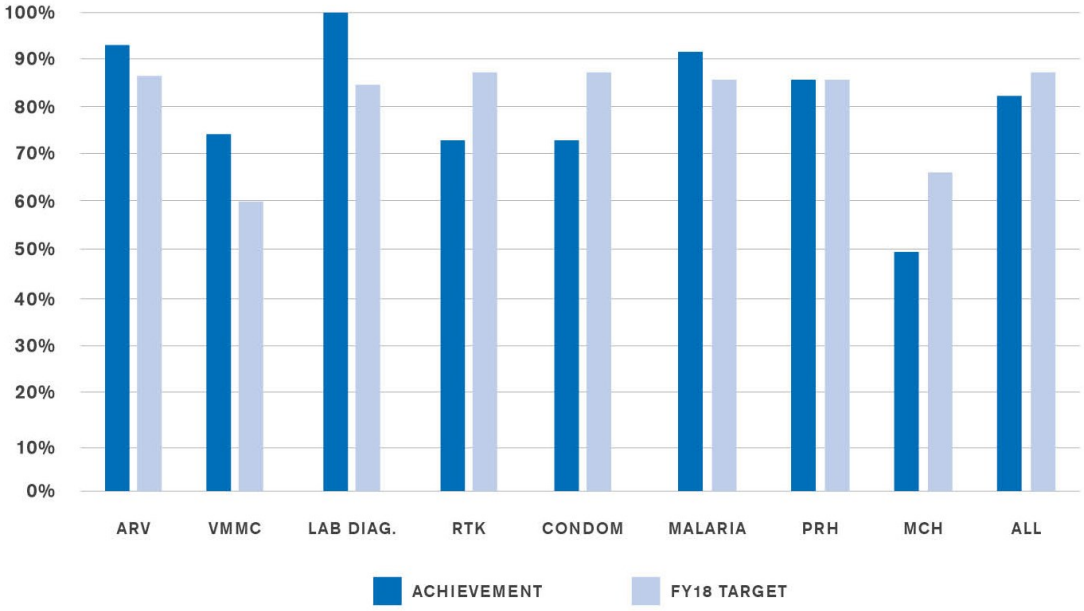
C2b. Project Performance

GHSC-PSM collects and analyzes data on a variety of indicators of national health supply chain systems to enrich our understanding of the environments in which we operate and to help us calibrate our work accordingly. These indicators also help establish priorities for our systems strengthening support and, over time, will enable us to assess the outcomes of our technical assistance. Values for these indicators are provided in Annex A.

Percentage of Required Supply Plans Submitted

Exhibit 15 presents results for a critical indicator in ensuring procurements are planned well ahead and that adequate stock levels are maintained in the supply chains that we support.

Exhibit 15. Percentage of Required Supply Plans Submitted to GHSC-PSM During Q1 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 continuous, rolling visibility into monthly demand. In Q1, working through the FASP TWG, GHSC-PSM completed a baseline survey to establish which countries and for which commodity categories we should be producing quarterly supply plans. The outcome is a verified reference point in determining supply plan expectations, which has already resulted in an increase in the number of supply plans submitted to GHSC-PSM for analysis and use, and the identification of countries on which to focus efforts to improve performance. Across all commodity groups, 78 quarterly supply plans were submitted, which is 83 percent of the supply plans we expected to receive.

C3. GLOBAL COLLABORATION

In Brief

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

We developed and made significant progress in implementing a plan to **incorporate global standards** throughout our supply chain.

C3a. Activities, Achievements, Lessons Learned, and Adaptation

GHSC-PSM's global collaboration activities support USAID's leadership and participation in important global supply chain fora, provide leading-edge research to help shape global markets for health commodities, share our supply chain information with other donors and collaborators as a global good, ensure that our supply chain stays current with emerging requirements, and effectively manage and share knowledge of best practices and lessons learned.

Market Dynamics

GHSC-PSM conducted market analysis to build healthier markets — not only to achieve immediate results but also to ensure stronger, healthier, more sustainable markets in the long run. We have presented information on our health-area-specific market dynamics work in Sections B1 through B3. In addition to these analyses, we held a workshop at the GHSC Summit in Accra, Ghana, about market dynamics and how local decisions impact global markets. The workshop was designed to help in-country supply chain professionals, government officials, and implementing partners understand key principles of market dynamics. The event drew 34 attendees[8] from around the world, including representatives from ministries of health, USAID missions and headquarters, GHSC-PSM country staff, wholesalers, in-country logistics providers, and global supply chain experts.

Through a series of exercises, participants built a framework for assessing market health for public health commodities and assessed the impact of market decisions on public health through case studies of HIV RTKs, LLINs, and oral contraceptives. The result was an **awareness of how policies implemented at the country level could have a significant impact on global pricing and availability, as well as how to influence change at the local level**.

Global Standards 1

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

[8] 15 from Nigeria, seven from Ghana, five from the U.S., two from Denmark, and one each from Canada, Ethiopia, Italy, Tanzania, and Uganda.

central part of the entire GHSC program to reduce costs, enhance efficiencies, and improve the availability of health commodities worldwide.

To this end, in Q1, GHSC-PSM started integrating ARTMIS with the Global Data Synchronization Network (GDSN). The GDSN is an internet-based network of interoperable data pools and cloud-based data exchange known as the Global Standards 1 (GS1) Global Registry. This network enables trading partners — including donors or country governments and their suppliers — around the globe to exchange standardized product master data, which are the backbone for most supply chain systems. Pilot testing of the GDSN-ARTMIS integration is scheduled for January. We managed the GDSN subcontractor in delivering a detailed work plan for GDSN implementation, a data pool and supplier registration strategy, recommendations for GDSN-ARTMIS integration, and a training strategy. In total, we completed 10 global standards deliverables this quarter, including the documentation needed to enable formal implementation of the product identification, labeling, and data exchange requirement in 2018.

We attended the 2017 Global Health Supply Chain Summit and presented with colleagues from the USAID Office of HIV/AIDS and the GHSC-Business Intelligence & Analytics (GHSC-BI&A) project, implemented by Intellicog, on the GHSC vision and approach to standards adoption. This event was a milestone for **starting to engage country stakeholders in the global standards vision** and for beginning to generate demand in the field.

Engagement with technical resources from GS1 Ghana and GS1 Nigeria jump-started a relationship to enable local and regional support for country implementations. As well, our India-based team was trained in GS1 global standards. We met with key Indian suppliers to understand their baseline capabilities and awareness of the impending GHSC-PSM requirement.

Emerging Trends Course

December 4–8, GHSC-PSM hosted nine supply chain advisors and professionals from USAID missions and USAID/Washington for the "Emerging Trends in Supply Chain Management for Health Commodities" training course. This five-day, advanced-level supply chain management course provided participants with the opportunity to **explore complex trends, issues, and opportunities that will impact health supply chains over the next 20 years and beyond**. Course participants reviewed lessons learned from the last decade of health supply chain strengthening, and explored innovations in practical case study formats, to deepen their understanding and ability to improve the supply chains with which they work.

C3b. Project Performance

People Trained

The "number of people trained" and the "number of innovations" are two performance indicators that reflect GHSC-PSM's performance in global collaboration and cross-cutting activities. Our Q1 performance in these indicators is summarized below. Additional details are available in Annex A.

The "number of people trained" indicator provides a basic illustration of where the project is focusing its capacity-building resources and where we might expect related supply chain outcomes to improve.

More than 3,600 people were trained in Q1, including 1,993 men and 1,609 women. This decrease from the previous quarter is likely due to limited activities around the end of the calendar year.

Most trainings covered topics not specific to one task order (1,879). When examining trainings by funding source, 1,967 individuals were trained using HIV/AIDS funding, 730 with malaria funding, 516 with PRH funding, and 389 with MCH funding.

The focus of trainings was:

- 29 percent on warehousing and inventory management
- 22 percent on MIS
- 17 percent on forecasting and supply planning
- 11 percent on governance and financing
- 10 percent on human resources capacity development
- 8 percent on strategy and planning
- 2 percent on transportation and distribution

Innovations

GHSC-PSM works to bring fresh ideas to improve procurement and supply chain management globally. Below we list several innovations that we advanced this quarter at the headquarters and country levels.

TLD forecasting tool
With input from USAID, we finished developing a simple tool to enable program managers, USAID mission points of contact, and supply chain cadres to model scenarios for the transition to TLD from existing treatment regimens, based on a starting date and a pace for transition and characteristics of ART patients eligible for transition. The outputs 1) determine the quantity of stock to have on hand at the start of the transition, 2) plan future shipments, and 3) project the likelihood of unused stocks of TLE and LZN.

VMMC Quantification Guide
GHSC-PSM developed a guide for forecasting VMMC commodities. This includes information on the forecast methodologies and tools employed by GHSC-PSM, required data for quantification workshops, and instructions for holding a quantification workshop and properly using the results. This innovative and illustrated guide provides countries and stakeholders with a toolkit for leading future VMMC initiatives and national quantifications.

Contraceptive Security Indicators
GHSC-PSM has taken on the responsibility of collecting data and reporting on the Contraceptive Security Indicators and Index, implemented by USAID since 2009. The survey is conducted in more than 40 countries around the world. It aims to assess a country's level of contraceptive security, which is the condition where everyone can choose, obtain, and use a wide variety of high-quality and affordable contraceptive methods when they need them for family planning and the prevention of sexually transmitted diseases. As described in Section B3, over the past year, GHSC-PSM, in close collaboration with USAID, reviewed the survey tool and updated it to increase the survey's reliability and methodological rigor, while expanding the scope to bring it more in line with the total market approach. In this vein, we modified questions to better highlight the private sector's role in contributing to contraceptive security,

while we added new sections focused on the private sector and product quality. We disseminated the revised survey to countries at the start of the quarter.

LMIS-based short-message service (SMS) and email alert system
In Pakistan, the GHSC-PSM MIS team developed an LMIS-based SMS and email alert system to support effective stock management. It will help end users to take prompt, corrective, data-driven actions to address stock management bottlenecks. SMS and email alerts will inform provincial and district executives and operational staff of stock status to help prevent stockouts, understocks, and overstocks and improve coordination among departments and functional levels.

MACS LBS-RF handheld devices and barcode readers
Mozambique's central medical stores, with the support of GHSC-PSM, deployed MACS LBS-RF handheld devices and barcode readers in the Zimpeto Central Warehouse. Users carrying the devices while on the warehouse floor can communicate with each other through wi-fi, scan barcodes to facilitate weekly and annual stock inventory counts, and reduce human error while putting away pallets.

Interim eLMIS solution
In Haiti, the data team custom-designed an interim eLMIS solution that provides close-to-real-time information on stock-level data at health facilities. The application aggregates and automates site-level consumption reports and makes calculations for replenishment. The tool is expected to dramatically reduce the current level of effort for data collection and analysis, improve data quality, and increase visibility into stock levels for more efficient and effective site replenishment and redistribution of stock.

C4. CONCLUSION

GHSC-PSM achieved significant improvement in OTD by reengineering the organizational structure, systems, and procedures within our Global Supply Chain. The project continues to make refinements that will improve on-time delivery, reduce cycle time, and increase efficiency. GHSC-PSM's integrated, more forward-looking planning and procurement process will also yield more stable and predictable order patterns, increasing OTD and reducing cycle times. Commodity Councils leveraged market dynamics research to transform sourcing strategies for several commodity groups. Through these new strategies, GHSC-PSM will work with more suppliers, increase competition, provide better value for USAID, and deliver more choices for patients and service providers.

Ongoing efforts to strengthen supply chain systems in dozens of countries are improving the quality of data and maximizing use of data to improve commodity availability. Local partners are getting better information on stock status, optimizing warehousing and distribution, and improving forecasting and supply planning to better meet their health commodity needs.

Through strategic discussions with partners worldwide, the project supported key USAID priorities in HIV/AIDS, malaria, PRH, and MCH. Through these partnerships, we are helping GHSC-PSM-supported countries navigate effectively within a complex and ever-changing global marketplace and provide a safe, reliable supply of health commodities to some of the world's most vulnerable populations.

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Annex A. M&E Indicators

The Global Health Supply Chain Program-Procurement and Supply Management project (GHSC-PSM) 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.

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 December 31, 2017:

1. Number of years of antiretroviral (ARV) treatments delivered by GHSC-PSM
This report only includes Efavirenz/Lamivudine/Tenofovir (TLE) and Nevirapine/Lamivudine/Zidovudine (NLZ). Doses for calculating both adult and pediatric treatments are based on World Health Organization (WHO)-recommended treatment 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.

1. 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 between October 1 and December 31, 2017 at the time that the data were analyzed (January 16, 2018). 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, Q1 FY18, some noteworthy milestones were reached:
• GHSC-PSM's M&E plan was updated and approved by USAID
• Targets for key global supply chain indicators were set and approved
• 5 New Country M&E plans completed
• CS indictor survey tools implemented

Notable indicator modifications
• Indicator A16: New. Percentage of backlogged line items
• Indicator B1: Updated. GHSC-PSM-supported vs. non-supported regions defined
• Indicator B3: Updated. Clarification on LMIS report submission requirements
• Indicator B6: Updated. Supply plans will now be disaggregated by commodity group, rather than task order
• Indicator B12: Updated. Now calculated annually

Data Quality

GHSC-PSM is committed 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. As of January 23, the Help Desk has logged 140 data quality incidents, with 97 percent resolved.

2. USAID-led data quality assessment (DQA) activities:
In Q1 FY18, USAID, in collaboration with GHSC-PSM, conducted an assessment of ARTMIS data quality in TO1 and TO3 orders.

3. Comprehensive DQA:
In preparation for this report, key data underlying the OTD calculations for line items with a delivery date in Q1 FY18 were 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 accuracy of this data field in ARTMIS, the original scan of the proof of delivery (PoD) was retrieved, examined, and verified. Every line item was reviewed and 98.6 percent of the PoDs were assessed (1.4 percent are still currently under review). In less than 1 percent of the lines, we identified errors that affected OTD; the net change was a slight increase in OTD.

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. This review assessed all ADDs that were changed to validate the following attributes: 1) they were only changed for reasons considered valid by USAID, and 2) they were substantiated with the requisite approvals and backup documentation.

c. This systematic review demonstrated that actual delivery dates and ADDs in ARTMIS are valid, with few exceptions. All identified errors were corrected prior to OTD calculations reported in this document.

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. Moving forward, we expect to incorporate 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, field offices set targets for their own country programs through consultations with project technical staff and leadership, USAID missions, and government counterparts. 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%				
A1b.	Percentage of line items delivered on time, within the minimum delivery window – %		72%				
A3.	Cycle time (average) – # (days per shipment)		212				
A4.	Inventory turns (average number of times inventory cycles through GHSC-PSM-controlled global facilities) – ratio		Annual Indicator				
A5.	Total landed cost (commodity-related costs) – %		Semiannual		Semiannual		
A13.	Percentage of batches of product showing nonconformity (out of specification percentage) – %		0.4%				
In-Country							
B1.	Stockout rate at SDPs – %		12%				
B2.	Percentage of stock status observations in storage sites where commodities are stocked according to plan, by level in supply system – %		26%				
B3.	SDP reporting rate to the logistics management information system (LMIS) – %		84%				
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				
		Cross-TO Trainings	1,879				
		All Trainings (TO-Specific & Cross-TO)	3,602				

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 Q2	2017 Q3	2017 Q4	2018 Q1	TO2 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO3 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO4 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1
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	6% (348)	25% (809)	35% (985)	50% (1,505)	N/A	13% (32)	15% (125)	14% (108)	32% (82)	N/A	22% (9)	5% (20)	28% (57)	62% (42)	N/A	N/A	0% (1)	100% (1)	80% (15)
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	N/A	31% (1181)	73% (1,061)	N/A	N/A	N/A	19% (77)	59% (66)	N/A	N/A	N/A	59% (29)	79% (34)	N/A	N/A	N/A	50% (2)	85% (13)
A2	Percentage of QA processes completed within the total estimated QA lead times - %		N/A					80%	NA	81%	74%	82%	N/A					N/A				
A3	Cycle time (average) – # (days per line item delivered)		158	171	154	185	206	262	206	234	313	316	RDC: 176 Direct Drop: 224	117	220	250	RDC: 236 Direct Drop: 217	N/A	N/A	310	26	190
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 (commodity-related costs) – %	8%	N/A		7%		Semi-annual	N/A		15%		Semi-annual	N/A		14%		Semi-annual	N/A		2%		Semi-annual
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	N/A	35%	65%	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%	78%	77%	79%	82%	70%	66%	61%	61%	74%	75%	67%	65%	75%	81%	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	Task Order 1					Task Order 2					Task Order 3					Task Order 4					Cross-Cutting				
			FY18 Target*	TO1 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO2 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO3 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO4 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1
A10	Percentage of product procured using a framework contract (framework contract percentage) – %			75%	79%	82%	74%	71%	30%	0%	0.1%	11.0%	24%	95%	99%	100%	98%	99%	55%	N/A	N/A	98%	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%	0%	2%	0.4%	N/A					N/A					N/A				
A14	Average vendor rating score – rating	Suppliers		Not required	89%	81%	87%	N/A	Not required	96%	90%	94%	N/A	Not required	87%	85%	94%	N/A	Not required	N/A	N/A	N/A	N/A	Not required				
		Laboratory QA								73%	76%	46%	77%															
		Freight forwarders																							N/A	69%	64%	76%
A15	Percentage of QA investigation reports submitted within 30 calendar days of outcome determination (QA investigation report submission) – %			N/A					90%		100%	67%	Now semi-annual	N/A					N/A					N/A				
A16	Percentage of backlogged line items – %		<5%	N/A	N/A	N/A	N/A	5%	N/A	N/A	N/A	N/A	6%	N/A	N/A	N/A	N/A	1%	N/A	N/A	N/A	N/A	10%	N/A				
In-Country Performance and Sustainability																												
B1	Stockout rate at SDPs – %			Set at the country level	8%	8%	5%	6%	Set at the country level	11%	21%	19%	13%	Set at the country level	25%	31%	29%	13%	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 – %				27%	29%	35%	33%		22%	13%	21%	25%		16%	10%	14%	19%		8%	5%	30%	29%	N/A				
B3	SDP reporting rate to the logistics management information system (LMIS) – %				91%	91%	90%	83%		84%	85%	83%	83%		86%	79%	80%	79%		85%	77%	78%	72%	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 Q2	2017 Q3	2017 Q4	2018 Q1	TO2 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO3 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO4 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1
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	16%	53%		Annual	Not required	28%	33%		Annual	Not required	N/A	41%		Annual	Not required	N/A	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	1	4	3	Not required	2	1	1	1	Not required	N/A	1	2	2	Not required	0	0	0	0	N/A	2	1	5	3
C2	Number of people trained – #	Not required	299	680	1,056	1,362	Not required	33	17	430	37	Not required	0	0	14	99	Not required	0	0	0	225	N/A	108	2,872	6,253	1,879

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 Q2	2017 Q3	2017 Q4	2018 Q1	TO2 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO3 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	TO4 FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1	FY18 Target*	2017 Q2	2017 Q3	2017 Q4	2018 Q1
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	N/A	77%
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	N/A	77%
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		Semi-annual
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	7	4		Semi-annual	Not required	2	3		Semi-annual	Not required	4	6		Semi-annual	Not required	0	6		Semi-annual	Not required	9	13		Semi-annual
C10	Percentage of GHSC-PSM-procured or supported molecular instruments that remained functional during the reporting period – %	Set at the country level	75%	79%	88%	89%	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).***

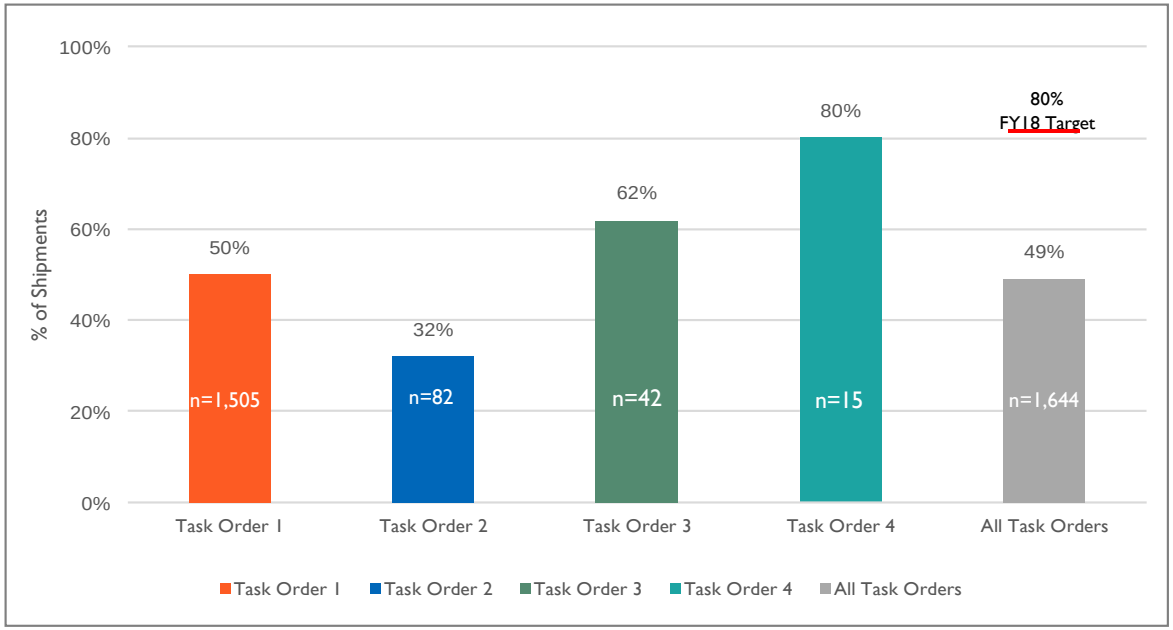
A1a. Percentage of line items delivered on time and in full, within the minimum delivery window

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 seven days after the agreed delivery date) and in the right quantity, as specified by the customer.

Task Order	FY18 Target	Achievement FY2018 Q1	Achievement Year to Date*
TO1	N/A	50%	50%
TO2	N/A	32%	32%
TO3	N/A	62%	62%
TO4	N/A	80%	80%
All TOs	80%	49%	49%

Indicator Performance FY2018 Q1



Analysis

- The project's OTIF percentage rose from 32 percent in the previous quarter to 49 percent in Q1. This achievement encompasses both improvements in on time deliveries for line items promised during the quarter (see indicator A1b) as well as a significant drawdown of backlogged line items (see indicator A16).
- The number of line items delivered this quarter grew to 1,644, a 37 percent increase from Q4. This includes deliveries of 586 items that had agreed delivery dates in previous quarters.

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)

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	1,505	745	50%
Adult ARVs	161	47	29%
Condoms	80	33	41%
Food and WASH	2	0	0%
HIV RTK			
Laboratory	957	511	53%
Other Non-pharma	160	100	63%
Other Pharma	48	6	13%
Other RTK	3	0	0%
Pediatric ARVs	64	32	50%
Prefab			
Vehicles and Other Equipment	12	6	50%
VMMC	18	10	56%

Malaria	Total number of line items delivered	Number of line items delivered on time and in full	On time in full (%)
Task Order 2	82	26	32%
ACTs	25	14	56%
LLIN	26	4	15%
Other Pharma			
RDTs	7	4	57%
Severe Malaria Medicines	11	1	9%
Sulphadoxine-pyrimethamine	6	3	50%
All Other Non-pharma	7	0	0%

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	42	26	62%
Combined Oral Contraceptives	4	1	25%
Copper-bearing Intrauterine Devices			
Emergency Oral Contraceptives			
Implantable Contraceptives	11	9	82%
Injectable Contraceptives	14	5	36%
Progestin-only Pills	1	1	100%
Standard Days Method	2	1	50%
All Other TO3 Products	10	9	90%

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	15	12	80%
Laboratory	1	0	0%
Other Non-pharma			
Other Pharma	14	12	86%

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

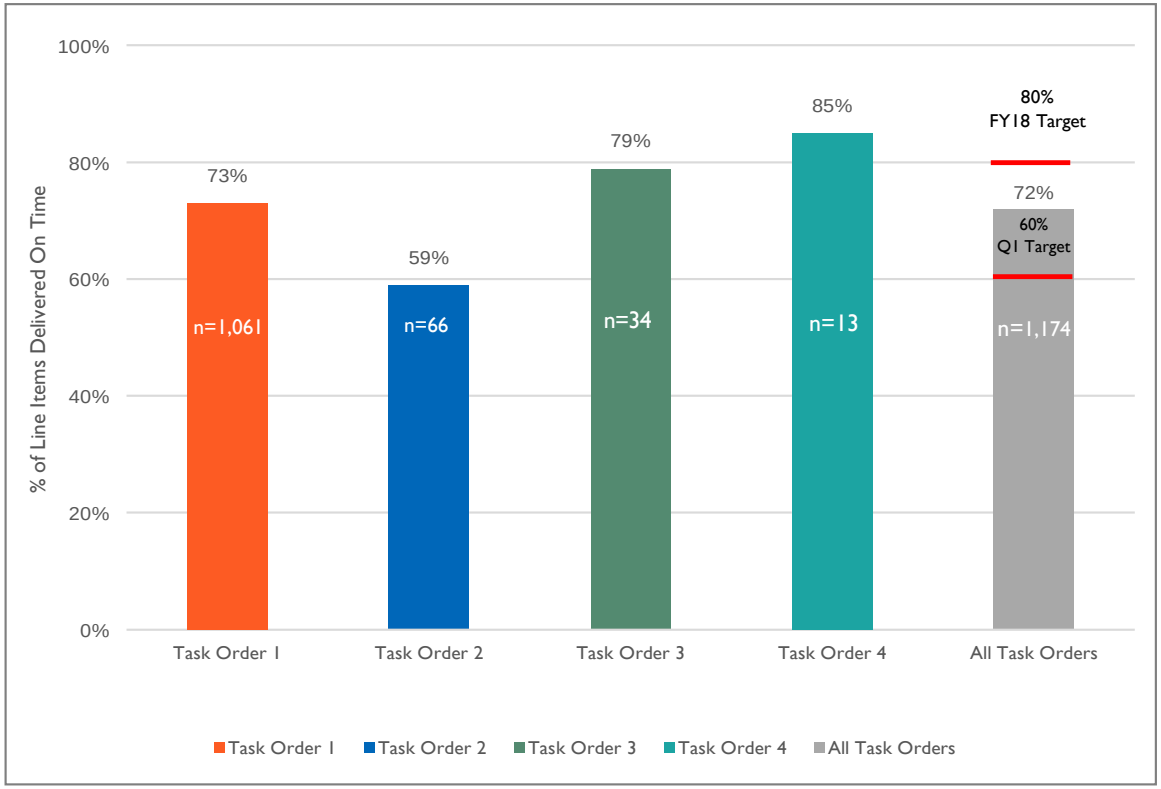
A1b. Percentage of line items delivered on time, within the minimum delivery window

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 Q1	Achievement Year to Date
TO1	N/A	73%	73%
TO2	N/A	59%	59%
TO3	N/A	79%	79%
TO4	N/A	85%	85%
All TOs	80%	72%	72%

Indicator Performance FY2018 Q1



Analysis

- The project achieved an on time delivery percentage of 72 percent this quarter, exceeding its stated commitment of 60 percent by December 2017. For the month of December alone, we reached an OTD rate of 82 percent.
- At the product level, Task Order 1 is maintaining its focus on adult and pediatric ARVs. While performance in both categories has improved, average performance is still below the target. Root causes of late orders have included a lingering group of orders with ADDs set before the implementation of the Order Promise tool and supplier delays.
- For Task Order 2, the project is managing a large volume of line items for the Democratic Republic of Congo, where import waiver processes are often at the root of late deliveries. GHSC-PSM is working closely with USAID to improve the predictability of waiver lead times, which will enable better planning and on time performance.
- Late deliveries of injectable contraceptives impacted the on-time delivery rate for Task Order 3. Delays were due to a number of logistics challenges, including port congestion, a broken crane that prevented timlely offloading, duty waiver delays, and delays in transferring a shipment from one leg of the delivery to the next.

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).

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	1,061	773	73%
Adult ARVs	104	61	59%
Condoms	58	36	62%
Food and WASH			
HIV RTK			
Laboratory	655	507	77%
Other Non-pharma	120	109	91%
Other Pharma	31	7	23%
Other RTK			
Pediatric ARVs	61	36	59%
Prefab			
Vehicles and Other Equipment	8	6	75%
VMMC	24	11	46%

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	66	39	59%
ACTs	18	17	94%
LLIN	25	13	52%
Other Pharma			
RDTs	5	5	100%
Severe Malaria Medicines	2	1	50%
Sulphadoxine-pyrimethamine	15	3	20%
All Other Non-pharma Products	1	0	0%

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	34	27	79%
Combined Oral Contraceptives	2	2	100%
Copper-bearing Intrauterine Devices	1	0	0%
Emergency Oral Contraceptives			
Implantable Contraceptives	10	9	90%
Injectable Contraceptives	9	5	56%
Progestin-only Pills	1	1	100%
Standard Days Method	1	1	100%
All Other TO3 Products	10	9	90%

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	13	11	85%
Laboratory			
Other Non-pharma			
Other Pharma	13	11	85%

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

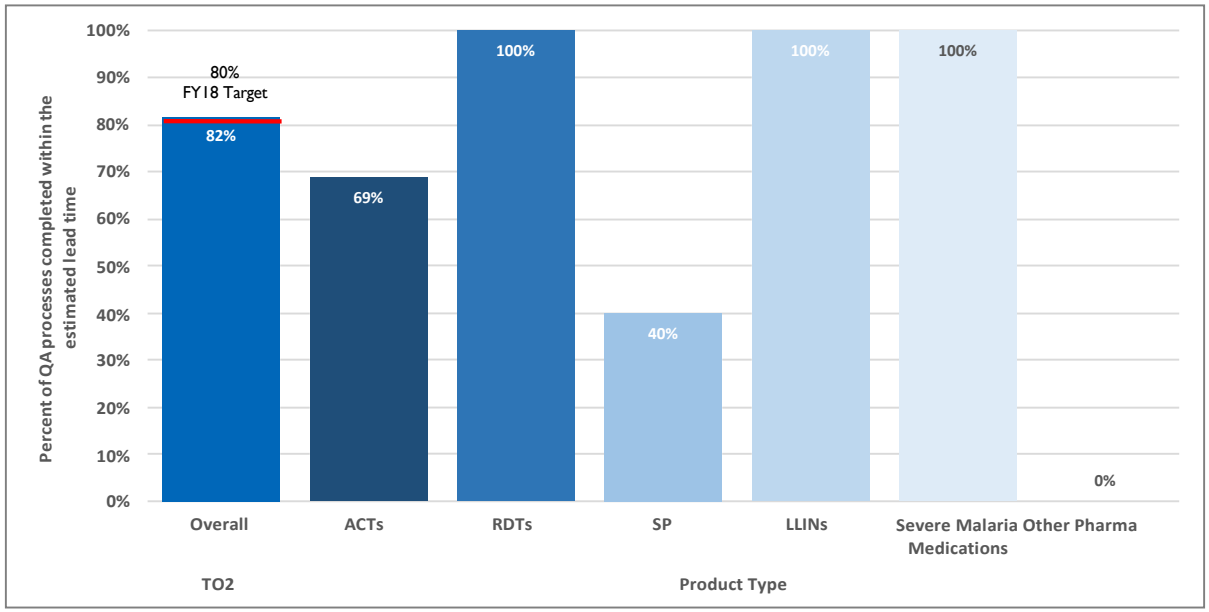
A2. Percentage of quality assurance (QA) processes completed within the total estimated QA lead times

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 Q1	Achievement Year to Date
TO1	N/A	N/A	N/A
TO2	80%	82%	82%
TO3	N/A	N/A	N/A
TO4	N/A	N/A	N/A

Indicator Performance FY2018 Q1



Analysis

- QA processes for RDTs, LLINs, and severe malaria medicines are occuring within the pre-established lead times for these processes and products. However, challenges remain with several pharmaceutical products, including ASAQ, SP, and SP/AQ. These products are primarily tested at the same lab within the project's lab network. The GHSC-PSM TO2 QA team is actively discussing performance improvments with the lab to improve testing turnaround. The team is also performing additional method transfers for two of the products, which would allow the project to expand the number of labs capable of performing the required tests. TO2 QA has clearly indicated to the lab which has challenges complying with contractual testing times that test requests will be diverted to other labs in the network if testing lead times are not improved. In addition, TO2 QA has continued to provide forecasts of upcoming test requests to the lab network, allowing labs to program resources effectively.

Data Notes

- Total number of consignments requiring QA processes that were cleared for shipment this quarter is 49. (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. Six consigments were exlcuded 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).

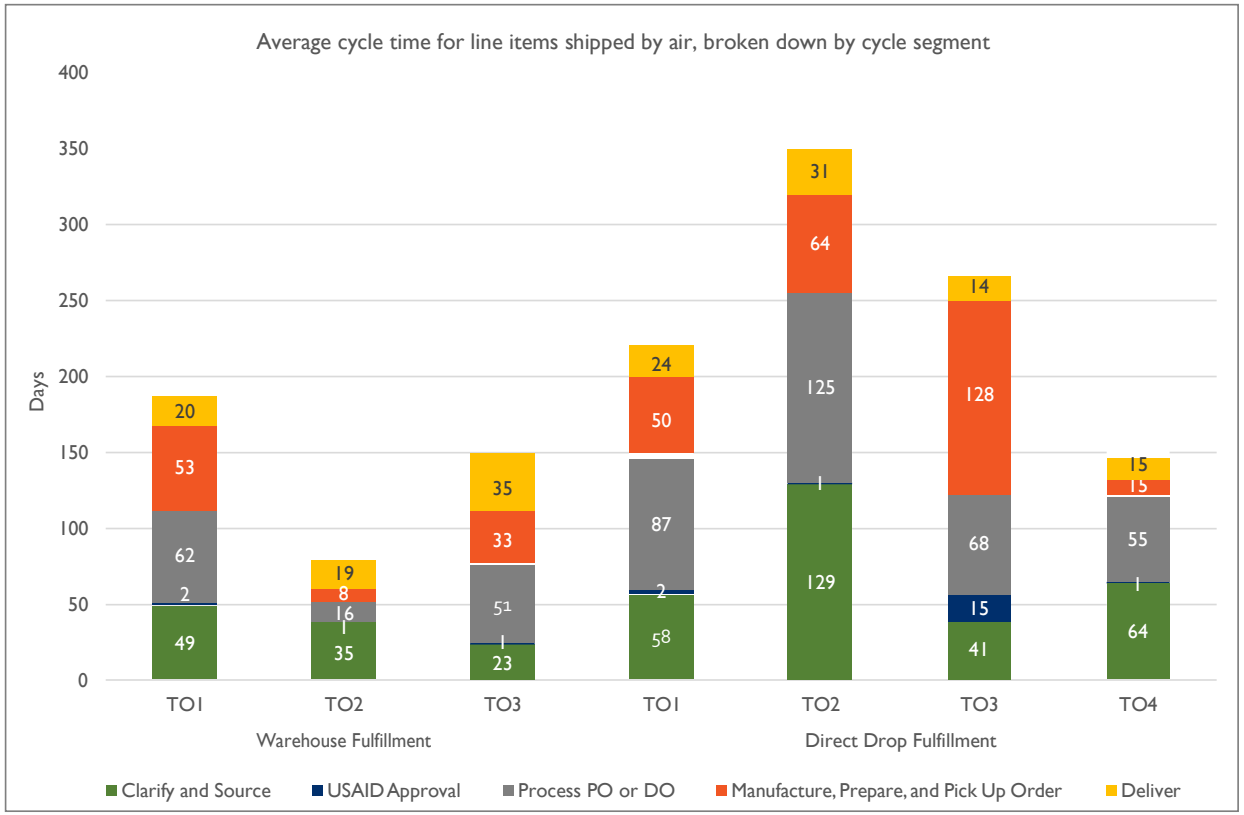
A3. Cycle time (average) - # (days per line item delivered)

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 can be filled.

Task Order	FY18 Target	Achievement (All Modes) FY2018 Q1	Year to Date*
TO1	158	206	206
TO2	262	316	316
TO3	176 (RDC); 244 (direct drop)	236 (RDC) 217 (DD)	236 (RDC) 217 (DD)
TO4	N/A	190	190
All TOs	N/A	212	212

Indicator Performance FY2018 Q1



Analysis

- Overall cycle time for all task orders has increased from the previous quarter. With the project seeing improvements to on time delivery performance, cycle times have come into focus as the next area for improvement.
- In general, order processing and sourcing segment cycle times have decreased over the last year, from an average of 101 days from order entry to final USAID approval in FY2017 Q2 to 58 days in FY2018 Q1. Cycle times for the sum of all segments from USAID approval through final delivery (including manufacture time) have increased
- The project is focusing in particular on the time from USAID approval to purchase order/distribution order release. Cycle times for this segment are highly variable and can be long. The Global Supply Chain team is working to identify reasons for delays during this segment and to implement new policies to address them.
- We are also working to improve completeness and quality for actual goods availability data, or the dates that suppliers are able to make orders ready for pick up. Improved data quality on this milestone will allow for more targeted analysis of cycle time performance, as well as increased accountability for suppliers to meet committed goods availability dates.
- In addition to the routine cycle segments shown in the charts here, the project added 32 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 h l d

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 milestones and actual goods available dates (GADs). 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.
- 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.
- Targets reflect anticipated project performance by end of FY18 (September 3

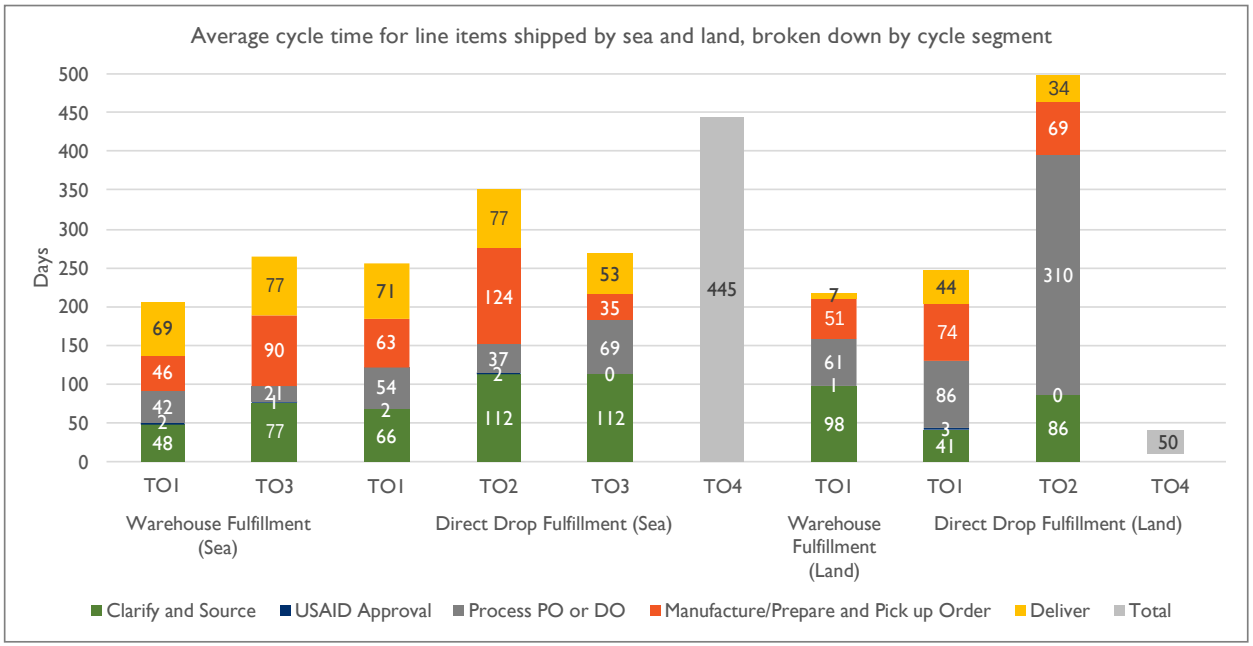
A3. Cycle time (average) - # (days per line item delivered)

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 can be filled.

Task Order	FY18 Target	Achievement (All Modes) FY2018 Q1	Year to Date*
TO1	158	206	206
TO2	262	316	316
TO3	176 (RDC); 244 (direct drop)	236 (RDC) 217 (DD)	236 (RDC) 217 (DD)
TO4	N/A	190	190
All TOs	N/A	212	212

Indicator Performance FY2018 Q1



Analysis

- TO2 items delivered by direct drop fulfillment over land had the longest cycle time this quarter. It should be noted that this represents only one line item, of LLINs shipped from Tanzania to Malawi (see "# of line items delivered" row on the following page). This line item was put on hold at the country's request due to limited warehouse space, which resulted in a long dwell time between USAID's approval of this order and the final Purchase Order relase.

Data Notes

- See above

A3. Cycle time (average) - Tracer product category

HIV	All channels and modes	Air		Sea		Land		Unknown
		Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment	Direct Drop Fulfillment	Direct Drop Fulfillment
# of Line Items Delivered	1505	46	815	39	93	28	472	12
Task Order 1	206	191	218	206	252	218	176	265
Adult ARVs	230	192	239	211	214	200	264	
Condoms	224	205	160			207	248	
Food and WASH	274						274	
HIV RTK								
Laboratory	201		215		181		213	258
Other Non-pharma	171		185		135		227	
Other Pharma	268		277		208		364	125
Other RTK	286		286					
Pediatric ARVs	231	171	242	234			256	
Prefab								
Vehicles and Other Equipment	217				106		514	367
VMMC	230	193	71				259	

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	82	10	57	0	14	1
Task Order 2	316	80	345		352	499
ACTs	226	80	323			
LLIN	341		313		352	499
Other Pharma						
RDTs	271		271			
Severe Malaria Medicines	457		457			
Sulphadoxine-pyrimethamine	418		418			
All Other Non-pharma	278		278			

PRH - Method Level	All channels and modes	Air		Sea	
		Warehouse Fulfillment	Direct Drop Fulfillment	Warehouse Fulfillment	Direct Drop Fulfillment
# of Line Items Delivered	42	6	20	13	3
Task Order 3	226	133	210	283	270
Combined Oral Contraceptives	335			335	
Copper-bearing Intrauterine Devices					
Emergency Oral Contraceptives					
Implantable Contraceptives	251	118	280	449	
Injectable Contraceptives	231	185	165	236	270
Progestin-only Pills	77	77			
Standard Days Method	284		284		
All Other TO3 Products	150	150			

Maternal and Child Health	All channels and modes	Air	Sea	Land
		Direct Drop Fulfillment	Direct Drop Fulfillment	Direct Drop Fulfillment
# of Line Items Delivered	15	12	1	2
Task Order 4	190	159	445	50
Laboratory	203	203		
Other Pharma	189	155	445	50

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

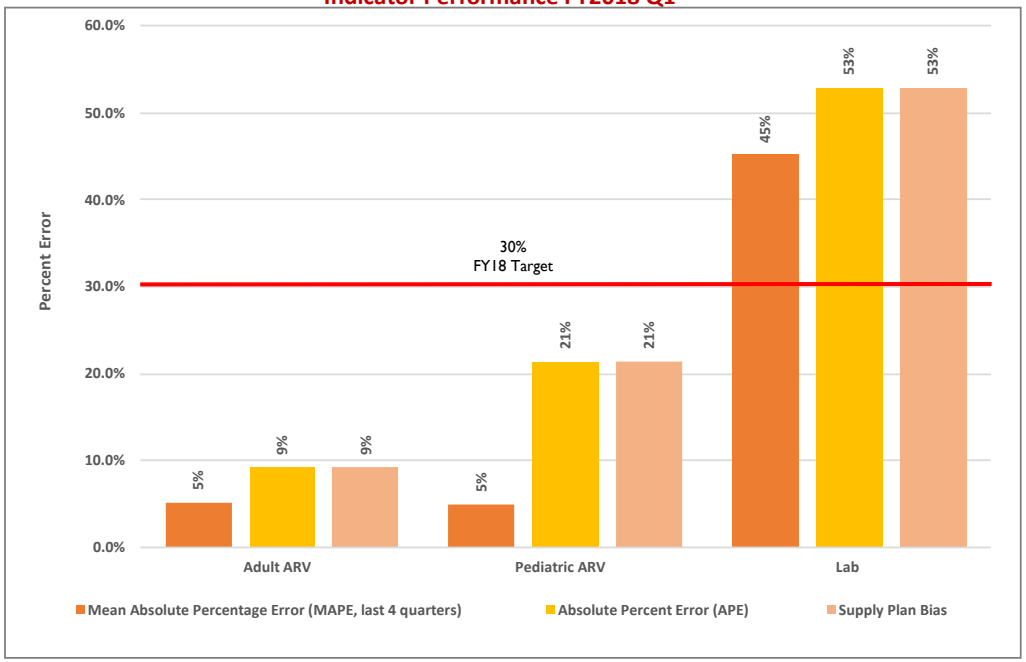
A6a. Absolute percent supply plan error, with variants mean absolute percent error (MAPE) and supply plan bias

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.

Product	FY2018 Q1 FY18 Target: MAPE	FY2018 Q1 Supply plan error (%)	FY2018 Q1 Supply plan bias (%)	Last Four Quarters MAPE (%)	Last Four Quarters Supply plan bias (%)
Adult ARV	30%	9%	9%	5%	5%
Pediatric ARV	30%	21%	21%	5%	-5%
Lab	30%	53%	53%	45%	45%

Indicator Performance FY2018 Q1



Analysis

- Q1 supply plan error for adult ARVs was driven by Nigeria, which requested large quantities of LNZ in Q1 that had been planned for Q4 and Q2. This resulted in actual quantities that exceed the forecast for the quarter.
- Zambia requested an order of pediatric ARVs for delivery in Q1 which had been previously planned for Q4, pushing up supply plan error for this quarter.
- Despite these variances for ARVs, performance over the last four quarters is well within the target range, with MAPE performing at 5 percent for both product groups. The Plan team is working with the FASP team, field offices, and commodity procurement managers to sustain this performance by establishing processes for following up on changes to dates and quantities of planned orders This is especially critical as countries begin scale-up of TLD
- Lab orders tended to be placed according to planned dates, but actual order quantities often exceed the planned amounts. The Lab and Plan teams are working together on a quarterly supply plan review methodolgy, as well as an analysis of submissions over the previous year to identify challenges in forecasting for specific product groups.

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

- 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.
- Targets reflect anticipated project performance on the four-quarters MAPE indicator by end of FY18 (September 30, 2018).

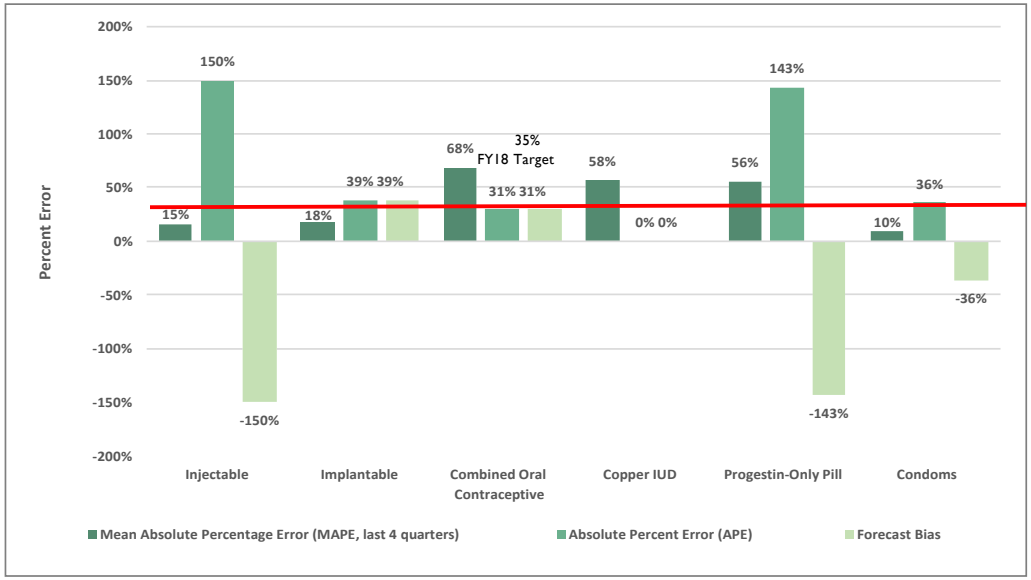
A6b. Absolute percent forecast error, with variants mean absolute percent error (MAPE) and forecast bias

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.

	Target Annual	FY2018 Q1		Last Four Quarters	
Product	**FY18 Target: MAPE**	**Forecast error (%)**	**Forecast bias (%)**	**MAPE (%)**	**Forecast bias (%)**
Injectable	35%	150%	-150%	15%	15%
Implantable	35%	39%	39%	18%	18%
Combined Oral	35%	31%	31%	68%	-68%
Copper IUD	35%	0%	0%	58%	-58%
Progestin Pill	35%	143%	-143%	56%	-56%
Condoms	35%	36%	-36%	10%	10%

Indicator Performance FY2018 Q1



Analysis

- Forecast performance for copper-bearing intrauterine devices was strong this quarter, with no variance between planned quantities and actual orders.
- Countries pushed several orders planned for this quarter into 2018, resulting in overforecasting compared to actual orders for October-December. These changes to requested delivery dates impacted injectable contraceptives, progestin-only pills, and condoms.
- Cancellation of a female condoms order for DRC also contributed to overforecasting in this category.
- Combined oral contraceptives and implants were both underforecasted this quarter due to orders placed with less than 90 days lead time before the requested delivery date.

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:

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

- 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.
- 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

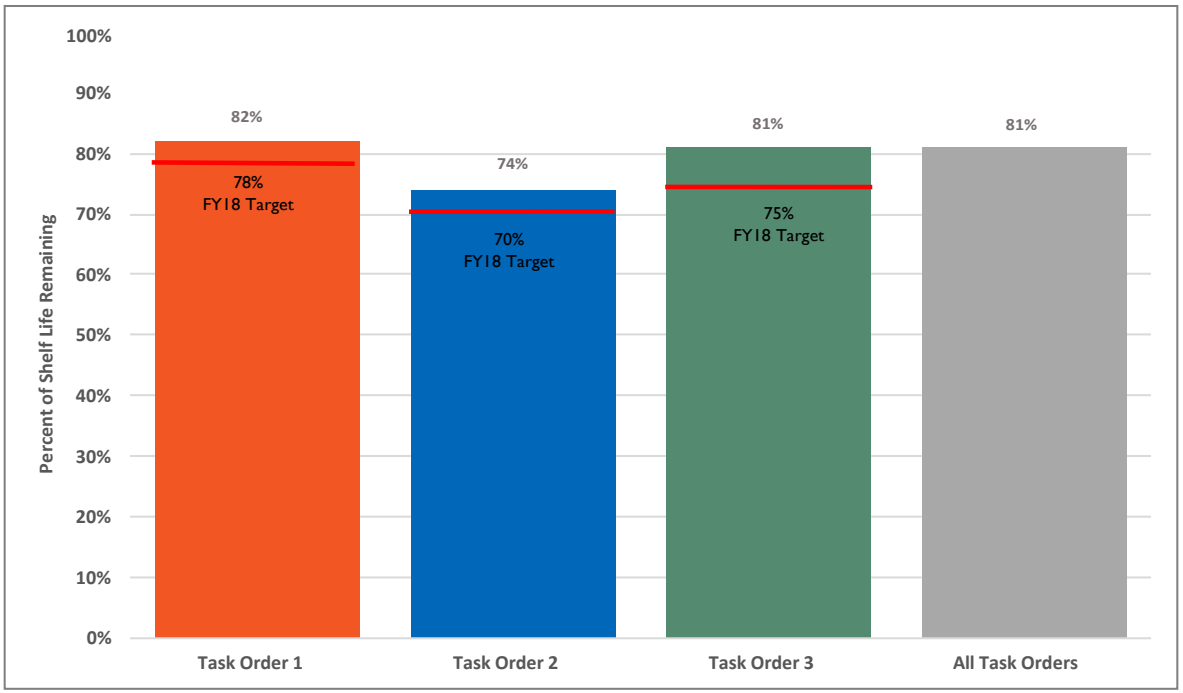
Numerator: Percentage of shelf life remaining at the end of the quarter, weighted by value of commodities, summed across all products.

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 Q1	Achievement Year to Date
TO1	78%	82%	82%
TO2	70%	74%	74%
TO3	75%	81%	81%
TO4	N/A	NA	NA
All TOs	NA	81%	81%

Indicator Performance FY2018 Q1



Analysis

- Average percentage of shelf life remaining has improved from the previous quarter across all task orders.
- The most significant improvement was in Task Order 2, which increased from 61 percent at the end of Q4 to 74 percent at the end of Q1. The main driver of this improvement was distribution of low shelf life stock that GHSC-PSM inherited from the predecessor project. These distributions allowed the project to improve average shelf life while also fulfilling emegency demand.
- Shelf life for TO1 increased slightly, from 79 to 81 percent. Overall ARV stock levels have dropped as the project implements the new RDC network. Replenishments to Kenya and Ghana have stopped, and orders for East and West African countries were converted to direct drop during this period. As the new warehouse network is fully operationalized, we will see an increased inventory and product flow through the RDC. This is expected at the end of Q2 and into Q3

Data Notes

- Total value of stock on hand as of December 31, 2017 is as follows: Task Order 1 - $12,612,838. Task Order 2 - $566,502. Task Order 3 - $12,826,700. 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)

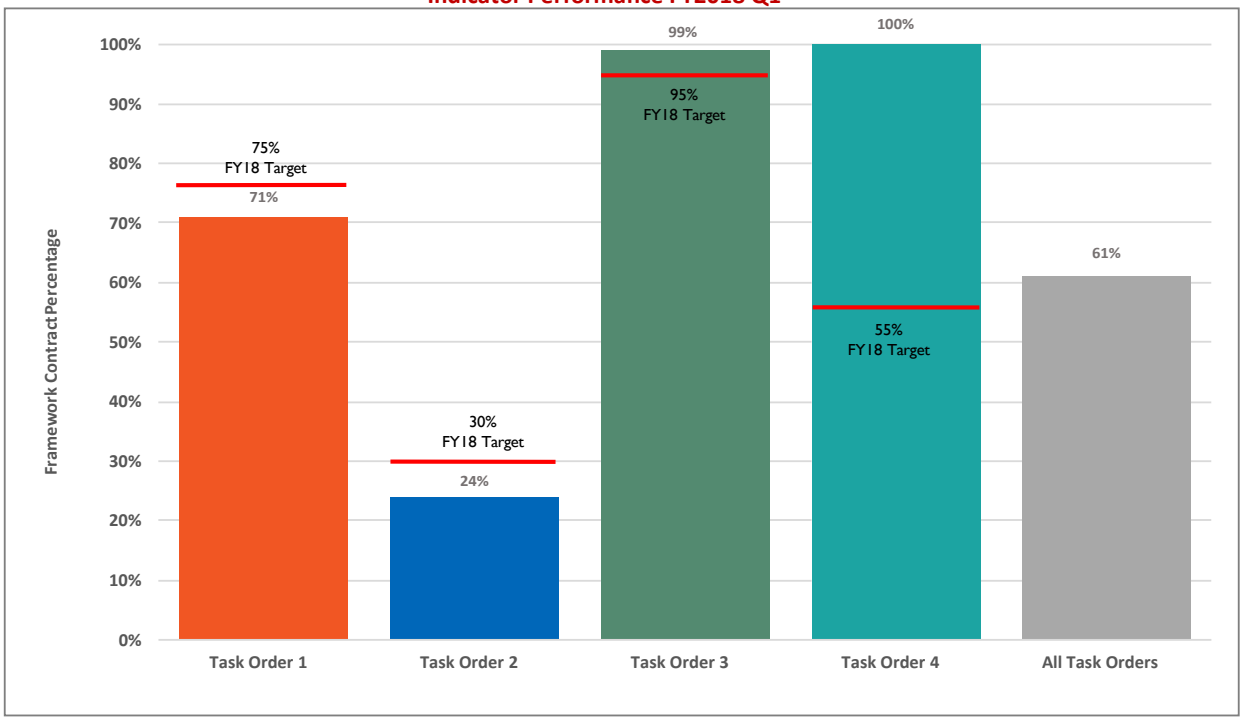
A10. Percentage of product procured using a framework contract (framework contract percentage)

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 Q1 Year to Date*	
TO1	75%	71%	71%
TO2	30%	24%	24%
TO3	95%	99%	99%
TO4	55%	100%	100%
All TOs	NA	61%	61%

Indicator Performance FY2018 Q1



Analysis

- Framework contracting for Task Order 1 decreased slightly, from 74 to 71 percent. This is due to increased volume in the laboratory and other non-pharma categories, which primarily use non-framework contracts. In core product categories, including ARVs and VMMC, all purchasing continues to be under IDIQs. In the condoms category, the result dropped to 90 percent due to a procurement of personal lubricants under a fixed unit price subcontract. All purchases of male and female condoms made use of IDIQs
- Framework contracting has increased in pharmaceutical categories across task orders due to the use of basic ordering agreements (BOAs). For Task Order 2, this includes SP, severe malaria medicines, and other pharma such as SP/AQ. Other pharma under
- Nearly all items for Task Order 3 are procured under IDIQs. The one exception was a single order of standard days method, approved in the previous quarter. An IDIQ for this product was executed in November, which was used for all subsequent procurements this quarter

Data Notes

- Commodities are considered "purchased" during the quarter if the "PO Released for Fulfillment Date" in ARTMIS is between October 1 and December 31, 2017.
- 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 purchaseorders.
- Procurement totals per task order are as follows: Task Order 1 (including all condoms and decentralized procurement): $171,799,406. Task Order 2: $67,543,957. Task Order 3: $17,363,338. Task Order 4: $523,329.
- 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	$171,799,406	71%
Adult ARVs	$93,147,456	100%
Condoms	$3,332,376	90%
Food and WASH		
HIV RTK		
Laboratory	$45,706,440	6%
Other Non-pharma	$2,271,042	13%
Other Pharma	$7,607,652	62%
Other RTK	$239,949	0%
Pediatric ARVs	$10,032,493	100%
Prefab		
Vehicles and Other Equipment	$773,055	0%
VMMC	$8,688,942	100%

Malaria	Total value of all product procured	Framework contract percentage
Task Order 2	$67,543,957	24%
ACTs	$9,805,232	57%
LLIN	$39,721,559	0%
Other Pharma	$5,905,013	92%
RDTs	$5,577,779	0%
Severe Malaria Medicines	$4,807,366	87%
Sulphadoxine-pyrimethamine	$1,598,916	67%
All Other Non-pharma	$128,093	0%

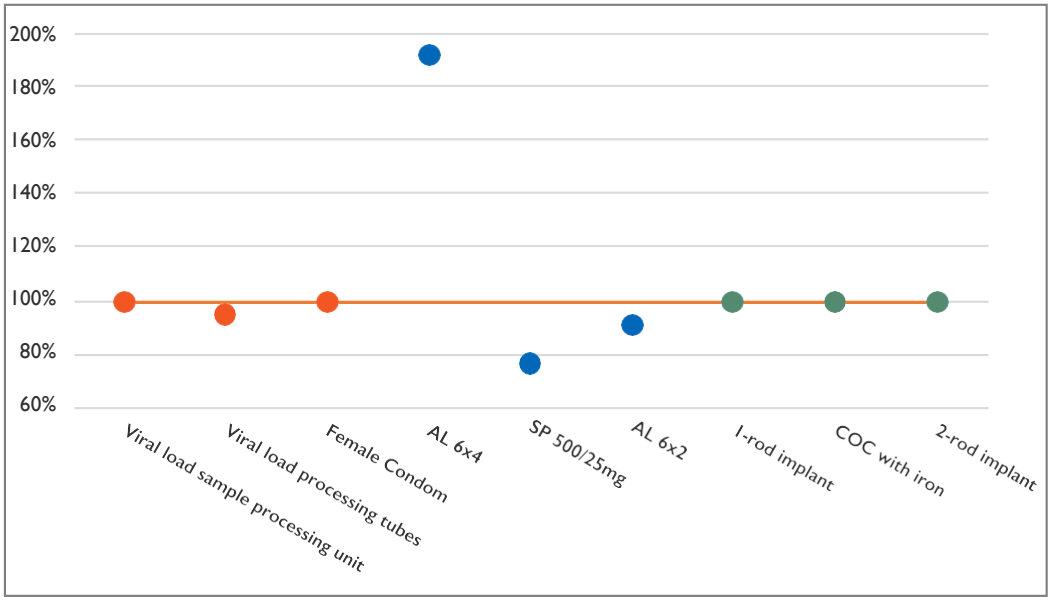
PRH - Method Level	Total value of all product procured	Framework contract percentage
Task Order 3	$17,363,338	99%
Combined Oral Contraceptives		
Copper-bearing Intrauterine Devices		
Emergency Oral Contraceptives		
Implantable Contraceptives	$8,754,682	100%
Injectable Contraceptives	$8,089,756	100%
Progestin-only Pills	$97,200	100%
Standard Days Method	$421,700	60%
All Other TO3 Products		
Maternal and Child Health		
Task Order 4		
Laboratory		
Other Pharma	$523,329	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 Q1



Analysis

- As expected, the most ordered contraceptive products for TO3 continued at consistent prices, due to existing long-term agreements with manufacturers. The project also continues to pay at or just below the median for frequently ordered TO1 products, and for two of the most frequently ordered TO2 products.
- The price paid for AL 6x4 was higher than the life-of-project median because this quarter's orders were fulfilled from the emergency stockpile at the RDC. According to the stockpile policy, the project keeps higher-priced brand name stock at the RDC because it is registered in all countries and has met stringent QA standards. This allows quick fulfillment of emergency orders (as evidenced by shorter RDC cycle times for TO2 for indicator A3), but does incur higher product costs.

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.
- A large quantity of Ebola-related products was processed through Task Order 3 this quarter. Because these products are not core Population and Reproductive Health products, they were excluded from the count of most frequently ordered products for TO3 this quarter. The project also cleared a number of service items for molecular instruments for Task Order 1. Because these are not core products, these were also excluded from the order count for TO1.
- Exact product names and life-of-project median unit prices for the products shown above are as follows: COBAS TaqMan AmpliPrep, Flapless Sample Processing Unit, 12 Racks of 24, 1 Pack, $128.43. COBAS TaqMan AmpliPrep, Input Tubes With Barcode Clips (S Tubes), 12 Bags of 24 Tubes, $130.23. Female Condom (Nitrile) Lubricated, 17 cm, 500 Each, $336.87. Artemether/Lumefantrine 20/120 mg Tablet, 30 x 6x4 Blister Pack Tablets, $19. Sulfadoxine/Pyrimethamine 500/25 mg Tablet, 50 x 3 Blister Pack Tablets, $8.80. Artemether/Lumefantrine 20/120 mg Dispersible Tablet, 30 x 6x2 Blister Pack Tablets, $22.00. Etonogestrel 68 mg/rod, 1-rod Implant, 1 Each, $8.50. 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 three adult ARVs for TO1 (TLE, TLD, and ATV/r), two sizes of LLIN and AL 6x4 for TO2, and 2-rod implants, combined oral contraceptives with iron, and 3-month injectable contraceptives (DMPA intramuscular) for TO3.

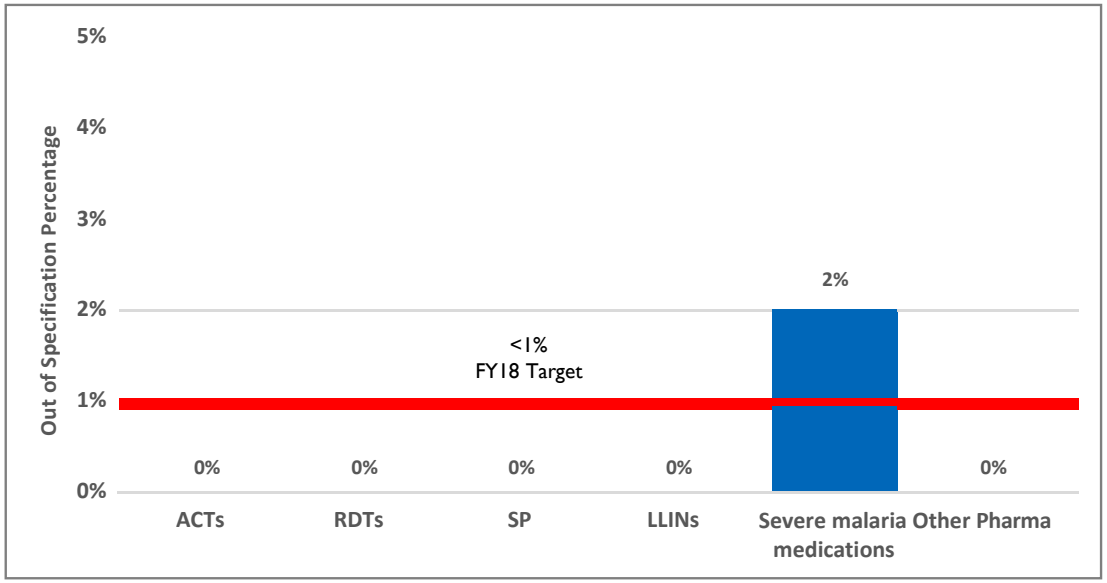
A13. Percentage of batches of product for which the final result is showing nonconformity (out-of-specification-percentage)

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 Q1 Year to Date	
TO1	N/A	N/A	N/A
TO2	<1%	0.4%	0.4%
TO3	N/A	N/A	N/A
TO4	N/A	N/A	N/A

Indicator Performance FY2018 Q1



Analysis

- One batch of artesunate suppository was found to be out of specification this quarter. The same batch was intended for use to fulfill orders for three countries. Two countries requested replacement batches, which the vendor has agreed to replace. These batches will be subject to routine QA testing once they are made available. The third country cancelled their order due to changing treatment guidelines in country, which now require a different minimum presentation for this product.

Data Notes

- Total number of batches of malaria products tested this quarter is 268.
- 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

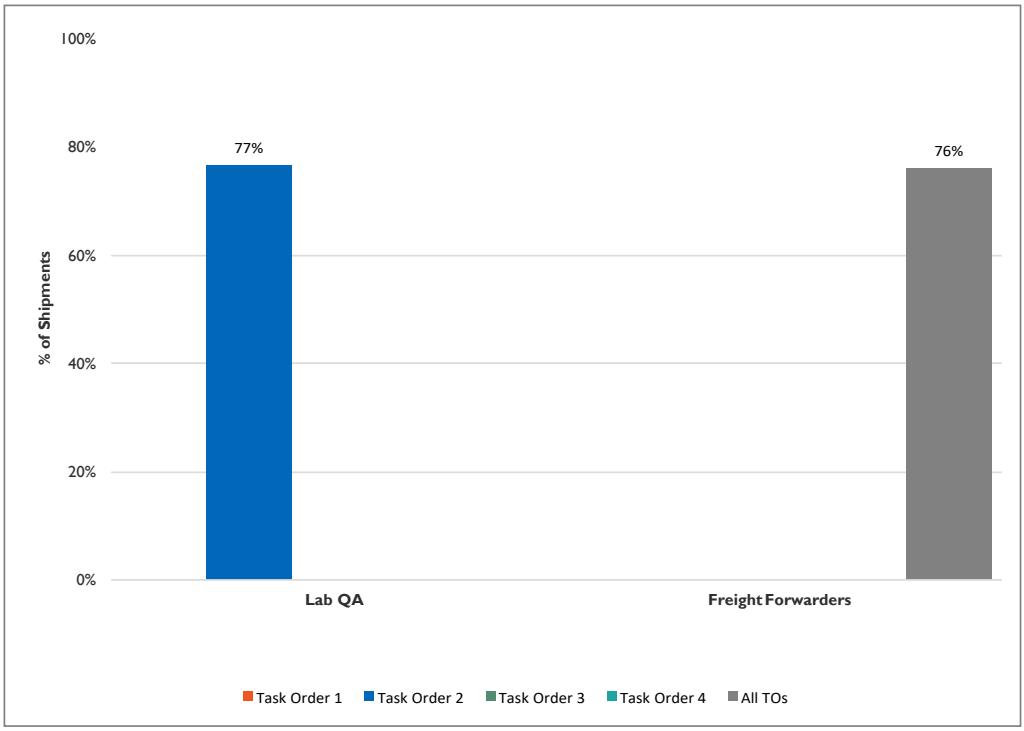
Measure Definition

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 Q1 Lab QA	FY2018 Q1 Freight Forwarders
TO1		
TO2	77%	
TO3		
TO4		
All TOs	N/A	76%

Indicator Performance FY2018 Q1



Analysis

- Quality assurance labs: The average score for labs improved dramatically from last quarter, from 46 to 77 percent. Improvements were noted in nearly all components, but most notably in reliability (on-time provision of completed test reports) improving from 42 to 73 percent, and service (a qualitative measure of adherence to terms and conditions), improving from 0 to 67 percent. Additionally, invoicing accuracy improved and became a more reliable measure of performance following modifications to all three lab contracts this quarter to better align costs with realities.
- Freight forwarders: The overall score for freight forwarders saw an improvement of 12 percentage points, from 64 to 76 percent from the previous quarter. All 3PLs demonstrated significant performance improvements, specifically in the areas of responsiveness and reliability, which are the two KPIs that measure on-time performance. For example, the percentage of shipments for which booking was confirmed within two business days increased from 85 to 89 percent. Another example of an improvement was the port-to-port reliability, measured by the percentage of shipments that arrive within the required lead time for port-to-door shipping, which increased from 52 to 68 percent (ocean and air freight combined). The 3PLs also demonstrated a marked improvement from 73 to 94 percent in shipments departing within three days of the estimated ship date. While there was an increase in most areas, there are still opportunities to improve. GHSC-PSM will continue to conduct monthly and quarterly reviews with all 3PLs where key areas of improvements are identified and corrective actions discussed.

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.

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)	**73%**	**71%**	**82%**	**93%**	**67%**	**77%**

3PL Vendors (n=5)

#	Component	Numerator	Denominator	Score	Indicator Weight	Component Weight	Weighted Score
1–Reliability (Timeliness of Service)							
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	94%	20%	50%	37%
		582	618				
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)	47	107	44%	15%		
	AIR (+3/-10 calendar days window)	322	434	74%	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	33%	10%		
		254	776				
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	89%	10%		
		694	776				
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	98%	10%		
		558	568				
4–Invoice Accuracy						10%	8%
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	84%	10%		
		747	894				
5–Compliance						10%	9%
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	90%	10%		
		9	10				
							Total Score **75.9%**

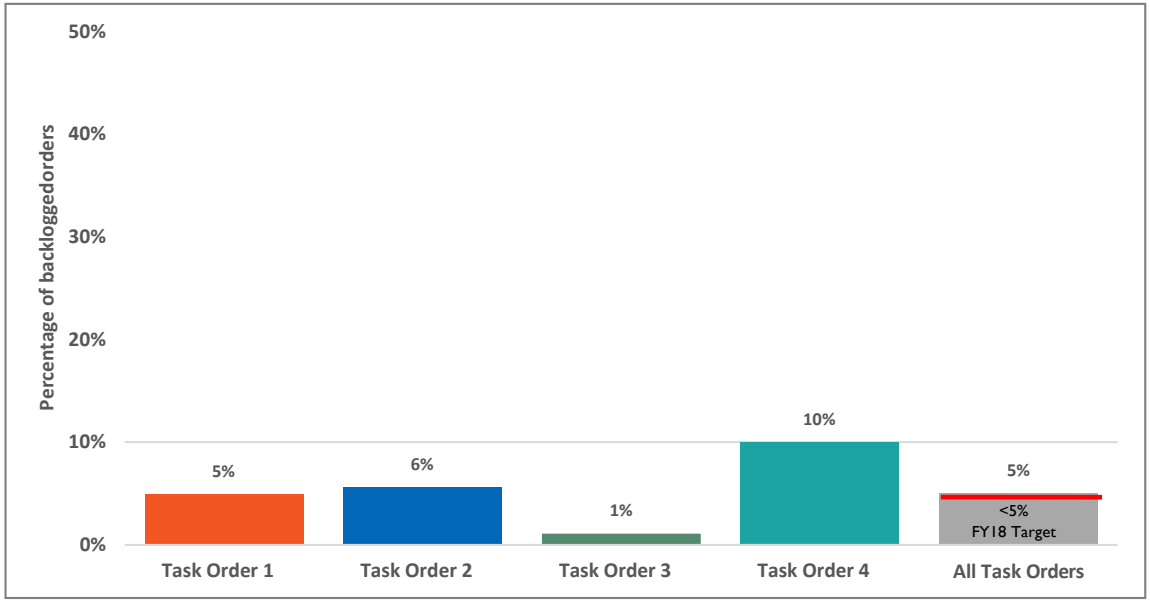
A16. Percentage of backlogged line items

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 cancelled 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 cancelled 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 Q1	Achievement Year to Date
TO1	NA	5%	5%
TO2	NA	6%	6%
TO3	NA	1%	1%
TO4	NA	10%	10%
All TOs	<5%	5%	5%

Indicator Performance FY2018 Q1



Analysis

- Backlog reduction has been an area of improvement for the project over the last several months. The current backlog of items with agreed delivery dates in the last 12 months that are both undelivered and late as of the end of Q1 is 241 line items, or about 5 percent. This is a significant reduction from the end of the last quarter, when the backlog stood at 777 undelivered late line items, or 18 percent.
- The drawdown in the backlog is reflected in the project's on time, in full (OTIF) delivery rate as well, which has risen only modestly due to deliveries of late, backlogged items (see indicator A1a). Strong improvements in on time delivery (OTD, indicator A1b), however, suggest that the project is still keeping pace with current

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) - 4,454. Task Order 2 - 376. Task Order 3 - 140. Task Order 4 - 20.
- 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).

A16. Percentage of backlogged items

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	4,454	5%
Adult ARVs	513	3%
Condoms	174	1%
Food and WASH	11	0%
HIV RTK		
Laboratory	2,569	4%
Other Non-pharma	517	4%
Other Pharma	264	23%
Other RTK	11	18%
Pediatric ARVs	208	9%
Prefab		
Vehicles and Other Equipment	28	4%
VMMC	159	3%

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	376	6%
ACTs	122	2%
LLIN	114	3%
Other Pharma	11	18%
RDTs	26	0%
Severe Malaria Medicines	22	18%
Sulphadoxine-pyrimethamine	20	45%
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	140	1%
Combined Oral Contraceptives	30	0%
Copper-bearing Intrauterine Devices	6	0%
Emergency Oral Contraceptives		
Injectable Contraceptives	42	5%
Implantable Contraceptives	35	0%
Progestin-only Pills	4	0%
Standard Days Method	10	0%
All Other TO3 Products	13	0%
Maternal and Child Health		
Task Order 4	20	10%
Laboratory	1	100%
Other Non-Pharma	4	0%
Other Pharma	15	7%

B1. Stockout rate at SDPs

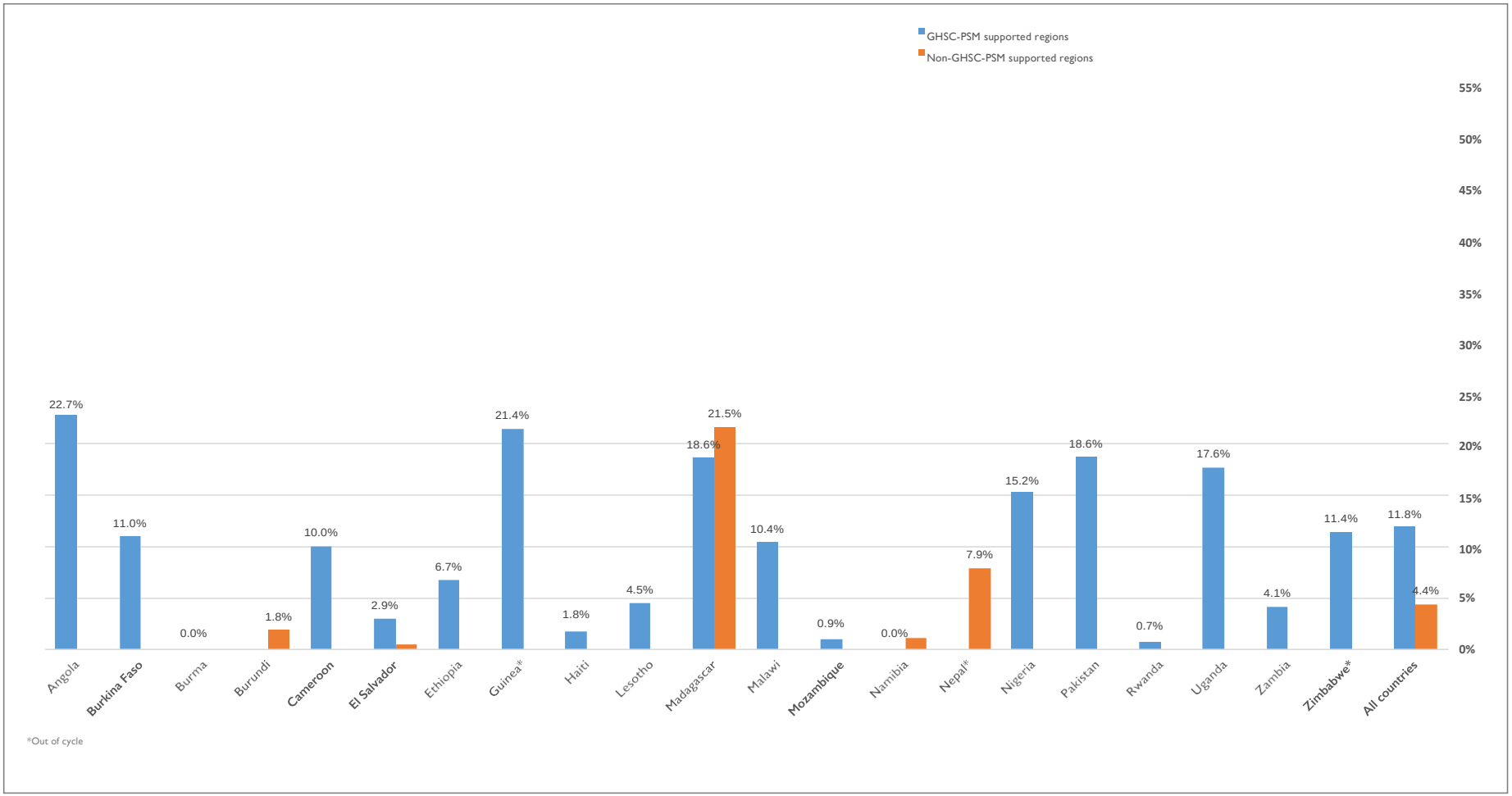
Measure Definition

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.

Task Order	Overall Stockout Rate Achievement	
	FY2018 Q1	Year to Date
TO1	6%	6%
TO2	13%	13%
TO3	13%	13%
All TOs	12%	12%

▸ 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	Burkina Faso	Burma	Burundi Non-GHSC-PSM-supported	Cameroon	El Salvador	El Salvador Non-GHSC-PSM- supported	Ethiopia	*Guinea (FY17 Q4)	Haiti	Lesotho	Madagascar	Madagascar Non-GHSC-PSM-supported	Malawi***	Mozambique	Namibia	Namibia Non-GHSC-PSM-supported	Nigeria	Rwanda	Uganda	Zambia	*Zimbabwe (FY17 Q4)
HIV	Task Order 1	11%		0%	3%	10%	3%	1%	9%		3%	4%			7%	1%	1%	0%	7%	1%	21%	5%	7%
	First-line Adult ARVs	0%		0%	2%	13%	11%	9%	1%		0%	1%			1%	0%	0%	0%	4%	0%	14%	5%	0%
	Second-line Adult ARVs	0%		0%	6%	0%	0%	0%	7%		4%	2%				2%	0%	0%	3%	0%		6%	13%
	First-line Pediatric ARVs	20%		0%	4%	8%	0%		4%		9%	2%				1%	0%	0%	4%	0%	22%	7%	4%
	First RTKs	22%			3%	9%	0%	0%	14%		0%	1%			3%		8%	0%	6%	2%	9%	5%	7%
	Second RTKs				2%	8%			26%		6%	3%					0%	0%	7%	5%	14%	4%	9%
	Tie-breaker RTKs								24%			8%					0%	0%	17%		21%		14%
	Male Condoms**	11%			1%				9%		1%	1%			8%		0%	0%	8%	0%		5%	2%
	Female Condoms**	11%			4%							12%			23%		0%	0%	10%	0%		3%	7%
	EID Consumables								12%										5%	0%			
	EID Reagents								0%			0%					0%		10%	0%	0%	18%	
	Viral Load Consumables																		5%	0%			
	Viral Load Reagents								0%			33%				6%			5%	0%	0%	9%	
	Ready-to-use Therapeutic Foods (RUTF)								20%			13%									57%		
Malaria	Task Order 2	40%	11%		1%				6%	13%			11%	13%	10%				21%	0.6%	10%	5%	18%
	First-line ACTs (AL 6X1)	29%	12%						5%	13%					1%				13%	0%		5%	21%
	First-line ACTs (AL 6X2)	33%	11%						7%	11%					3%				17%	0%		4%	26%
	First-line ACTs (AL 6X3)	38%							9%	9%					11%				25%	0%		5%	19%
	First-line ACTs (AL 6X4)	22%							4%	9%					1%				27%	0%		6%	16%
	First-line ACTs (AL inability to treat)	20%	5%						1%	3%									11%	0%	8%	0%	2%
	First-line ACTs (AS/AQ 100/270mgx3)		16%		1%								4%	9%					24%				
	First-line ACTs (AS/AQ 100/270mgx6)		13%		1%								4%	11%					22%				
	First-line ACTs (AS/AQ 25/67.5mg)				0%								6%	18%					31%				
	First-line ACTs (AS/AQ 50/135mg)				1%								8%	15%					48%				
	Rapid Diagnostic Tests for Malaria	70%	5%						7%	6%			8%	9%	8%				9%	3%	12%	4%	13%
	Sulphadoxine-pyrimethamine (SP)		9%		3%					10%			33%	20%	30%				17%		8%	7%	3%
	LLINs		11%		2%					32%			23%	13%	35%				13%				

* Out of cycle

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

***Malawi's data are compiled from national-level stock reports, therefore as no facility-level data are available, inability to treat stockout rates cannot be calculated

B1. Percentage of SDPs with stockouts of tracer products

	Countries	Burundi Non-GHSC-PSM-supported	Ethiopia	*Guinea (FY17 Q4)	Haiti	Madagascar	Madagascar Non-GHSC-PSM-supported	Malawi †	Nigeria	Pakistan	Rwanda	Uganda	Zambia	*Nepal (FY17 Q4)
PRH**	Task Order 3	1%	6%	37%	1%	28%	30%	13%	8%	19%	0%	15%	3%	8%
	Copper-bearing Intrauterine Devices	1%	2%		0%			10%	6%	23%	0%		0%	
	Calendar-based Awareness Methods				0%	82%	59%				0%			
	Male Condoms***	1%	9%	18%	1%	24%	21%	8%	8%	20%	0%		5%	8%
	Female Condoms***	4%		90%		79%	78%	23%	10%		0%		3%	
	Injectable Contraceptives	0%	3%	20%	2%	7%	5%	3%	2%	17%	0%	15%	1%	5%
	Depot Medroxyprogesterone Acetate 104 mg/0.65 mL		3%											
	Depot Medroxyprogesterone Acetate 150 mg Vial, SR	0%		20%	2%	7%	5%	3%	5%	17%	0%	15%	5%	5%
	Norethisterone Enanthate								6%				5%	
	Implantable Contraceptives	1%	4%	19%	0%	36%	31%		7%		0%		1%	
	Etonogestrel 68 mg/Rod, 1 Rod Implant		9%			36%	31%	13%	13%		2%		2%	
	Levonorgestrel 75mg/Rod, 2 Rod Implant	1%	6%	19%	0%			10%	9%		2%		6%	
	Combined Oral Contraceptives	1%	6%	25%	1%	11%	14%	21%	7%	15%	0%		0%	11%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg + Fe 75 mg, 28 Tablets/Cycle		6%	25%	1%	11%	14%	21%		15%	0%		0%	11%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg 28 Tablets/Cycle	1%							7%					
	Emergency Oral Contraceptives	2%	8%					26%						
	Levonorgestrel 0.75 mg, 2 Tablets	2%	8%					26%						
	Levonorgestrel 1.5 mg, 1 Tablet													
	Progestin-only Pills	1%	8%	50%		34%	32%	13%	8%		0%		4%	
	Levonorgestrel 30 mcg 35 Tablets/Cycle	1%	8%	50%		34%	32%	13%	8%		0%		4%	

* 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.

† Malawi's data are compiled from national-level stock reports, therefore as no facility-level data are available, method-level stockout rates cannot be calculated

B1. Stockout rate - granular-level analysis

Analysis

This quarter saw a substantial reduction in facility stockouts, with the rate dropping from 22 percent overall last quarter to only 12 percent this quarter. Task Order 3 (Population and Reproductive Health) accounted for most of this improvement, falling from 29 to 13 percent. However, a large part of this drop, and therefore the overall apparent reduction in stockouts, was likely due to two changes in the way data were reported this quarter. Firstly, Pakistan is no longer reporting on stockouts of emergency contraceptives and progestin-only pills, as these products are rarely used and rarely procured and have been exempted from Pakistan's reporting to the USAID mission. The approximately 20,000 service delivery points (SDPs) reporting for Pakistan make up a large portion of all SDPs reporting for GHSC-PSM. Secondly, while Madagascar's reported overall stockout rate was more than halved (from 53 percent last quarter to 19 percent this quarter), the number of SDPs reporting fell from more than 1,500 last quarter to fewer than 1,000 this quarter per health element, due to health workers focusing their efforts on controlling the plague epidemic across the country.

At the country level, three new countries began reporting facility-level stock data this quarter: Guinea, El Salvador, and Burma (beginning in three facilities). However, Ghana did not report this quarter as its early warning system website was temporarily down. Notably, out of the 18 countries that reported both last quarter and this quarter, 13 reduced their stockout rates this quarter. Four of the remaining five increased their rates by less than 3 percentage points, while Uganda's rate increased by 6 percentage points.

Country Analysis	
Angola	Angola only reported stockouts in nine GHSC-PSM-supported SDPs (for HIV and malaria products only); and these sites showed an overall reduction in stockouts from 31 percent to 23 percent since last quarter. For the last three quarters, there have been no stockouts of first-line adult ARVs. However, out of the five reporting SDPs that manage pediatric ARVs, one was stocked out this quarter. Stockouts of RTKs remain relatively high, but have reduced greatly since last quarter (from 44 percent to 22 percent for first RTK, and from 33 percent to 11 percent for second RTK this quarter). For malaria products, similarly, stockouts have been greatly reduced since last quarter but still remain high. The small number of sites reporting magnifies both the stockout rates and the fluctuations between quarters.
Burkina Faso	Stockout rates remained fairly steady in Burkina Faso, from 13 percent last quarter to 11 percent this quarter. While stockouts of AL artemisinin-based combination therapy for malaria were high, they were reduced from last quarter, and the "inability to treat" (percentage of facilities stocked out of all presentations of AL) dropped from 8 percent to 5 percent. Stockouts of Sulphadoxine-pyrimethamine (SP) also fell from 14 percent to 9 percent.
Burma	Burma reported stock data for this first time this quarter, reporting on three main ARV-providing hospitals. No stockouts were reported for any of the tracer ARVs in these hospitals. These hospitals use an early warning system whereby designated staff closely manage stock and alert the national malaria control program regularly. In the next quarter, stock data for 3,800 facilities will be available to GHSC-PSM.
Burundi	Burundi's stockout rate dropped to only 2 percent this quarter. However, all sites have been designated as non-GHSC-PSM-supported. Facilities maintain low stockout rates by ensuring consistent monthly follow-up with health districts to anticipate potential stockouts.
Cameroon	Reported stockout rates in Cameroon appeared to have dropped dramatically from 21 percent last quarter to 10 percent this quarter; however male condoms, the largest driver of stockouts last quarter, were not reported this quarter. Condom reporting is generally a weak point in the system, as the focus is heavily on ARVs and RTKs. Therefore, the quality of data was insufficient for reporting this quarter.
Ethiopia	Ethiopia's stockout rate decreased slightly from 9 percent to 7 percent since last quarter, with family planning products showing the greatest decrease from 9 percent to 6 percent, driven by the reduction from 17 percent to 2 percent for stockouts of copper IUDs. The continued high reported stockouts of RTKs (14 percent and 26 percent of first and second RTK, respectively) are higher than results from the recent PEPFAR assessment, and may be due to low reporting of these products (25 percent reporting rate) through the standard reporting form. RTKs are allocation-based in Ethiopia, and there is little incentive to report on them. GHSC-PSM will be providing targeted data quality support and will work closely with logistics officers at the zonal and regional health bureaus.
Guinea*	Guinea reported stock data for GHSC-PSM for the first time this quarter, registering a facility stockout rate of 21 percent. The data are a quarter delayed, thus reflecting on Quarter 4 of FY17. While stockouts of malaria products registered at 13 percent, the overall stockout rate was driven down by family planning products (37 percent of SDPs stocked out), which in turn reflected mainly the stockout rate for female condoms (90 percent). "Inability to treat" (stockouts of all presentations of AL) was low at only 3 percent.
Haiti	Haiti continued its trend of maintaining low facility stockouts, with the overall stockout rate this quarter at 2 percent. However, stockouts of pediatric ARVs rose to 9 percent (from 4 percent last quarter). This product could not be distributed to sites because it was near to expiration. However, although the dispersible tablets of Lamivudine/Zidovudine/Nevirapine 30/60/50mg were stocked out in several sites, the sites still had the two component products available for use (Lamivudine/Zidovudine 30/60mg and Nevirapine 50mg), and GHSC-PSM has encouraged sites to use them. The main product is now stocked according to plan at the central level and will be distributed to facilities. A few additional sites had reporting challenges which have since been resolved. The 6 percent stockouts in second RTKs (Unigold) were due to the initiation of quality control testing required by the national laboratory, which resulted in an increased use of tests compared to what had been forecast.
Liberia	The GHSC-PSM field office in Liberia currently has no access to facility-level data; however, it may collaborate with Project Last Mile (a public-private partnership) to eventually have access to these data.

Country Analysis	
Madagascar	Madagascar's reported stockout rate appeared to have dropped dramatically, from 53 percent to 19 percent since last quarter. However the precipitous drop may be a reflection of the low reporting rate due to officials focusing on controling the plague across the country. However, some of the improvements could also be a result of activities carried out jointly between GHSC-PSM and the ministry of health, including: formative supervision, follow-up of recommendations from the last data quality assessment, training of providers on stock management, and coaching on the periodic follow-up of availability of anti-malarials. Stockouts of antimalarials fell from 37 to 11 percent, with stockouts at 8 percent and under for all presentations of AS/AQ.
Mozambique	Mozambique maintained its low stockout rate of 1 percent; however, the available data continue to be limited to the HIV health element. One hospital was stocked out of viral load reagents, as it has been newly installed and had limited cold chain storage capacity to be able to receive the full quantity. These cold chain capacities will be increased. Additionally, Mozambique's new cloud-based eLMIS for malaria, and population and reproductive health products, SIGLUS, is continuing to be rolled out. It will enable facility-level reporting on those health elements in an upcoming report.
Nigeria	Nigeria's overall stockout rate reduced slightly from 17 percent to 15 percent since last quarter. Stockouts of HIV products remained constant at 7 percent, as availability of all ARV tracer products and first RTKs improved, while stockouts of "tie-breaker" RTKs increased from 11 percent to 17 percent. Stockouts of malaria products fell from 24 percent to 21 percent following a shipment of ACTs received in October, but stockouts of both AL and AS/AQ remain high. The highest stockouts were of AS/AQ, where service providers have shown a preference for prescribing AL to treat malaria, and as such have been reducing quantities of AS/AQ and increased AL supplies. This was apparent in the relatively low "inability to treat" stockout rate for all AL presentations, at 9 percent. As funding for malaria commodities is insufficient to meet the need, mitigation of this problems continues to be a focus for GHSC-PSM. Stockouts of family planning products increased slightly (from 7 to 8 percent) but remained relatively low.
Pakistan	Pakistan's reported stockout rate appeared to fall dramatically, from 38 to 19 percent. However, this was largely due to no longer reporting stockouts of emergency contraceptives and progestin-only pills, which are rarely used and exempted from reporting to the USAID mission. Stockout rates of all other products remained consistent. Copper IUDs (23 percent stocked out) are expected to be delivered shortly and will help relieve the stockouts. Additionally, the GHSC-PSM provincial team is working closely with the central and provincial ministries of health to streamline requisition, distribution, and district storage issues.
Rwanda	Rwanda continued the positive trend of reducing stockouts this quarter, with reductions from 2 percent to 1 percent from the most recent quarter, and down from 10 percent in the third quarter of last year. No stockouts were reported among any ARV tracer products, lab reagents, condoms, or anti-malarials. Most family planning products also had no stockouts. Rwanda attributes this improvement to: 1) improved data accuracy following data cleaning and the quality management improvement approach at district pharmacies and service delivery points, 2) on-site supportive supervision and identification of key performance gaps, and 3) skills-building workshops and other interventions to target the identified gaps. Finally, GHSC-PSM's improved on-time delivery rates and the reduction in delays to supply plan implementation also played a role.
Uganda	Uganda's overall stockout rate increased from 12 percent to 18 percent. Stockouts of HIV products stayed constant at 21 percent (including a 57 percent stockout rate of ready-to-use therapeutic food, not procured by GHSC-PSM), while stockouts of malaria products and family planning products increased from 2 percent to 10 percent and from 1 percent to 15 percent, respectively. Injectable contraceptives (15 percent stocked out) were the only family planning product reported. GHSC-PSM has provided a limited amount of technical assistance to date in Uganda, focused on procurement. Stockouts mainly stemmed from non-adherence to delivery schedules and challenges with calculating resupply quantities based on patient projections. Additionally, the central medical store did not issue out commodities in October (the month prior to stock data extraction for GHSC-PSM), as they were shifting the warehouse to another location.
Zambia	Zambia improved its overall stockout rate from 7 percent to 4 percent this quarter. Stockouts of HIV products remained the same at 5 percent, though stockouts of all ARV tracer products diminished, and redistribution of commodities by the Ministry of Health eliminated or minimized effects on service provision. Stockouts of malaria products were reduced from 11 percent to 5 percent, which was reflected most prominently in the "inability to treat" rate (stockouts of all presentations of AL) dropping from 3 percent to 0 percent this quarter. Additionally, shipments of AL 6X2, 6X3, and 6X4 that arrived in December should improve facility stock levels by the next quarter. Family planning products remained the same at 4 percent stocked out. The 6 percent stockout rate of Levonorgestrel 75mg 2 rod implants was due to an increased demand for the product in rural facilities.
Zimbabwe*	Zimbabwe (reporting stockouts from Quarter 4 of FY17) remained fairly constant, with its overall stockout rate increasing from 10 percent to 11 percent this quarter. An increase in "tie-breaker" RTKs (from 5 to 14 percent) drove the overall increase in stockouts of HIV products from 4 to 7 percent. Testing targets through 2020 have in fact been exceeded, and the stockouts stem from a resulting understocking of RTKs at the central level. However, understocking and stockouts at sites was also due to the continued delayed deliveries in a number of provinces, which the central medical store is working to improve. GHSC-PSM is advocating for a revision of targets to better match current performance.

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 Q1	Year to Date
TO1	33%	33%
TO2	25%	25%
TO3	19%	19%
TO4	29%	29%
All TOs	26%	26%

▸Targets for this indicator are set at the country level

Indicator Performance

		Central	Sub-National Level 1
HIV	**Task Order 1**	32%	33%
	First-line Adult ARVs	48%	46%
	Second-line Adult ARVs	19%	49%
	First-line Pediatric ARVs	30%	47%
	First RTKs	28%	35%
	Second RTKs	15%	32%
	Tie-breaker RTKs	9%	0%
	Male Condoms	42%	19%
	Female Condoms	12%	13%
	RUTF	50%	9%
	EID Consumables	60%	60%
	EID Reagents	33%	60%
	Viral Load Consumables	70%	33%
	Viral Load Reagents	47%	44%
Malaria	**Task Order 2**	**21%**	**25%**
	First-line ACTs (AL 6X1)	14%	35%
	First-line ACTs (AL 6X2)	24%	33%
	First-line ACTs (AL 6X3)	25%	27%
	First-line ACTs (AL 6X4)	30%	24%
	First-line ACTs (AS/AQ 100/270mgx3)	0%	20%
	First-line ACTs (AS/AQ 100/270mgx6)	36%	24%
	First-line ACTs (AS/AQ 25/67.5mg)	10%	17%
	First-line ACTs (AS/AQ 50/135mg)	10%	18%
	RDTs for Malaria	13%	20%
	Sulphadoxine-pyrimethamine (SP)	24%	21%
	LLINs	38%	61%

		Central	Sub-National Level 1
PRH	**Task Order 3**	25%	18%
	Injectable Contraceptives	21%	21%
	Depot Medroxyprogesterone Acetate 104 mg/0.65mL	33%	N/A
	Depot Medroxyprogesterone Acetate 150 mg Vial, SR	26%	27%
	Norethisterone Enanthate	0%	7%
	Implantable Contraceptives	20%	19%
	Etonogestrel 68 mg/Rod, 1 Rod Implant	25%	19%
	Levonorgestrel 75mg/Rod, 2 Rod Implant	32%	18%
	Combined Oral Contraceptives	13%	23%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg +Fe 75 mg, 28 Tablets/Cycle	15%	23%
	Levonorgestrel/Ethinyl Estradiol 150/30 mcg 28 Tables/Cycle	0%	N/A
	Emergency Oral Contraceptives	25%	10%
	Levonorgestrel 0.75 mg, 2 Tablets	40%	12%
	Levonorgestrel 1.5 mg, 1 Tablet	0%	7%
	Progestin-only Pills	32%	19%
	Levonorgestrel 30 mcg 35 Tablets/Cycle	30%	19%
	Copper-bearing Intrauterine Devices	22%	16%
	Calendar-based Awareness Methods	0%	27%
	Male Condoms	44%	16%
	Female Condoms	15%	11%
MCH	**Task Order 4**	23%	30%
	Oxytocin (10 IU Injectable)	10%	35%
	MgSO4 (50% Injectable)	56%	41%
	Injectable Gentamicin	38%	23%
	ORS+zinc (Together)	100%	5%
	Chlorhexidine Gel	0%	22%
	Amoxicillin (125 mg or 250 mg Dispersible Tablets)	33%	35%
	Zinc (Alone)	0%	32%
	ORS (Alone)	0%	22%

*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.

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)

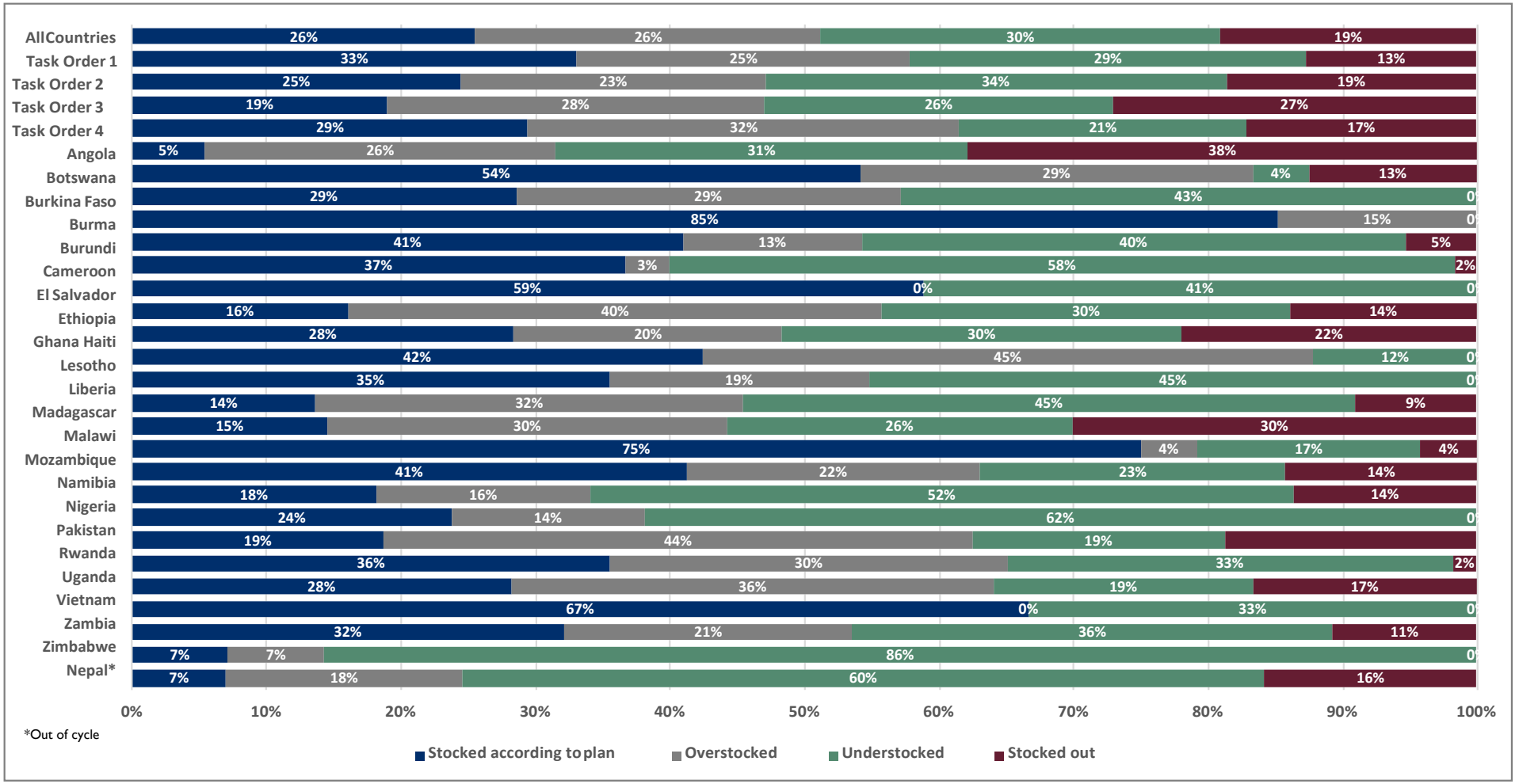
Indicator Performance

		Central	Sub-National Level 1
PRH	**Task Order 3**	20%	10%
	Injectable Contraceptives	0%	50%
	Depot Medroxyprogesterone Acetate 104 mg/0.65mL	N/A	N/A
	Depot Medroxyprogesterone Acetate 150 mg Vial, SR	0%	50%
	Norethisterone Enanthate	N/A	N/A
	Implantable Contraceptives	0%	0%
	Etonogestrel 68 mg/Rod, 1 Rod Implant	N/A	N/A
	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	N/A	N/A
	Levonorgestrel 0.75 mg, 2 Tablets	N/A	N/A
	Levonorgestrel 1.5 mg, 1 Tablet	N/A	N/A
	Progestin-only Pills	N/A	N/A
	Levonorgestrel 30 mcg 35 Tablets/Cycle	N/A	N/A
	Copper-bearing Intrauterine Devices	0%	0%
	Calendar-based Awareness Methods	N/A	N/A
	Male Condoms	100%	0%
	Female Condoms	N/A	N/A

*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)	N/A	N/A
	Injectable Gentamicin	0%	0%
	ORS+zinc (Together)	N/A	N/A
	Chlorhexidine Gel	0%	0%
	Amoxicillin (125mg or 250mg Dispersible Tablets)	0%	20%
	Zinc (Alone)	0%	0%
	ORS (Alone)	0%	0%
	PCV Vaccine	N/A	N/A

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, 26 percent of tracer products were stocked within the minimum and maximum levels at storage sites this quarter. This is an increase from 22 percent and 11 percent in the previous two quarters.
- Tracer products were more likely to be stocked according to plan at the subnational 1 level for malaria and MNCH products (TO2: 21 percent central, 25 percent subnational 1; TO4: 23 percent central, 30 percent subnational 1) while PRH products were more likely to be stocked according to plan at the central level (TO3: 25 percent central, 18 percent subnational 1). Rates for HIV products were nearly the same for central (32 percent) and subnational 1 (33 percent) levels.
- HIV products were stocked according to plan 33 percent of the time, a slight decrease from last quarter (35 percent). The products most likely to be stocked according to plan include EID consumables (60 percent at the central and subnational 1 level), viral load consumables (70 percent at the central level and 33 percent at the subnational 1 level) and viral load reagents (47 percent central level and 44 percent subnational 1 level). First-line adult ARVs were stocked according to plan 48 percent of the time at the central level and 46 percent of the time at the sub-national 1 level; second-line adult ARVs were stocked according to plan 19 percent of the time at the central level and 49 percent of the time at the subnational 1 level; and first-line pediatric ARVs were stocked according to plan 30 percent of the time at the central level and 47 percent of the time at the sub-national 1 level. All ARVs showed a decreased stocked according to plan rate from the previous quarter.
- Malaria products were stocked according to plan 25 percent of the time, up from 21 percent in the previous quarter. The products most likely to be stocked according to plan include AL 6X1 (14 percent central level, 35 percent sub-national 1 level), AL 6X2 (24 percent central level, 33 percent sub-national 1 level), AL 6X3 (25 percent central level, 27 percent sub-national 1 level), and AL 6X4 (30 percent central level, 24 percent sub-national 1 level).
- PRH products were stocked according to plan 19 percent of the time, an increase from 10 percent and 14 percent in the previous two quarters. The products most likely to be stocked according to plan include Depot Medroxyprogesterone Acetate 104 mg/0.65 mL (33 percent central level), Depot Medroxyprogesterone Acetate 150 mg Vial, SR (26 percent central level, 27 percent sub-national 1 level), Levonorgestrel/Ethinyl Estradiol 150/30 mcg + Fe 75 mg, 28 Tablets/Cycle (15 percent central level, 23 percent sub-national 1 level) and calendar-based awareness methods (0 percent central level, 27 percent sub-national 1 level).
- MNCH products were stocked according to plan 29 percent of the time, consistent with the previous quarter (30 percent). The products most likely to be stocked according to plan include MgSO4 (50% injectable) (56 percent central level, 41 percent sub-national 1 level), Amoxicillin (125 mg or 250 mg dispersible tablets) (33 percent central level, 35 percent sub-national 1 level), and Oxytocin (10 IU injectable) (10 percent central level, 35 percent sub-national 1 level).

Data notes

- Q1 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	Similar to previous quarters, products in Angola were stocked according to plan only 5 percent of the time at storage facilities. However, stockout rates decreased from 56 percent to 38 percent. For TO1, there were no stockouts of key HIV tracer products at the central level, which can be attributed to improved quantification conducted at the national level with GHSC-PSM TA. For TO2, stockout rates decreased for all AL presentations, RDTs, and SP, and for TO3, overall stockout rates at the storage facilities decreased. While stocked according to plan rates remain low, Angola is working on distribution plans for all task orders to stabilize stock status around the country, as well as advocating for increased procurement among all in-country partners, particularly for family planning.
Burkina Faso	Burkina Faso reported no central-level stockouts and an improvement in stock levels for AL 6x2, bringing the product up within min/max levels. AS/AQ 100/270mg x3 is overstocked, as more patients have switched to AL. SP is overstocked due to a shipment that arrived in December. GHSC-PSM is coordinating with CAMEG to ensure timely delivery to alleviate understocks of additional products, include AL 6x1, mRDTs, and LLINs.
Burma	All central level and most (83 percent) sub-recipient stock observations for ARVs were within minimum and maximum levels this quarter. GHSC-PSM has supported a stock monitoring system at the central medical stores for the National AIDS Program since the beignning of the project, which is well established and functioning well. Product overstocks at one sub-recipient were attributed to the transition of ART patients ahead of the planned timeline. Transfers of excess stock back to central level and between sub-recipients are planned at quarterly stock monitoring workshops.
Ethiopia	Stocked according to plan rates at PFSA have increased slightly from the previous quarter, from 13 percent to 16 percent overall. Overstocking has also reduced at the central level, as stocks for some products (malaria in particular) were distributed down to regional hubs. The team also notes that stockouts at service delivery points (indicator B1) have improved, suggesting that stock has been pushed down to SDPs to accommodate seasonal variations in some commodities and programmatic changes such as appointment spacing for HIV patients. This can result in greater stockouts and understocking at higher levels of the system.
Liberia	Central level stocked according plan rates were low overall, with high rates of both overstocking (32 percent) and understocking (45 percent).
Madagascar	Central level malaria stocks for Madagascar were low in the quarter. Improvements are expected in the coming quarter, with PMI and Global Fund shipments of AS/AQ and mRDTs inbound in January and March. Despite low stock levels at central and Pha-G-Dis (district) levels, the project notes that there have been improvements at the PhaGeCom (community level), especially in regions that are receiving GHSC-PSM support.
Malawi	Timely ordering and delivery have contributed to strong stocked according to plan rates for Malawi.
Namibia	Central level understocking has increased for most products, due in large part to a lengthy government process for procurements. A tender for ARVs supplies was advertised this quarter, and GHSC-PSM is supporting the ministry to undertake emergency procurements for ARVs below minimum levels. It is also anticipated that framework agreements will be put into place in 2018, which will reduce the lengthy RFQ process.
Nepal	Nepal's storage data refer back to stock status observed in July, in order to align with data reported for indicator B1. At this time, central and regional stores reported stockouts and understocking of contraceptive pills. The shortages had been identified during quarterly pipeline reiview meetings, and GHSC-PSM collaborated with other stakeholders to transfer stock to storage sites and SDPs to mitigate stockouts. The project is also proactively reaching out to regional and district storage sites to monitor stock levels and ensure timely reporting.
Nigeria	Nigeria reported no central level stockouts of any product, although a number of products were understocked at the end of the quarter. Many of these low stock situations for HIV products have already been addressed, with new shipments of RTKs and viral load reagents having already arrived or planned for delivery in January. Tie-breaker RTKs are now overstocked, after recent deliveries have corrected critical understocking. The project does not foresee a risk of expiry for this product. AL products for malaria remain understocked due to partial delivery of shipments in Q1. The balance of these deliveries is still expected. AS/AQ products are also understocked due to increased consumption and limited funding. Orders have been placed, with deliveries planned beginning in February.

Country Analysis	
Pakistan	Stocked according to plan has declined slightly for Pakistan's core FP products (injectables, combined oral contraceptives, copper-bearing IUDs, and male condoms) due to ongoing storage and transportation problems. There have also been delays in shipments and clearance for some procurements. GHSC-PSM continues to support provincial governments to expedite procurements and streamline distribution. Use of LMIS intelligence and monitoring at the national and provincial level supply chains is adequate; however, standardized field monitoring and supportive supervision at the district and sub-district levels are needed. The introduction of email and SMS alerts generated by the LMIS has also helped prompt timely action to optimize distributions. One province, Balochistan, has also seen notable improvements.
Zimbabwe	Zimbabwe's stocked according to plan rates have dropped for both HIV and malaria, as products have fallen below the minimums. This is due to higher than expected consumption of the first-line ARV and male and female condoms, delayed shipments of the first RTK, and expiries of ACTs at the site level, mostly in non-malaria endemic districts. GHSC-PSM has orders planned for delivery throughout the coming quarter for adult ARVs, ACTs, and condoms, which should address stock imbalances for these products.
Data Notes	
▸	Countries highlighted for this analysis included those with the highest stocked according to plan rates (above 70 percent) and with the lowest stocked according to plan rates (below 25 percent).

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

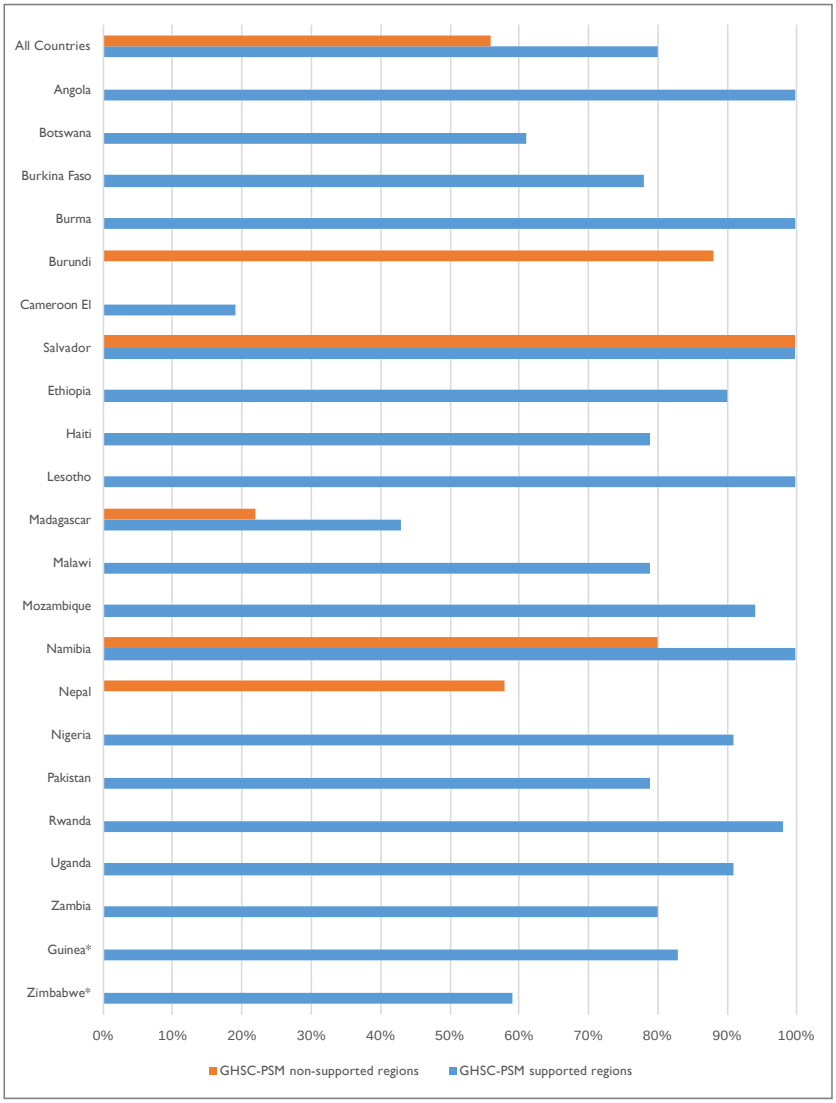
Measure Definition

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 Q1	Year to Date
TO1	83%	83%
TO2	83%	83%
TO3	79%	79%
TO4	72%	72%
All TOs	80%	80%

- Targets for this indicator are set at the country level

Indicator Performance



Analysis

- Overall service delivery point reporting rates to in-country LMIS decreased slightly from the previous quarter, from 82 percent to 80 percent. At the task order level, TO2 stayed steady at 83 percent, while TOs 1, 3 and 4 all decreased.
- Ethiopia, Rwanda, and HIV sites in Haiti all increased their reporting rates by more than five percentage points. Rwanda noted an increase in SDPs using eLMIS, crediting this to continued support to SDPs and engagement of local officials to emphasize the importance of using this system.
- Cameroon's reporting rate saw a steep drop, as hundreds of additional PMTCT sites were added to the LMIS reporting network this quarter. GHSC-PSM's field staff have provided training to service providers at these sites and is developing job aids to support reporting. The team has already seen improvements in monthly reporting rates.
- Haiti's TO3 reporting rate dipped due to the closeout of Services de Santé de Qualité pour Haïti (SSQH), another USAID health services project that supported health facility reporting. GHSC-PSM is planning to leverage its regional monitors and the new "smartphone strategy" to improve reporting (see section B3 of the main report for more details).
- Reporting rates also decreased in Zambia, Burkina Faso, and Malawi. Teams in all countries cited Internet connectivity problems and late reporting from many facilities. Reporting remains an area of focus for routine technical support. Burkina Faso is continuing to monitor the impact of Internet connection modems distributed to all districts, and Zambia is planning DQA visits in Q2. Malawi continues to support the Ministry of Health in the implementation of OpenLMIS, which has replaced the previous system.
- Zimbabwe's reporting rates have declined over several quarters due to delivery delays from the central medical stores. While 99 percent of reports are eventually collected, more than 40 percent are arriving more than 30 days after the deadline.
- Madagascar's reporting rates also fell, as officials at all levels of the health system focused on controlling the plague outbreak in the country. However, to prevent further declines, GHSC-PSM is working to analyze reporting data with officials at the central and regional levels, carry out supportive supervision and training, and facilitate ongoing quarterly reviews of data at the regional level.
- The GHSC-PSM field office in Liberia currently has no access to facility-level data; however, it may collaborate with Project Last Mile (a public-private partnership) to eventually have access to these data.

Data Notes

- **Targets for this indicator are set at the country level.**
- *Out of cycle countries and 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), Burma (3), and Namibia (60). 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	Burkina Faso	Burma	Burundi - Not Supported	Cameroon	El Salvador - Supported	El Salvador - Not Supported	Ethiopia	Haiti	Lesotho	Madagascar	Madagascar - Not Supported	Malawi	Mozambique	Namibia	Namibia - Not Supported	Nepal - Not Supported
HIV	TO1	100%	61%		100%	88%	19%	100%	100%	90%	94%	100%			79%	94%	100%	80%	
Malaria	TO2	100%		78%		89%				91%			50%	24%	82%				
PRH	TO3					87%				91%	69%		49%	25%	78%				58%
MCH	TO4									88%			30%	18%	78%				58%

Country SDP Reporting Rates by Task Order		Nigeria	Pakistan	Rwanda	Uganda	Zambia	Guinea - Out of Cycle	Zimbabwe - Out o f Cycle
HIV	TO1	91%		95%	99%	80%		58%
Malaria	TO2	98%		100%	87%	80%	98%	60%
PRH	TO3	80%	79%	100%		80%	67%	
MCH	TO4			96%		80%		

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.
- Out-of-cycle indicates countries whose most recent available data are from a reporting period prior to the current period.
- Data for out-of-cycle countries and SDPs located in non-supported regions are excluded from the project- and task order-level summary totals reported on the

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

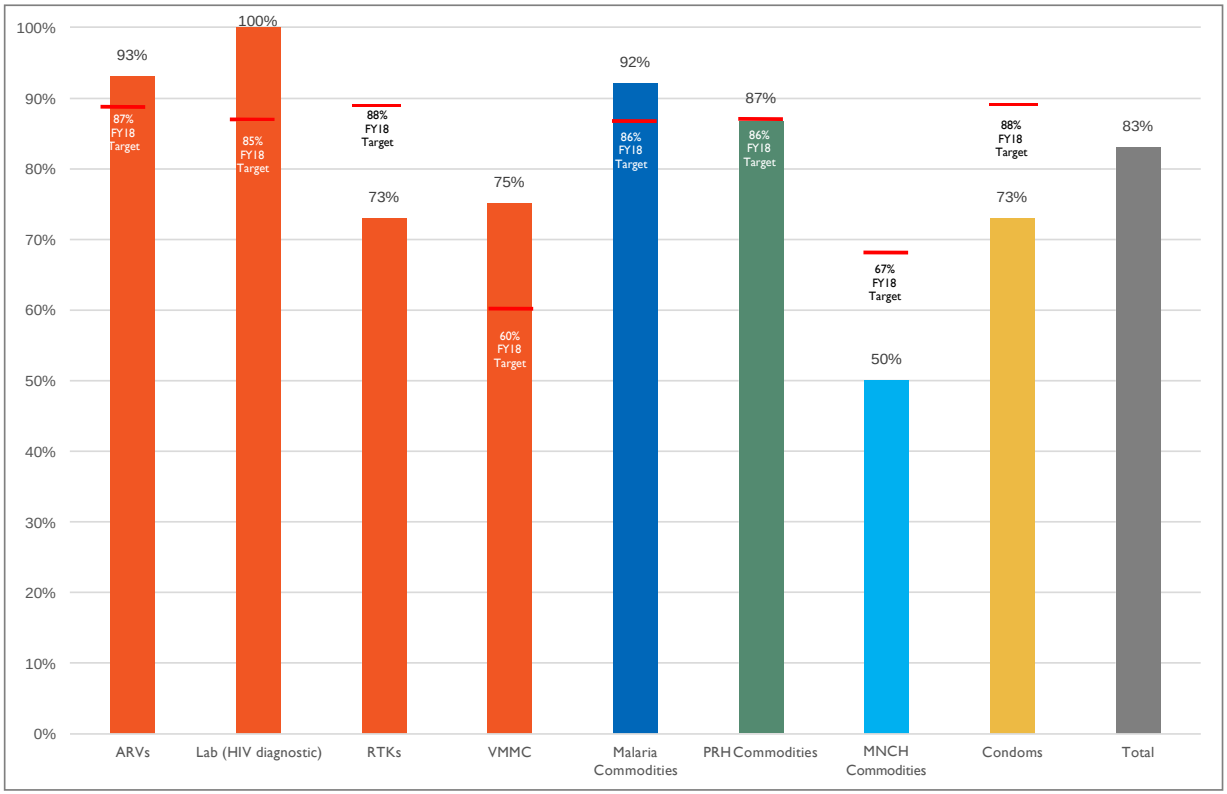
Measure Definition

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 Q1 Year to Date	
ARVs	87%	93%	93%
Lab (HIV diagnostic)	85%	100%	100%
RTKs	88%	73%	73%
VMMC	60%	75%	75%
Malaria Commodities	86%	92%	92%
PRH Commodities	86%	87%	87%
MNCH Commodities	67%	50%	50%
Condoms	88%	73%	73%
Total	N/A	83%	83%

Indicator Performance FY2018 Q1



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, which has already resulted in an increase in the number of supply plans submitted to GHSC-PSM for analysis and use, and the identification of countries on which to focus technical assistance to improve performance.
- Across all commodity groups, 78 quarterly supply plans were submitted, representing 83% of the Q1 expectation. This ranged from 100% of required supply plans submitted for Lab (HIV diagnostic), 93% for ARVs, and 92% for malaria commodities, to 50% (3 of 6) for MNCH commodities.
- In previous quarters, ARV, Lab, VMMC, and RTK supply plans were all reported as TO1. Last quarter, 65% of TO1 supply plans were submitted, while in Q1 individual TO1 commodity group submission rates ranged from 73% (RTKs) to 100% (Lab [HIV diagnostic]). Supply plan submission rates for malaria, PRH and MNCH commodities all increased from the previous quarter as well. Condom supply plan submission rates had not been tracked previously for M&E purposes.
- In most instances of non-submission, the countries have asked to update their submission requirement. GHSC-PSM will revisit this with each country at a later date.

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	No
	Burundi	Yes
	Cameroon	Yes
	Côte Ivoire	Yes
	Democratic Republic of Congo	Yes
	Ghana	Yes
	Haiti	Yes
	Mozambique	Yes
	Nigeria	Yes
	Rwanda	Yes
	Tanzania	Yes
	Uganda	Yes
	Vietnam	Yes
	Zambia	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	Yes
	Uganda	Yes
	Zambia	Yes
RTK	Botswana	No
	Burundi	Yes
	Cameroon	No
	Côte Ivoire	Yes
	Democratic Republic of Congo	Yes
	Ethiopia	No
	Ghana	Yes
	Haiti	Yes
	Malawi	No
	Mozambique	Yes
	Nigeria	Yes
	Rwanda	Yes
	Tanzania	Yes
	Uganda	Yes
	Zambia	Yes
VMMC	Malawi	No
	Mozambique	Yes
	Tanzania	Yes
	Uganda	Yes

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

	Achievement	
Task Order	FY2018 Q1	Year to Date
TO1	3	3
TO2	1	1
TO3	2	2
TO4	0	0
Cross-Cutting	3	3
All TOs	9	9

▸ Target not required for this indicator.

Description of Innovation		
Global/Country	Type of Innovation	Brief Description
TO1		
Global	New Technologies	With input from USAID, GHSC-PSM finished developing a simple tool to enable program managers, USAID mission points of contact, and supply chain cadres to model scenarios for the transition to TLD from existing treatment regimens, based on a starting date and a pace for transition and characteristics of ART patients eligible for transition. The outputs 1) determine the quantity of stock to have on hand at the start of the transition, 2) help plan future shipments, and 3) project the likelihood of unused stocks of legacy formulations. The TLD forecasting tool was included in the OGAC worldwide dissemination of the PEPFAR strategy for TLD and distributed to GHSC-PSM country field offices and missions. USAID and GHSC-PSM will use the outputs of TLD transition modeling in the aggregate to compare demand against supply and manage potential imbalance.
Global	New Approaches	GHSC-PSM developed a guide for forecasting VMMC commodities. This includes information on the forecast methodologies and tools employed by GHSC-PSM, required data for quantification workshops, and instructions for holding a quantification workshop and properly using the results. This innovative and illustrated guide provides countries and stakeholders with a toolkit for leading future VMMC initiatives and national quantifications.

Description of Innovation		
Global/Country	Type of Innovation	Brief Description
Cameroon	New Approaches	During a three-month period when Cameroon's main LMIS (OSPSIDA) was not functioning, the GHSC-PSM team developed an Excel-based tool to facilitate management of the supply chain at the district level. This tool is user-friendly and does not require an Internet connection. It is composed of data entry and output worksheets. The output sheets, which are designed to guide decision-making, include dashboards which are automatically generated from data that is input into the system. Preliminary feedback indicates buy-in from users at the district level. The tool, currently being finalized to simplify the indicators it is monitoring, will complement the existing OSPSIDA.
TO2		
Ethiopia	New Approaches	GHSC-PSM supported distribution of more than 3.5 million LLINs to beneficiaries on short notice from MOH and USAID PMI. Previously the LLIN distribution to beneficiaries took about 6 months. In some woredas (subnational administrative units), it took more than a year. The GHSC-PSM-supported distribution of LLINs reduced the time from 1 to 2 months, while ensuring that all stakeholders were engaged (MOH, RHB, political leaders including the regional president's office, health offices, malaria experts, supply chain professionals, health extension workers, security officers, woreda administrators, local leaders, the community, and partners). GHSC-PSM supported detailed planning, consensus-building workshops, sensitization sessions, orientation sessions, supervision, information updates, and day-to-day monitoring of the operation. Mobilization of all key stakeholders in the distribution to the community and real-time monitoring, communication, and evidence-based technical support to decision-makers were the key innovative elements for the successful implementation of LLIN distribution to beneficiaries.
TO3		
Global	Operational Research Studies	GHSC-PSM has taken on the responsibility of collecting data and reporting on the Contraceptive Security Indicators and Index, implemented by USAID since 2009. The survey is conducted in more than 40 countries around the world. It aims to assess a country's level of contraceptive security, the condition where everyone can choose, obtain, and use a wide variety of high-quality and affordable contraceptive methods when they need them for family planning and the prevention of sexually transmitted diseases. Over the past year, GHSC-PSM, in close collaboration with USAID, reviewed and updated the survey tool to increase the survey's reliability and methodological rigor, while expanding the scope to bring it more in line with the total market approach. In this vein, the project modified questions to better highlight the private sector's role in contributing to contraceptive security, and also added new sections focused on the private sector and product quality. GHSC-PSM disseminated the revised survey to countries at the start of the quarter.

Description of Innovation		
Global/Country	Type of Innovation	Brief Description
Pakistan	New Technologies	In Pakistan, the GHSC-PSM MIS team developed an LMIS-based SMS and email alert system to support effective stock management. It will help end users to take prompt, corrective, data-driven actions to address stock management bottlenecks. SMS and email alerts will inform provincial and district executives and operational staff of stock status to help prevent stockouts, understocks, and overstocks and improve coordination among departments and functional levels.
Cross-Cutting		
Haiti	New Technologies	In Haiti, the data team custom-designed an interim eLMIS solution that provides close-to-real-time information on stock level data at health facilities. The application aggregates and automates site-level consumption reports and makes calculations for replenishment. The tool is expected to dramatically reduce the current level of effort for data collection and analysis, improve data quality, and increase visibility into stock levels for more efficient and effective site replenishment and redistribution of stock.
Mozambique	New Technologies	Mozambique's central medical stores, with the support of GHSC-PSM, deployed MACS LBS-RF (radio frequency MACS warehouse management system software) handheld devices and barcode readers in the Zimpeto central warehouse. Users carrying the devices while on the warehouse floor can communicate with each other through wi-fi, scan barcodes to facilitate weekly and annual stock inventory counts, and reduce human error while putting away pallets.
Nigeria	New Technologies	As part of the effort to harmonize warehousing across program areas as well as to ensure stock visibility at central and zonal/axial warehouses, PSM engaged iVedix to develop an online platform that will provide visibility into stock status of commodities for supported programs across all the warehouses on a daily basis. The online platform went live in Q1 FY18. Third party logistics staff managing warehouses were trained on its use and data upload while relevant technical teams have been trained on retrieving relevant information to facilitate supply chain planning and operations. Currently, feedback from respective users is being gathered and shared with the 3PLs to ensure optimal use of the online platform.

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 Q1	Year to Date
TO1	1,362	1,362
TO2	37	37
TO3	99	99
TO4	225	225
Multiple TOs	1,879	1,879
All TOs	3,602	3,602

Indicator Performance

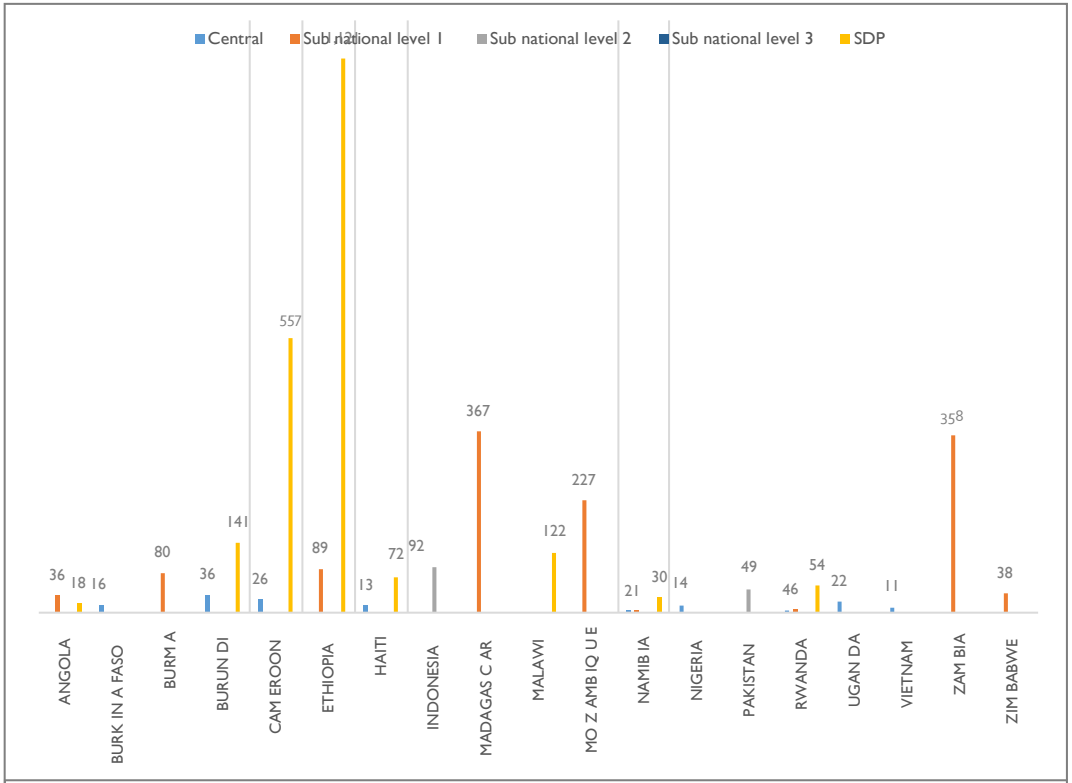
	C2. Number of people trained	Central	Sub-National Level 1	Sub-National Level 2	SDP
HIV	**Task Order 1**				
	Forecasting and Supply Planning	41	32	77	
	Procurement	11			
	Quality Assurance				
	Warehousing and Inventory Management	15	72		242
	Transportation and Distribution				
	MIS		1		557
	Governance and Financing				
	Human Resources and Capacity Development		249		
	Monitoring and Evaluation				
	Strategy and Planning	22	N/A	15	28
Malaria	**Task Order 2**				
	Forecasting and Supply Planning	7			
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management	14			
	Transportation and Distribution				
	MIS				
	Governance and Financing				
	Human Resources and Capacity Development				
	Monitoring and Evaluation				
	Strategy and Planning	16			
PRH	**Task Order 3**				
	Forecasting and Supply Planning	14			
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management		36	49	
	Transportation and Distribution				
	MIS				
	Governance and Financing				
	Human Resources and Capacity Development				
	Monitoring and Evaluation				
	Strategy and Planning				

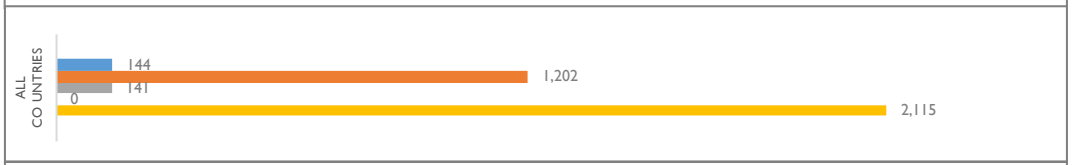
	C2. Number of People Trained	Central	Sub-National Level 1	Sub-National Level 2	SDP
MCH	**Task Order 4**				
	Forecasting and Supply Planning				
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management				
	Transportation and Distribution				
	MIS				
	Governance and Financing				
	Human Resources and Capacity Development				
	Monitoring and Evaluation				
	Strategy and Planning				225
Multiple TOs	**Multiple**				
	Forecasting and Supply Planning				458
	Procurement				
	Quality Assurance				
	Warehousing and Inventory Management		619		
	Transportation and Distribution		56		
	MIS	4	28		195
	Governance and Financing				410
	Human Resources and Capacity Development		109		
	Monitoring and Evaluation				
	Strategy and Planning				

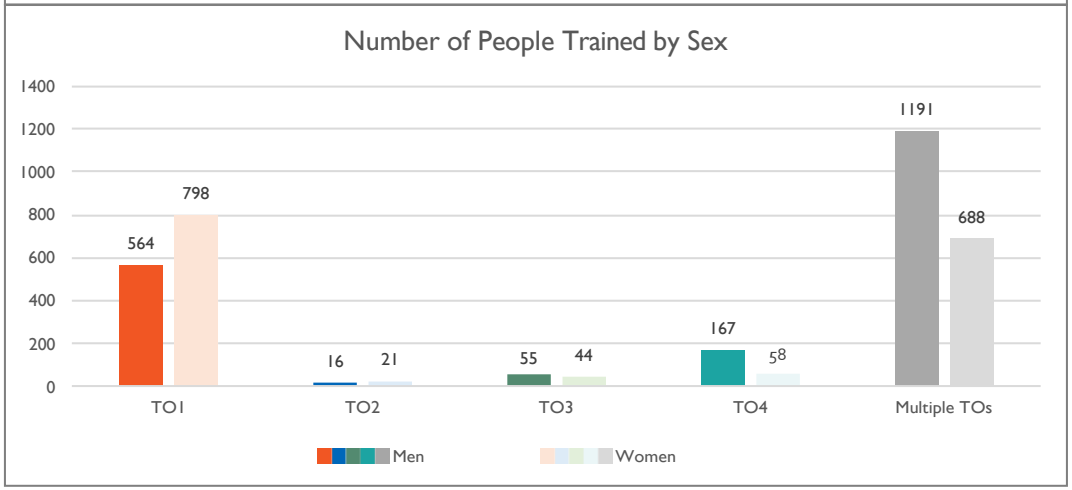
Data Notes

- 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

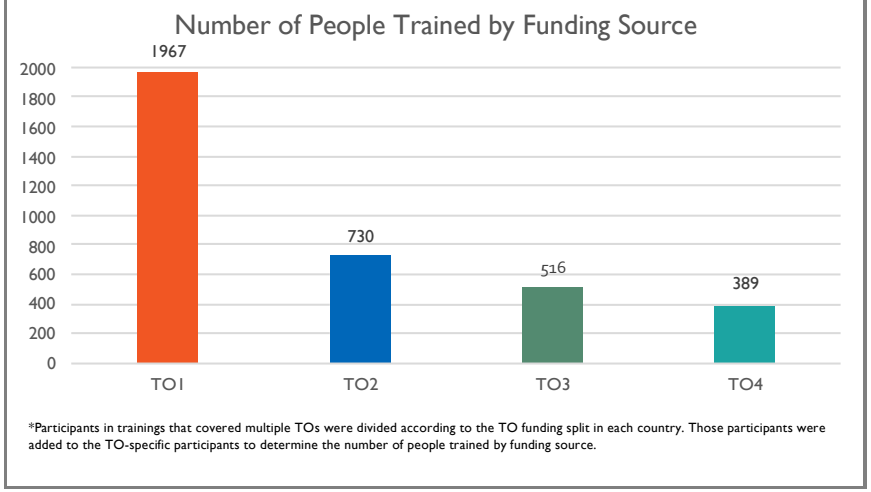






Analysis

- Over 3,600 people were trained in Quarter 1, including 1,993 men and 1,609 women. This decrease from the previous quarter is likely due to limited activities around the end of the calendar year.
- Most trainings covered topics not specific to one task order (1,879). When examining trainings by funding source, 1,967 individuals were trained using TO1 funding, 730 with TO2 funding, 516 with TO3 funding, and 389 with TO4 funding.
- Almost 30 percent of the trainings covered warehousing and inventory management, 22 percent covered MIS, 17 percent covered forecasting and supply planning, 11 percent covered governance and financing, 10 percent covered human resource capacity development, 8 percent covered strategy and planning, and 2 percent covered transportation and distribution.
- GHSC-PSM Ethiopia trained 1,210 health professionals in five thematic areas. The participants were from Pharmaceuticals Fund and Supply Agency hubs and SDPs. The trainings covered warehouse and inventory management, forecasting and supply planning, auditable pharmaceutical transaction and services, HIV care, treatment, and prevention for pharmacists, and MCH supply chain management.



*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.

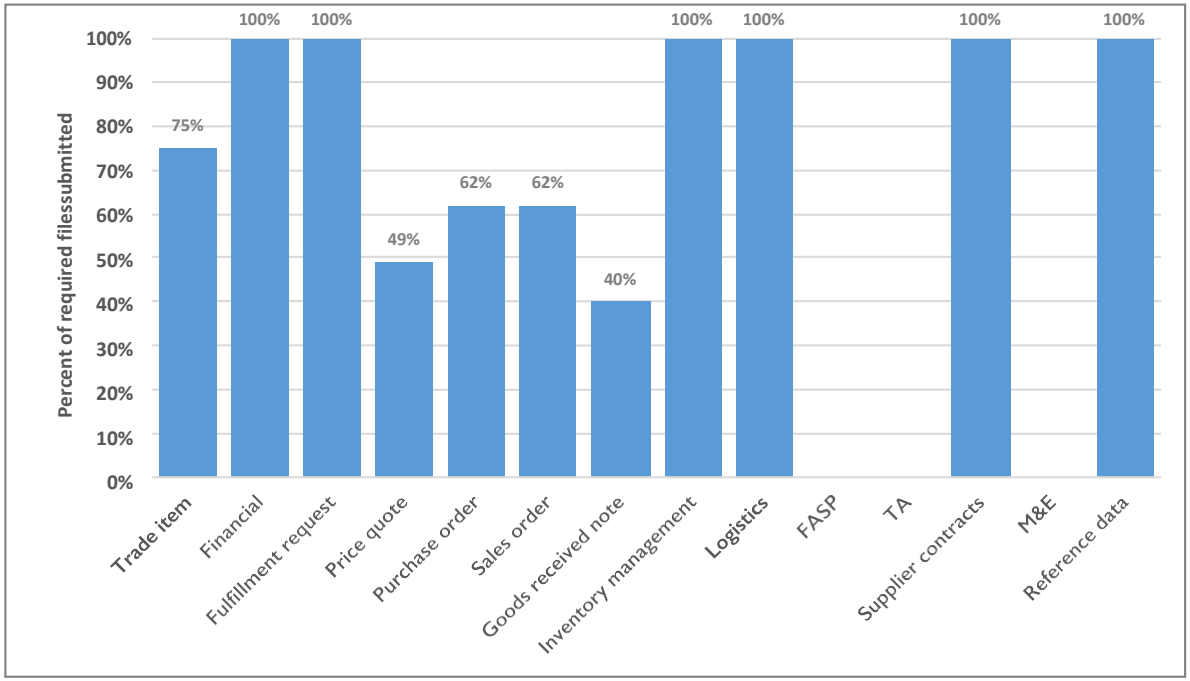
C4. Percentage of required files submitted to BI&A in the reporting period

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 Q1	Year to Date
All Task Orders	TBD	77%	77%

Indicator Performance



Analysis

- Data submissions to GHSC-BI&A have increased this quarter, as the two projects have worked together to map the data requirements to GHSC-PSM's information systems. New submissions this quarter include files in the Price Quote, Purchase Order, and Sales Order data content types.
- GHSC-PSM continues to work with GHSC-BI&A on defining submission formats and data element mapping for three data content types: Forecast and Supply Planning (FASP), Technical Assistance (TA), 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 accessible to USAID, while requirements are still being defined. TA data, including short-term technical assistance travel plans and trip reports, are shared with USAID via email on a quarterly basis. M&E data are shared in quarterly and semiannual 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.
- No Quality Assurance files were required for submission this quarter. This file type will be added to the requirements in future quarters. Four out of eight Trade Item files named in the

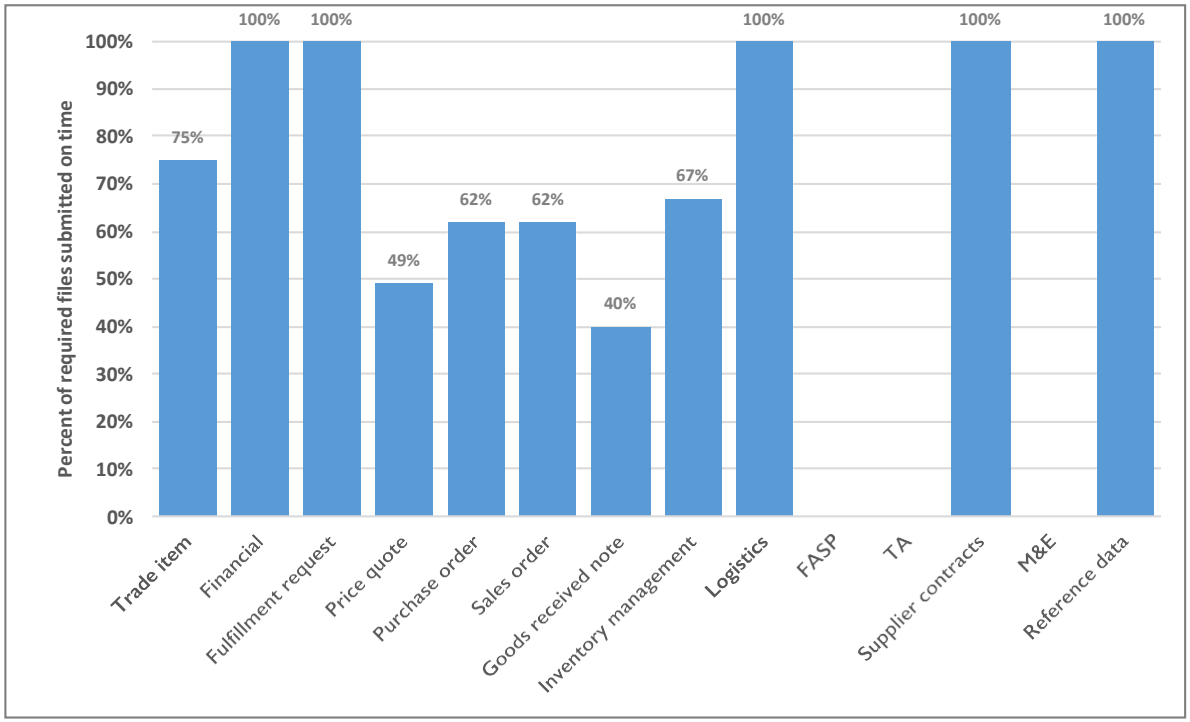
C5. Percentage of required files timely submitted to BI&A in the reporting period

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 Q1	Achievement Year to Date
All Task Orders	TBD	77%	77%

Indicator Performance



Analysis

- Two inventory management files were submitted late this quarter. These submissions are due on the first day of each month for the preceding month (i.e. November closing data is due on December 1). The submissions were delayed due to a tehcnical problem, for which a fix is already in progress. The files were resubmitted successfully within a few days of the delay.
- 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.*
- Please see indicator C4 for more details about required files and exceptions for this 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.
- No Quality Assurance files were required for submission this quarter. This file type will be added to the requirements in future quarters. Four out of eight Trade Item files named in the

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	680	3,094,372	0.02%
TO1 - HIV/AIDS	RDC	Global	Storage	Pediatric ARV	150,204	820,666	18.30%
TO1 - HIV/AIDS	Nigeria	Central	Storage	Laboratory, Adult and Pediatric ARV, Other pharma	107,295	55,470,248	0.19%
TO1 - HIV/AIDS	Haiti	Central	Storage	Laboratory, Adult and Pediatric ARV, Other pharma	74,677	14,919,315	0.50%
TO1 - HIV/AIDS	Vietnam	Central	Storage	Adult ARV	38	4,401,525	0.001%

Analysis

- The pediatric ARV that expired in the regional distribution centers this period was transfer stock from the predecessor project. The stock had country-specific labeling that limited its usage. This has been approved by USAID for destruction.
- Small percentages of expiries in central storage were also reported from Nigeria, Haiti, and Vietnam. Vietnam noted that the expired products were part of a pilot program for second line treatment that was scaled back from its orignal plan, resulting in reduced consumption. Haiti is continuing its policy of closely monitoring products with less than 12 months of shelf life remaining. It is also working with both PEPFAR and non-PEPFAR hospitals to ensure use of these products.

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	Rwanda	Global	Transit	Other (Missing product)	Other pharma	241	6,722,910	0.004%
TO1 - HIV/AIDS	Rwanda	Global	Transit	Damage	Adult ARVs	343	6,722,910	0.005%
TO1 - HIV/AIDS	Rwanda	Global	Transit	Damage	Adult ARVs, Other pharma	2,909	6,722,910	0.043%
TO2 - Malaria	Rwanda	Global	Transit	Damage	ACTs	1,850	2,034,934	0.091%
TO2 - Malaria	Rwanda	Global	Transit	Damage	mRDTs	150	2,034,934	0.007%
[redacted]								
TO4 - MNCH	Zambia	Global	Transit	Damage	Health center kits	34,255	867,240	3.9%

Analysis

- Losses this quarter were mostly damage incidents occurring during delivery to countries, incluidng a number of shipments that were delivered wet. This impacted shipments of TO1 and TO2 products to Rwanda and TO4 health center kits to Zambia. The Global Supply Chain and Continual Improvement teams are exploring follow up actions to prevent similar damage in the future, such as shrink-wrapping directives in supplier contracts and using tarps to protect commodities during offloading in inclement weather.

[redacted]

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.

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.

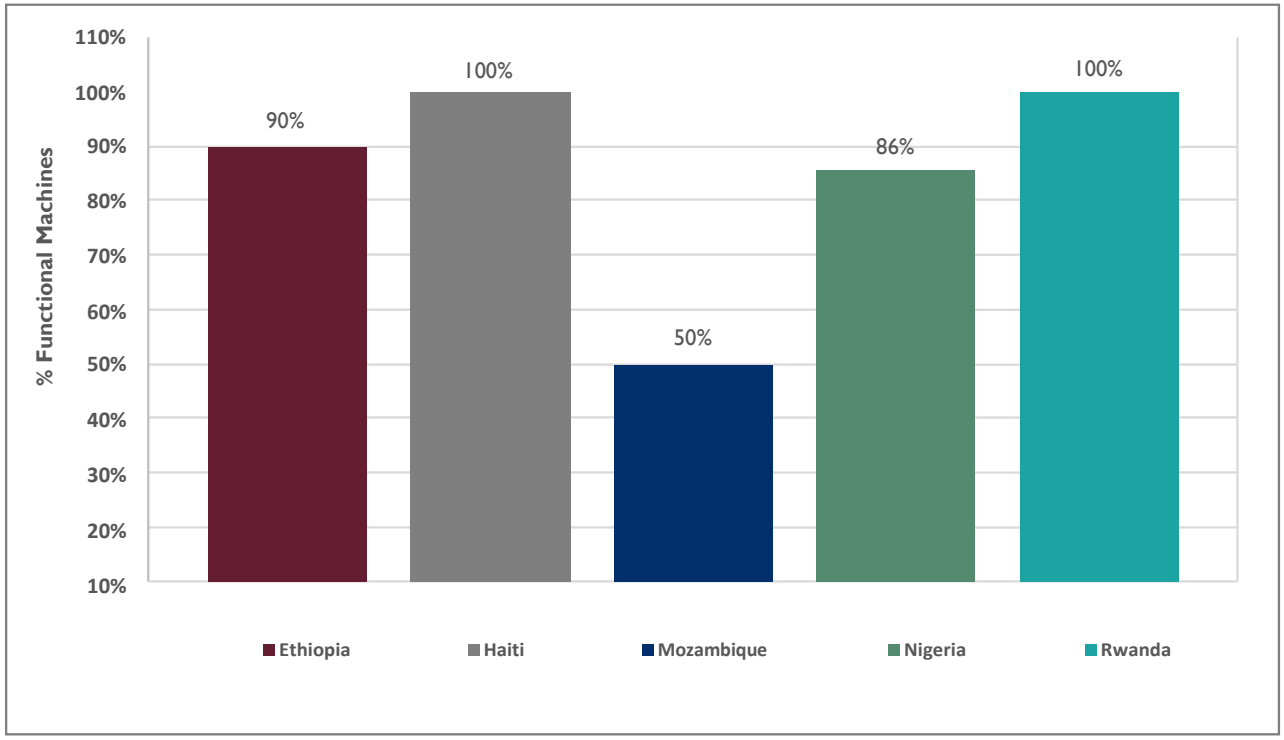
Achievement

	FY2018 Q1	Year to Date
TO1	89%	89%

Analysis

- Performance for Ethiopia dropped slightly from the previous quarter due to a machine failure at one hospital that interrupted service for 17 days. Machine installation at one additional site is still pending as the hospital completes necessary rennovations to the lab room.
- Mozambique improved performance this quarter, with only 32 days out of service. The outages impacted two supported instruments procured by PEPFAR, while the two other supported instruments remained functional throughout the quarter.
- Nigeria reported downtime across six machines. One machine remains out of service as the entire lab has been shut down for comprehensive renovations. A second machine, one of the oldest in the country, was down for more than one month. Discussions to increase the frequency of service are ongoing.
- Rwanda and Haiti maintained strong performances, with all machines operating throughout the quarter.

Indicator Performance



Data Notes

- Total number of supported instruments for each country is as follows: Ethiopia - 20; Haiti - 6; Mozambique - 4; Nigeria - 42; and Rwanda - 19.
- Targets for this indicator will be set in country.

C11. Number of supply chain policies, regulations, strategies, or SOPs developed or updated with GHSC-PSM assistance	
Country	**Description of supply chain policy, regulation, strategy, or SOP developed or updated**
Angola	GHSC-PSM drafted and handed over seven SOPs for improved warehouse management to the Central Procurement Agency for Medicines and Medical Supplies (Central de Compras de Medicamentos e meios medicos de Angola; CECOMA): • Inventory Management • Warehousing • Dispatching • Reception • Security • Transport and Distribution • Quality Control
Ethiopia	As a member of the taskforce established to draft a national pharmaceutical supply chain management, pharmacy services, and medical devices monitoring & evaluation framework, GHSC-PSM collaborated with in-country stakeholders to organize and draft the framework this quarter. The M&E framework will help establish a standardized M&E system for health supply chain management, pharmacy services, and medical devices management at national, regional, zone/woreda, and health facility levels. With the taskforce, GHSC-PSM supported various tasks, including but not limited to, documenting existing practices in regions, drafting the M&E plan, developing an indicator matrix, developing routine M&E tools/checklists, and organizing consultative meetings. Furthermore, as key member of the child health integration taskforce, GHSC-PSM provided technical support in the development of the Orientation Training Manual on Child Health Commodity Updates and Integration. This manual aims to raise awareness and ensure a consistent and coordinated supply system for child health commodities. GHSC-PSM supported the creation of this manual by providing input on various tasks, including but not limited to concept design during inception, reviewing existing systems and identifying lessons learned for the integration, supporting the development and drafts of the manual, supporting a national-level workshop to launch the manual, and the rollout of orientation trainings.
Haiti	GHSC-PSM developed or revised 18 SOPs related to warehousing, waste management, and quality assurance (QA) units this quarter.
Malawi	GHSC-PSM provided technical support to the national malaria control program to develop transparency and accountability guidelines for malaria commodities. The rollout of these guidelines will promote transparency and accountability in the management of malaria commodities within the supply chain and health care delivery system. Furthermore, GHSC-PSM supported the MOH to roll out training on laboratory logistics system guidelines and standard operating procedures to health facility laboratory staff across the country, which is expected to improve laboratory commodity management.
Namibia	GHSC-PSM collaborated with Management Sciences for Health (MSH), with support from the Global Fund, to develop a desired future governance and management structure for the central medical store in Namibia. The group conducted a cost-benefit analysis of outsourcing some CMS functions and proposed a model where the government would continue to own the core warehouse infrastructure assets and contract out some management operations. The new strategy will be rolled out in early 2018 based on an MOHSS-approved implementation plan.
Data Notes	
▸ No target is required for this indicator.	

D. Denominator Annex

	Angola	Burkina Faso	Burma	Burundi Non-GHSC-PSM-supported	Cameroon	El Salvador	El Salvador Non-GHSC-PSM-supported	Ethiopia	Guinea*	Haiti	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		3	933	270	9	11	1123		104	138			487	1248	14	37	2307	559	217	339	1554
Second-line Adult ARVs	8		3	933	18	9	11	152		104	134				409	14	37	495	559		339	1452
First-line Pediatric ARVs	5		2	933	26	1		809		104	125				1026	14	37	808	559	198	339	1483
First RTKs	9			933	329	13	173	277		104	112			510		14	37	2850	559	228	1582	1720
Second RTKs	9			933	195			171		104	114					14	37	2332	559	214	1582	1712
Tie-breaker RTKs								115			100					14	37	1085		203		1649
Male Condoms	9			969				791		128	68			484		3	19	1262	585		1707	1784
Female Condoms	9			969							67			295		3	19	934	585		1707	1766
Ready-to-use Therapeutic Food (RUTF)								516			119									150		
EID Reagents								19			1				5			20	5	1	11	
EID Consumables								182										22	5			
Viral Load Reagents						2		19			3				17			22	9	1	11	
Viral Load Consumables																		22	9			
First-line ACTs (AL 6X1)	7	1731						682	476					539				2652	585		1707	1657
First-line ACTs (AL 6X2)	6	1731						679	476					537				2879	585		1707	1648
First-line ACTs (AL 6X3)	8							582	476					535				2606	585		1707	1659
First-line ACTs (AL 6X4)	9							805	476					541				2752	585		1707	1686
AL Inability to Treat	10	1731						900	476									2632	585	253	1707	1686
First-line ACTs (AS/AQ 25/67.5 mg)				949								312	99					2027				
First-line ACTs (AS/AQ 50/135 mg)				949								406	168					1308				
First-line ACTs (AS/AQ 100/270 mg x 3)		1731		949								447	197					1873				
First-line ACTs (AS/AQ 100/270 mg x 6)		1731		949								589	235					2072				
Rapid Diagnostic Tests for Malaria	10	1731						351	476			655	304	540				2875	585	239	1707	1393
Sulphadoxine-pyrimethamine (SP)		1731		949					476			339	153	400				1745		208	1707	618
LLINs		1731		949					476			275	147	292				1537				

*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	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	969	1158	303	128	640	303	471		1297	11944	585	185	1707	3416
Depot Medroxyprogesterone Acetate 104 mg/0.65 mL, Subcutaneous		1158												
Depot Medroxyprogesterone Acetate 150 mg Vial, Intramuscular	969		303	128	640	303	471		1290	11944	585	185	1707	3416
Norethisterone Enanthate									1238				1707	
Implantable Contraceptives	969	1117	303	128	342	178			526		585		1707	
Etonogestrel 68 mg/Rod, 1 Rod Implant		1058			342	178	361		499		585		1707	
Levonorgestrel 75mg/Rod, 2 Rod Implant	969	799	303	128			393		420		585		1707	
Combined Oral Contraceptives	969	1031	303	128	598	280	428		1272	11944	585		1707	3416
Levonorgestrel/Ethinyl Estradiol 150/30 mcg + Fe 75 mg, 28 Tablets/Cycle		1031	303	128	598	280				11944	585		1707	3416
Levonorgestrel/Ethinyl Estradiol 150/30 mcg, 28 Tablets/Cycle	969						428		1272					
Emergency Oral Contraceptives		875					196							
Levonorgestrel 0.75 mg, 2 Tablets	969	875					196							
Levonorgestrel 1.5 mg, 1 Tablet														
Progestin-only Pills	969	788	303		259	174	351		1202		585		1707	303
Levonorgestrel 30 mcg, 35 Tablets/Cycle	969	788	303		259	174	351		1202		585		1707	303
Copper-bearing Intrauterine Devices	969	939		128			124		272	9808	585		1707	
Calendar-based Awareness Methods				128	138	79					585			
Male Condoms	969	791	303	128	356	216	484		1262	11944			1707	
Female Condoms	969		303		251	224	295		934		585		1707	303

* 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	Angola	Botswana	Burkina Faso	Burma	Burundi	Burundi (Non-GHSC-PSM-supported)	Cameroon	El Salvador	El Salvador (Non-GHSC-PSM-supported)	Ethiopia	Ghana	Guinea	Haiti	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	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	150	24		27	70		60	17		190	231		18	31				8	252	44				10		249	36	6	9	8						
Task Order 2	569		7		263					115	330				11	443		14	252					11		155	18		6	6						
Task Order 3	399				6					161	231		15		8	300		14	216			25			16	217	24		7						
Task Order 4										138					3	48		12	252			32				155			6						
B3. LMIS Reporting Rate																																				
Task Order 1	9	33		3		1,064	932	13	173	1,494			149	139				680	1,398	14	46			3,369		586	290		1,966	1,786						
Task Order 2	10		2,224			1,062				1,467						1,352	1,297	680					3,023		586	646		2,136	1,691						
Task Order 3						1,113				1,458		485	220			1,352	1,297	680					4,105	1,622	15,038	586			2,136						
Task Order 4										1448		453				1,352	1,297	680					4105			586			2136						
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
RTKs		1			1		1			1	1		1					1	1					1		1	1		1		1	1				1
VMMC																		1	1								1									1
Malaria commodities	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			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

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. For Indicator B6, shaded cells represent non-Priority 1 expected supply plans by country.